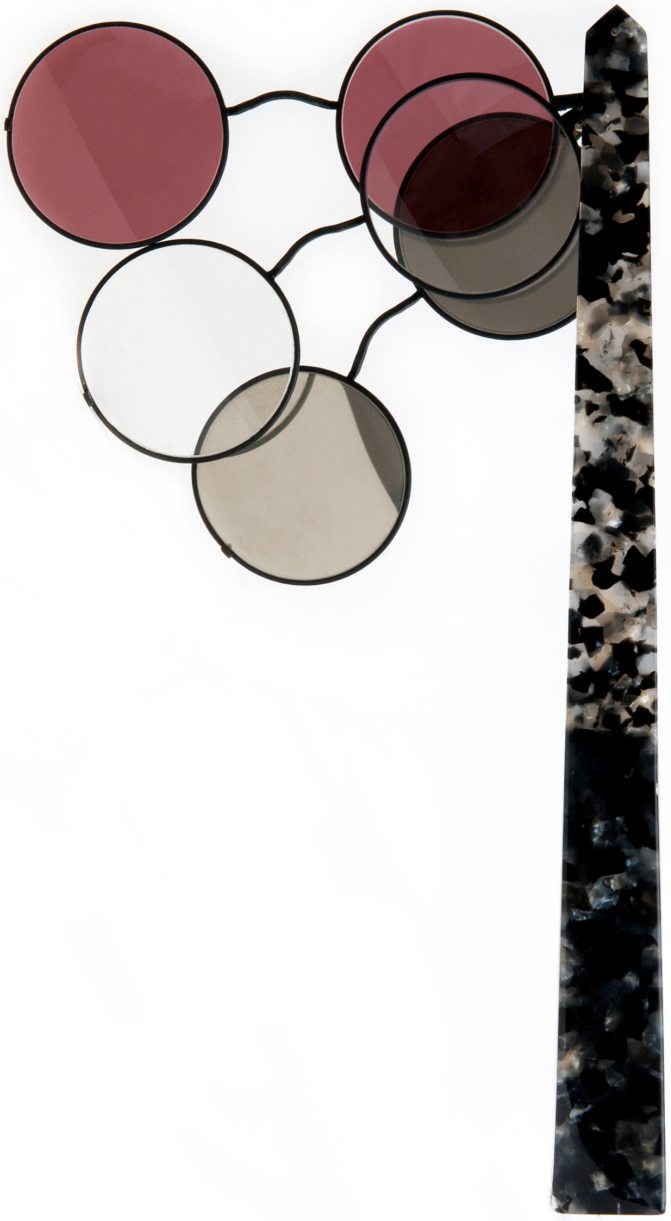
Bright words appear to glow in this dark space,
Not unlike painted dancers under the spotlights.
Bodies bend to new forms, freed of formal constraint.
Characters take notice of this safe place,
Room for rhyme and roaming, wander and wonder,
Where meanings pivot and plié in experiment.

A pas de deux, lyric meets academic for rephrase.
Matched in step and strength, in poise and partner,
These forms play new roles together, leaning in,
To learn anew and explore with flirting phrase.
Tradition supports these feats of balance,
Word for word, this adagio is danced for exhibition.

Words, make your approach daring and bold.
Face your audience, this type is for centre stage.
Audience, do watch these words that dare you.
Here, close and intimate, judgement on hold,
This is a black box space for word performing,
A concept theatre where we perform the words.



Association in Creative Idea Generation
:
A Black Box Dissertation
Staged in Lyric Inquiry and Glass Concepts



Lisa Naas

Submitted for the Degree of Doctor of Philosophy

School of Design
Edinburgh College of Art
College of Arts, Humanities and Social Sciences
The University of Edinburgh

2021


Bright words appear to glow in this dark space,
Not unlike painted dancers under the spotlights.
Bodies bend to new forms, freed of formal constraint.
Characters take notice of this safe place,
Room for rhyme and roaming, wander and wonder,
Where meanings pivot and plié in experiment.
A pas de deux, lyric meets academic for rephrase.
Matched in step and strength, in poise and partner,
These forms play new roles together, leaning in,
To learn anew and explore with flirting phrase.
Tradition supports these feats of balance,
Word for word, this adagio is danced for exhibition.
Words, make your approach daring and bold.
Face your audience, this type is for centre stage.
Audience, do watch these words that dare you.
Here, close and intimate, judgement on hold,
This is a black box space for word performing,
A concept theatre where we perform the words.
Association in Creative Idea Generation
A Black Box Dissertation
Staged in Lyric Inquiry and Glass Concepts
Lisa Naas
July 2020
School of Design
Edinburgh College of Art
College of Humanities and Social Sciences
The University of Edinburgh
Submitted for the Degree of Doctor of Philosophy

Lay Summary

Artistic expression, innovative design, scientific invention, concept construction—these are phenomena of creative capacity, born of ideas from creative processes. They shape our society and they shape us individually. Ideas have an intriguing duality too: they can be both the fancy of the imagination and also practical solutions to real-world problems. We need ideas. However, we are still working to identify the 'thing' that is creativity, not to mention its many moving process parts, variables, conditions, facilitators, and inhibitors. I am interested in the part of the process just before an idea for a creative project is formed, when it is still in pieces as words, thoughts, images, sounds, memories, facts, experiences, senses, and emotions. In this thesis, I investigate how those elements might come together for University-level students engaged with glass as a creative medium. I use glass because glass material has a history rich in innovation and is at the foundation of some of society's most important inventions. But it's also everywhere and one of the most common materials in our lives. Indeed, we all know glass. We all have our own concepts of glass as well, that is, we all can associate and relate to glass material. Because of this, I used the word 'glass' and glass material as starting points and a basis for my research. I designed a new word association technique, based on the word 'glass' and theories of creativity, to help students develop starting points for new project ideas using glass material. I studied students using the technique and I also looked closely to see how students developed their ideas when they used it. This thesis presents the new technique and the results of the study. Because my subject is creativity and new ideas, I developed a new, creative idea to present my research to the reader in a creative way, using my new technique. So as much as it is an academic report, my thesis is also an experimental, creative work, coming from my intersecting art, design, and writing. I use small creative writing pieces about glass and juxtapose them with the formal, focused academic writing to associate together and tell another story. The two types of writing together tell the story of my research and help me demonstrate to the reader how I develop new ideas. Additionally, I feature glass concepts, like 'reflection' and 'mirroring', throughout the entire manuscript to aid in shifting perspective and introducing new viewpoints and relationships necessary for creativity. It is a new way of writing a thesis that I hope might inspire more creative ideas for new thesis forms. I present this thesis, infused with glass concepts, as a glass artwork.

Abstract

The central argument of this thesis is two-fold: that association, in various modes, is one key to creative ideation; and that using a lyric inquiry with modes of association can aid in generating ideas for creative practice. I identify and explore these critical elements of the creative process using practice-based research revisited through a scholartistry angle (Elkins 2005, Knowles, Promislow, and Cole 2008, Neilsen 2002), aiming to facilitate idea generation for myself and university-level, student artists and designers. I focus on the liminal period of ideation, just before an idea for studio is fully formed. Throughout the thesis, I use traditional, academic text juxtaposed with lyric writing to present my research, staged in 'glass' (the concepts, material, hotshop, and history) because glass is unique in its contribution to human creativity, ideas, and innovation. Through my writing, I describe creativity research and theories, while simultaneously practicing the theories to investigate ideation and offer an inclusive, accessible approach to glass as a creative medium. My literature review reveals that modes of association (named differently in different fields) are present in critical studies and theories of creativity, ideation, and innovation across disciplines as diverse as psychology, advertising, business, and mathematics. I reposition theories such as Mednick's remote associates (1962), Koestler's 'bisociation' (1964), de Bono's 'lateral thinking' (1977), Johansson's intersections (2004), and Johnson's 'adjacent possible' and 'exaptation' (2010), tying them together and tracing them to Wallas' *The Art of Thought* and his theories of association in the creative ideation process (1926). I discuss how these theories and associative modes operate in early creative ideation and highlight how words and relationship awareness can be critical to idea formation. My practice-based research puts association theories into practice, supporting them, while also adding a new contribution: evidence showing the usefulness of lyric inquiry to idea generation. I embrace 'lyric philosophy' (Zwicky 2014), follow 'scholartistry'—a fusion of artistic inquiry and scholarship (Knowles, Promislow, and Cole 2008), and attend to creativity from a 'meta-creativity' approach (Runco 2015). By examining creative ideation from my practitioner's lens, I offer a shifted perspective for creativity research, conducted most often from non-practitioner viewpoints observing creatives. My creative outputs are incorporated within this written thesis, supporting my dissertation writing as primary sources of information: 'Word Triangulation' (a new ideation tool with positive trial results), a glass reading aid, lyric texts, and a book of ideas. Designed as an artist's book, my dissertation itself is a creative output, challenging the traditional thesis writing form and demonstrating a creative process. I offer it as a work of glass.

The Glass Confluence

(13 December 2017, ed. 12 April 2018)

Acknowledgements

Of all the crediting and referencing that I do throughout this dissertation, these pages are arguably the most important. I am very fortunate to have many people and groups to acknowledge for supporting me and this doctoral work, which was possible because of them. The list is long and so I ask the reader to forgive the indulgence. It has taken quite the village to get this first-generation college student through academia to the completion of a doctoral degree, therefore, it is with great pleasure that I can recognise here and credit those, who have provided support and steps along the way for me.

Thank you first to Edinburgh College of Art and the University of Edinburgh for the generous doctoral funding with the Principal's Career Development Award and the Global Research Scholarship. To my supervisory team, Dr. Sophia Lycouris, Dr. Jessamy Kelly, and Geoff Mann, I am sincerely grateful to you for your unwavering support of my research and for your collective wisdom, experience, guidance, and patience over the years. Thank you also for your challenging questions and for engaging me with your spirited debate and conversation in our meetings. I have so enjoyed working with you.

To David Faleris, my husband, love, and collaborator—words fail me. How do I express all that you are to me and all that you have been by way of support and love during my PhD and the life challenges of these past few years? For happily accepting a host of roles, from my partner on discovery to my 'Baymax' to my dissertation reader, thank you for all of it, for always being here for me ... you are the music of my life. I love you!

Thank you to the Faleris and Naas families for the constant love and deep wells of support and patience during these years abroad. Thank you to my mom Kathy Massa, for your cheerleading and for instilling in me, an early love of books and learning. A special thank you to my father-in-law Dennis Faleris, for engaging with my dissertation and providing valuable feedback.

To my champions at the NHS, Dr. Sarita Vaidya and Dr. Lorna Mackintosh, thank you for your dedicated care and thoughtful attention. The most challenging part of doctoral work for me was navigating my illness while trying to maintain a work ethic and recover simultaneously. You helped me immensely.

Thank you to my Edinburgh academic communities: from the Makers Marks Collaborative to the Glass Programme cohort to the Student Immigration team to the faculty and administrative staffs of the University of Edinburgh, with gratitude

especially to Dr. Craig Martin, Dr. Juliette MacDonald, Dr. Jane McKie, Dr. Cath Keay, Professor Stephen Bottomley, Ingrid Phillips, Dr. Keeryong Choi, Fiona Hunter, and Jane Furness. Thank you also to the Glasgow community of the Royal Conservatoire of Scotland for being so supportive of my husband and me.

Despite these strong communities, doctoral work felt isolating and lonely at times, but I was cheered often and at critical points by friends in the United States: Liz Gilgan, Pat Sukhum, and Jennifer Bill. Thank you for your friendship and for always being on the other end of the digital line.

To Pilchuck Glass School, Diablo Glass School, and my instructors and colleagues there, thank you for introducing me to studio glass and teaching me first about the glass medium. To Professor Lynne Allen at Boston University, thank you for encouraging me to 'have an adventure' during my post-graduate work. I took your advice! And to Carleton College and those who facilitated my experience in higher education when I was an undergraduate student—Len Wenc, Mylla Urban, Diane Naas, Kris Ford, and Sue Manske—I am forever grateful for that support and the many kindnesses you showed me. I realise that I would not have been in a PhD programme had it not been for your early support to see me through my undergraduate studies.

To the artists, designers, writers, musicians, and creatives in my personal and professional spheres (those who appear in these pages and those who do not): I am deeply grateful for your work, inspiration, and influence. Thank you to the Cubitts Bespoke Team at the London King's Cross workshop, especially to Romain Caillaud, for excellent artisan work and attention to detail in the making of my *Spectacles* piece. To the festival community of the Berkshires, especially the students, faculty, and staff of the Boston University Tanglewood Institute, the Tanglewood Festival artists, and the Jacob's Pillow dancers: your passion and dedication inspired me and pushed me back into the studio to continue develop my own creative practice. I am deeply grateful for my experiences with you.

Finally, to the welcoming people of Scotland, I am in love with your country! Thank you for being such a wonderful host. It has been a privilege to study and live here.

For all the women and girls before me, who made my path easier because they insisted that the rules change. And for all the girls and women, who today, nevertheless, persist.



In memory of Deborah Pfetzing, my high school literature teacher, who first introduced me to the lyric world and with whom I shared my first written stories.

Overture

Watch your thoughts because they become your words.
Watch your words because they become your actions.
Watch your actions because they become your habits.
Watch your habits because they become your character.
Watch your character because it becomes your destiny.

—A much-used and rather anonymous quote, popular in memes and often attributed to a wide array of people, including Margaret Thatcher, Ralph Waldo Emerson, and Lao-tzu

Preface: Prelude to an Idea

The research of this dissertation is a part of my personal quest, born of my yoga practice, to understand the tensions and relationships that exist between creativity and the meditative, yet, seeking mind. Could watching our thoughts and words serve to shed light on the creative process and its outputs, just as, according to the cautionary quote of the Overture, watching our thoughts and words could offer insight into the shape of a life's path? Curiosity about my own creative process, in relation to my colleagues', spurred my interest in creativity research. I wanted to reconcile with the words and lyric writings that have always populated my sketchbooks in far greater numbers than drawings. Teachers and mentors throughout my education pressed me to draw more, and yet, I inevitably filled my pages with words, using them as starting points for my physical art and design pieces. I wanted to know: what is the prelude to an idea, and how do words operate as this prelude for me?

This dissertation explores creative ideation, with association—of words, images, sounds, memories, and more—posited as one central tenet to the process in art and design. This academic research aligns with my inclination for developing ideas, striving for innovation, and problem-solving (in my creative practice, my professional work, and my life in general). Often, this penchant of mine for creating and following ideas, has found me working with the unfamiliar or working in untraditional positions, such as pursuing my doctoral degree as a 'mature', international student. Creativity is aligned with the foreign and the unknown.

As a text set to University parameters, the written thesis is steeped in heavy academic expectation and this book does follow in that vein, but it breaks with tradition to reflect its subject matter of creativity and to demonstrate a creative process. To my reader then, this thesis book might seem a bit foreign or unusual. There is truth in that. In writing on creative ideation and attempting to bring a creative process to the academic thesis, I often wondered if our traditional and familiar attempts with academic language impede us from knowing more of creativity and the creative process. By putting down words poetically and lyrically in new ways, I inquired, learned, and created simultaneously, through the thesis writing. I add to the familiar academic discourse, but with an original voice. I invite you, reader, to engage with this unfamiliar voice and watch my lyric words, for they perform in a way that offers a knowledge of their own; they know creativity and idea-making differently than the traditional words of academia.

Lisa L. Naas
Glasgow 2020

Contents

Spectacles, Working Titles: A Book of Ideas,* and *Broken words: A Book of Lyric
(physically located inside the box cover of the artist's book-thesis)

Images xv
Inside Cover Image.....xv
Front Matter Images.....xv
List of Figures.....xv
List of Lyric Visuals.....xxiv
Working Titles: A Book of Ideas.....xxx
Broken words lost in silence seek connections: A Book of Lyric.....xxx
Introduction..... 1
Statement of Creative Practice.....2
Reader's Guide..... 4
Introductory Lyric Notes.....9
1. Overview: From the Dress Circle….....11
1.1. Thesis Title…….....11
1.2. Research Questions…….....12
1.3. Aims and Objectives…….....12
1.4. Outputs and Contribution to Knowledge…….....14
Chapter 1 Lyric Notes.....18
'Interlude 1'..... 20
Statement on 'Interlude 1'..... 21
2. Creativity Context: Scena.....23
2.1. Creativity Definitions and Dissertation Assumptions…….....24
2.1.1. Creativity, Creative Process, Creative…….....24
2.1.2. Ideas, Concepts, Idea Generation for Creative Practice…....28
2.2. Creativity Research.....36
2.2.1. Historical Overview…….....36
2.2.2. Process Research: The Wallas Model.....44
2.2.3. Process Research: The Association Thread.....50
2.3. The Next Knot in the Thread: My Practice-based Research.....65
Chapter 2 Lyric Notes.....66
'Interlude 2'.....68
Statement on 'Interlude 2'.....69
3. Glass: Staging Ground.....71
3.1. Glass Material..... 71

3.2. Historical Connection to Creativity and Innovation....76
3.2.1. Ancient Beginnings....76
3.2.2. Common Era: Beyond Decoration and Functionware....82
3.3. Glass Concepts....96
3.4. Glass as a Staging Ground for Creativity Research....104
Chapter 3 Lyric Notes....105
'Interlude 3'....106
Statement on 'Interlude 3'....107
4. Methodologies: Set Framework....109
4.1. Determining a Research Strategy through My Creative Practice....109
4.1.1. Reflecting on Past Work Completed Prior to PhD Study....109
4.1.2. Expressing My Creative Process....118
4.2. Lyric Philosophy....122
4.2.1. Introduction to the Philosophy and Choosing the Lyric as a Methodology....122
4.2.2. Zwicky's 'Lyric' and its Characteristics....128
4.2.3. Criticism....138
4.3. Scholartistry....142
4.3.1. In the Realm of Practice-based Research....142
4.3.2. Works of Scholartistry....150
4.3.3. My Scholartistry....158
4.4. Meta-creativity....160
Chapter 4 Lyric Notes....163
'Interlude 4'....166
Statement on 'Interlude 4'....167
5. Methods and Process: Method Acting....169
5.1. Word-working as Method—Words as Material....169
5.1.1. Lyrically Modelling My Creative Process....170
5.1.2. Lyrically Expressing a Meta-creativity Approach....180
5.2. Embedding Creativity as a Conceptual Art Process....186
5.3. Self-awareness in Meta-creativity as a Research Variable....188
Chapter 5 Lyric Notes....192
'Interlude 5'....194
Statement on 'Interlude 5'....195
6. 'Word Triangulation' for Idea Generation: Behind the Scenes....197
6.1. 'Word Triangulation' Development....197

6.1.1. Context: Ideation Tools.....197
6.1.2. Design Form and Technique.....210
6.2. Using 'Word Triangulation' Individually in My Creative Practice.....224
6.3. Student Workshops: Individual Use of 'Word Triangulation'.....232
6.3.1. Workshop Overview 232
6.3.2. Workshop Results 234
6.4. Lyrically Articulating 'Word Triangulation'.....244
6.5. Student Workshops: Collaborative Use of 'Word Triangulation'.....248
6.5.1. Live Brief and Workshop Overview.....248
6.5.2. Workshop Results..... 250
6.5.3. Final Projects and Feedback.....252
6.6. Using 'Word Triangulation' Collaboratively in My Creative Practice.....256
6.7. Preliminary Conclusions about 'Word Triangulation'.....266
Chapter 6 Lyric Notes.....267
'Interlude 6'..... 270
Statement on 'Interlude 6'.....271
7. This Thesis: A 'Word Triangulation' Production.....273
7.1. Seeking a Project Driver Amid Intersections.....273
7.2. The Writing Process.....286
7.2.1. Developing Parameters and Setting Initial Design Elements...286
7.2.2. Thesis Writing as an Evolving Creative Process.....294
7.3. Outputs of the Thesis Writing Process.....300
7.3.1. *Spectacles for the Black Box Dissertation*.....300
7.3.2. 'Interludes' and *Broken words*.....308
7.3.3. *Working Titles: A Book of Ideas*.....312
7.4. *The Black Box Dissertation*.....322
7.5. Revising the Thesis after my Viva Voce.....328
Chapter 7 Lyric Notes.....331
'Interlude 7'.....334
Statement on 'Interlude 7'.....335
8. Conclusion: Finale..... 337
8.1. In Summary: Answering the Research Questions.....337
8.2. 'Word Triangulation' and its Contributions to Knowledge..... 340
8.2.1. A New Ideation Tool for Creative Practice.....340
8.2.2. A Model for an Inclusive, Accessible Approach to Glass.....340

8.2.3. An Idea from the Thesis 'Word Triangulation' and Viva.....342
8.3. 'Word Triangulation' Pathways: Further Research and Development....344
8.3.1. A Model for Introducing Lyric Philosophy to Students.....346
8.3.2. 'Word Triangulation' in other University Scenarios.....346
8.3.3. 'Word Triangulation': Additional Development Routes.....350
8.4. This Thesis: What is It? And Where is It Going?.....354
8.5. Time as a Challenge, Research Variable, and Opportunity.....358
8.6. A Final Statement of Theory.....359
Chapter 8 Lyric Notes.....360
Coda.....362
Working Titles: A Book of Ideas (digitally follows Coda)
Broken words: A Book of Lyric (digitally follows *Working Titles*)
Bibliography.....367
Appendices ..... A–Z
Glossary of Terms.....A
Tumblr Post..... B
Expressions of the Creative Process.....C
From Working Notes to Lyric Assimilation.....D
Thingness: To Know the Unknown.....E
First Year PhD Report.....F
Attention to Association.....G
'Word Triangulation': Guidelines and Demonstration.....H
'Makers Marks: Glass in Translation' RTD2017 Paper.....I
'Makers Marks' MDPI Journal Article in *Arts 2019*.....J
'Play with Fire: Glass Concepts' (Innovative Learning) .....K
after the storm.....L
Glass-Music-Dance Collaboration.....M
'Voicing Perspective': Auto-ethnographic Writing.....N
Writing Form and Book Mock-ups.....O
Early Reflection on Writing the Dissertation.....P
Writing Charts.....Q
Early Draft Abstract with Notes.....R
Spectacles for the Black Box Thesis.....S
Measuring My Days.....T
The Black Box Dissertation in ECA Artists' Book Collection.....U
Digital Crafting in Glass Workshop.....V
Thinking Through Glass Workshop.....W
Mastercard Scholars Workshop.....X
Research Dissemination and Development.....Y
University Emails about Electronic and Non-Standard Thesis Submission.....Z

Final Attachment: Examiners' Report from Viva Voce and Document of Corrections

Images

Inside Cover
Naas, L. with assistance by Cubitts Bespoke (2019) *Spectacles for the Black Box Dissertation* [acetate, CR-39, glass, metal]. collection of the artist [image by Christine Serchia]

Title Page
Naas, L. (2020) *The Black Box Dissertation Artist's Book (artist's proof, closed box)* [book board, book cloth, adhesive] collection of the artist [image by Lisa Naas]

Naas, L. (2020) *The Black Box Dissertation Artist's Book (artist's proof, open box)* [book board, book cloth, adhesive, paper, ink, foam board, silk, acetate, CR-39, glass, metal, elastic, linen thread]. collection of the artist [image by Lisa Naas]

Dedication Page
Naas, L. (2020) *TangledTree Studios Black and White Logo* [computer generated image]. collection of TangledTree Studios [image by Lisa Naas]

List of Figures

Figure 1. (Chapter 2: 60)
Koestler, A. (1964) *Bisociation Schematic* [book illustration]. source: *The Act of Creation* by Koestler, page 35

Figure 2. (Chapter 3: 72)
Zallen, R. (2004) *Schematic Sketches of Atomic Arrangements* [book illustration]. source: *The Physics of Amorphous Solids* by Zallen, page 12

Figure 3a. (Chapter 3: 78)
Anonymous (1500–1200 BCE) *Disk Pendant with Star Pattern* [glass]. collection of Corning Museum of Glass [source: Corning Museum of Glass website (2002a)]

Figure 3b. (Chapter 3: 78)
Anonymous (1400–1250 BCE) *Necklace with Pendants and Beads* [glass]. collection of Corning Museum of Glass [source: Corning Museum of Glass website (2002c)]

Figure 4a. (Chapter 3: 80)
Anonymous (1390–1352 BCE) *Cosmetic-jar, 18th Dynasty Egypt* [glass]. collection of The British Museum [image courtesy The British Museum]

Figure 4b. (Chapter 3: 80)
Anonymous (1399–1300 BCE) *Jar, Egyptian* [glass]. collection of Corning Museum of Glass [source: Corning Museum of Glass website (2002b)]

Figure 5. (Chapter 3: 82)
Anonymous (75–125 CE) *Blown Glass Flagon, Roman* [glass]. collection of The British Museum [source: The British Museum website]

Figure 6. (Chapter 3: 82)
Anonymous (1560–1590 CE) *Venetian Pitcher (filigrana a retortoli)* [glass]. collection of Corning Museum of Glass [source: Corning Museum of Glass website (2002d)]

Figure 7. (Chapter 3: 84)
Plowy, D. (2014) *Sainte-Chapelle after restoration* [photograph of Sainte-Chapelle stained glass]. collection of Centre des Monuments [source: Centre des Monuments Nationaux website]

Figure 8. (Chapter 3: 84)
Kamber, M. (2007) *The Hall of Mirrors at Versailles* [photograph of gallery interior]. collection of The New York Times [source: New York Times digital article by A. Riding]

Figure 9. (Chapter 3: 86)
Anonymous (1400 CE) *Rivet Spectacles* [bone frame]. collection of Museum of London [source: Museum of London website]

Figure 10. (Chapter 3: 88)
Galileo (early 1600s CE) *One of Galileo's First Telescopes* [instrument]. collection of NASA [source: Space.com digital article by L. Cox]

Figure 11. (Chapter 3: 88)
Campani, G. (1670–1690 CE) *Compound Microscope* [instrument]. collection of Museum Boerhaave, Netherlands [source: Corning Museum of Glass digital article by M. Bolt]

Figure 12. (Chapter 3: 92)
Tiffany, L. C. (c. 1895 CE) *Favrile Vase* [blown glass]. collection of Victoria and Albert Museum, London [source: Victoria and Albert website (2020)]

Figure 13. (Chapter 3: 92)
Fibre Glast Developments Corp. (2020 CE) *Fiberglass Mat* [glass strands]. collection of FibreGlast, Ohio [source: Fibre Glast Developments Corp. website]

Figure 14a. (Chapter 3: 94)
Chihuly, D. (1981 CE) *Tawny Birch Macchia* [blown glass]. collection of the artist [source: Dale Chihuly website (2019)]

Figure 14b. (Chapter 3: 94)
Littleton, H. (1986 CE) *Blue Sliced Descending Form* [glass sculpture]. collection of Esterling-Wake [source: Sheldon Museum of Art Catalogues and Publications (Veneciano et al.)]

Figure 15a. (Chapter 3: 100)
Naas, L. and Donovan, K. (2014) *Hot Glass and Titanium Marver Test* [glass and titanium]. collection of the artists [image by Lisa Naas]

Figure 15b. (Chapter 3: 100)
Naas, L. and Donovan, K. (2014) *Stress Break: Hot Glass and Titanium Marver Test* [glass and titanium]. collection of the artists [image by Lisa Naas]

Figure 16a. (Chapter 3: 102)
Naas, L. (2014) *Embodiment* [kiln-formed glass]. collection of the artist [image by Lisa Naas]

Figure 16b. (Chapter 3: 102)
Naas, L. (2014) *Detail, Embodiment* [kiln-formed glass]. collection of the artist [image by Lisa Naas]

Figure 17. (Chapter 4: 109)
Naas, L. (2011) *Sketchbook Interior: Mirror Project* [pencil on paper]. collection of the artist [image by Lisa Naas]

Figure 18. (Chapter 4: 110)
Naas, L. (2011) *Sketchbook Interior: Glass Body* [pencil on paper]. collection of the artist [image by Lisa Naas]

Figure 19. (Chapter 4: 110)
Naas, L. (2014) *Sorrows Tumblr Post* [screenshot]. collection of the artist [source: Lisa Naas Tumblr site]

Figure 20a. (Chapter 4: 112)
Naas, L. (2015) *The Sorrows Release Installation* [glass, audio, electronics]. collection of the artist [image by Lisa Naas]

Figure 20b. (Chapter 4: 112)
Naas, L. (2015) *Detail, Sorrows glass panel* [kiln-formed glass]. collection of the artist [image by David Faleris]

Figure 21a. (Chapter 4: 112)
Naas, L. (2009) *Shackles/Chains* [cast and flame-worked glass]. collection of the artist [image by Lisa Naas]

Figure 21b. (Chapter 4: 112)
Naas, L. (2009) *Bound to Break book* [book board, satin, silk, monochromatic prints, flame-worked glass]. collection of the artist [image by Lisa Naas]

Figure 21c. (Chapter 4: 112)
Naas, L. (2009) *Open book Bound to Break* [book board, satin, silk, monochromatic prints, flame-worked glass]. collection of the artist [image by Lisa Naas]

Figure 22a. (Chapter 4: 114)
Naas, L. (2011) *Come Undone* [book board, book cloth, pig skin, ink, satin, silk, photographic prints]. collection of the artist [image by Lisa Naas]

Figure 22b. (Chapter 4: 114)
Naas, L. (2011) *Detail from Come Undone book* [book board, book cloth, pig skin, ink, satin, silk, photographic prints]. collection of the artist [image by Lisa Naas]

Figure 22c. (Chapter 4: 114)
Naas, L. (2011) *Come Undone book unlaced* [book board, book cloth, pig skin, ink, satin, silk, photographic prints]. collection of the artist [image by Lisa Naas]

Figure 23a. (Chapter 4: 116)
Naas, L. (2013) *A Looking Glass Book* [paper, newspaper, ink]. collection of the artist [image by Lisa Naas]

Figure 23b. (Chapter 4: 116)
Naas, L. (2013) *Nesting page from A Looking Glass Book* [paper, newspaper, ink]. collection of the artist [image by Lisa Naas]

Figure 24. (Chapter 4: 126)
Zwicky, J. (2014) *§240 Left and Right* [printed book pages in *Lyric Philosophy*]. available from Edmonton & Calgary: Brush Education [image by Lisa Naas]

Figure 25. (Chapter 4: 130)
Zwicky, J. (2014) *§259 Left and Right* [printed book pages in *Lyric Philosophy*]. available from Edmonton & Calgary: Brush Education [image by Lisa Naas]

Figure 26. (Chapter 4: 154)
Cutcher, A. (2004) *Thesis Page 100* [printed book page in PhD thesis *The Hungarian in Australia: A portfolio of belonging*] courtesy of the author [image by Alexandra Lasczik]

Figure 27. (Chapter 4: 154)
Loi, D. (2004) *A suitcase as a PhD thesis-artefact* [re-configured suitcase and travel containers with writings] courtesy of the designer [image by Daria Loi]

Figure 28. (Chapter 4: 156)
Carson, A. D. (2017) *Owning My Masters* [cd album cover]. collection of the artist [source: A. D. Carson website]

Figure 29. (Chapter 5: 172)
Naas, L. (2015) *Sketchbook Page: Modelling Young's Technique* [pencil on paper]. collection of the artist [image by Lisa Naas]

Figure 30. (Chapter 5: 172)
Naas, L. (2015) *Sketchbook Page: Relating to Young* [pencil on paper]. collection of the artist [image by Lisa Naas]

Figure 31. (Chapter 5: 174)
Naas, L. (2015) *Sketchbook Page: Modelling Johnson's Adjacent Possible* [inkjet print and pencil]. collection of the artist [image by Lisa Naas]

Figure 32. (Chapter 5: 176)
Naas, L. (2015) *Sketchbook Page: Connecting Young and Johnson* [pencil and pen on paper]. collection of the artist [image by Lisa Naas]

Figure 33. (Chapter 5: 178)
Naas, L. (2015) *Sketchbook Page: Developing Raindrops on Windowpanes Analogy* [inkjet print and pencil on paper]. collection of the artist [image by Lisa Naas]

Figure 34. (Chapter 5: 180)
Naas, L. (2015) *Creative Process Analogy Slide from First Year Review Presentation* [PowerPoint screenshot]. collection of the artist [image by Lisa Naas]

Figure 35a. (Chapter 6: 198)
Naas, L. (2015) *Word-Working on My Desk* [paper and ink]. collection of the artist [image by Lisa Naas]

Figure 35b. (Chapter 6: 198)
Naas, L. (2015) *Shaping Words by Proximity* [paper, ink, tape]. collection of the artist [image by Lisa Naas]

Figure 35c. (Chapter 6: 198)
Magnetic Poetry (2015) *magnetic poetry kit Original Edition* [magnets]. collection of Magnetic Poetry [source: Magnetic Poetry website]

Figure 36a. (Chapter 6: 200)
IDEO (n.d.) *IDEO Method Cards* [flashcards]. collection of Sprout Labs [source: digital article by Robin Petterd]

Figure 36b. (Chapter 6: 200)
IDEO.org (2018) *Design Kit Travel Pack* (Kickstarter Video) [video still screenshot]. collection of IDEO.org [source: IDEO.org Kickstarter webpage]

Figure 37. (Chapter 6: 202)
Eno, B. and Schmidt, P. (1974) *Oblique Strategies* [ink on cards]. collection of the artists [source: Maria Popova-BrainPickings website]

Figure 38. (Chapter 6: 204)
Anonymous (n.d.) *What is a Mind Map? Mind Map* [screenshot of a drawing]. collection of Tony Buzan [source: Tony Buzan 2015 website]

Figure 39. (Chapter 6: 206)
Novak, J. D. and Cañas, A. J. (2006 and 2008) *Concept Map of a Concept Map* [screenshot of a digital drawing]. collection of Institute for Human and Machine Cognition [source: digital article by Novak and Cañas]

Figure 40. (Chapter 6: 208)
Hutchinson, S. (2015) *Mind Map Output from Mapping your Mind* [photograph of whiteboard drawing]. collection of Lisa Naas [image by Lisa Naas]

Figure 41. (Chapter 6: 208)
Naas, L. (2013) *Mind Maps Seeking Project Ideas* [pencil sketch]. collection of the artist [image by Lisa Naas]

Figure 42. (Chapter 6: 212)
Naas, L. (2015) *Charting an Idea-Space* [paper and pen]. collection of the artist [image by Lisa Naas]

Figure 43. (Chapter 6: 214)
Svjo (2015) *exempel på triangulering (examples of triangulation)* [digital drawing]. collection of Creative Commons [source: Wikimedia website 2015]

Figure 44. (Chapter 6: 216)
Naas, L. (2016) *Glass, Sound, and Engineering Triangulation Anchors* [paper and ink]. collection of the artist [image by Lisa Naas]

Figure 45. (Chapter 6: 222)
Naas, L. (2017) *Technique Guidelines for 'Word Triangulation'* [digital document]. collection of the author [image by Lisa Naas]

Figure 46. (Chapter 6: 226)
Naas, L. (2016) '*Word Triangulation' for Glass Whispers Project* [paper and ink]. collection of the artist [image by Lisa Naas]

Figure 47. (Chapter 6: 228)
Naas, L. (2016) *Detail, 'Word Triangulation' for Glass Whispers Project* [paper and ink]. collection of the artist [image by Lisa Naas]

Figure 48. (Chapter 6: 230)
Makers Marks Collaborative (2016) *Glass in Translation Collection* [blown glass]. collection of Lisa Naas and David Faleris [image by Alkistis Terzi]

Figure 49. (Chapter 6: 230)
Makers Marks Collaborative (2016) *Makers Marks in Exhibition at Summerhall* [blown glass, sound, electronics]. collection of the artists [image by Alex Hall]

Figure 50a. (Chapter 6: 236)
Anonymous (2016) '*Word Triangulation' Beginning with Glass, Body, Landscape* [paper and ink]. collection of the artist [image by Lisa Naas]

Figure 50b. (Chapter 6: 236)
Anonymous (2016) *Final Map-Sketch with Glass, Body, Landscape* [paper, ink, clay]. collection of the artist [image by Lisa Naas]

Figure 50c. (Chapter 6: 236)
Anonymous (2016) *Detail: Final Map-Sketch with Glass, Body, Landscape* [paper, ink, clay]. collection of the artist [image by Lisa Naas]

Figure 51a. (Chapter 6: 238)
Anonymous (2016) *Final Map-Sketch with Glass, Daily Life, Creatives* [paper, ink, clay, pencil]. collection of the artist [image by Lisa Naas]

Figure 51b. (Chapter 6: 238)
Anonymous (2016) *Detail: Final Map-Sketch with Glass, Daily Life, Creatives* [paper, ink, clay, pencil]. collection of the artist [image by Lisa Naas]

Figure 51c. (Chapter 6: 240)
Anonymous (2016) *Play with Fire Glass Output* [cast glass]. collection of the artist [image by Lisa Naas]

Figure 52a. (Chapter 6: 240)
Anonymous (2016) '*Word Triangulation' Beginning with Glass, Sail Training, Intercultural Learning* [paper and ink]. collection of the artist [image by Lisa Naas]

Figure 52b. (Chapter 6: 242)
Anonymous (2016) *Final Map-Sketch with Glass, Sail Training, Intercultural Learning* [paper, ink, clay, pencil]. collection of the artist [image by Lisa Naas]

Figure 52c. (Chapter 6: 242)
Anonymous (2016) *Final Map-Sketch with Glass, Sail Training, Intercultural Learning* [paper, ink, clay, pencil]. collection of the artist [image by Lisa Naas]

Figure 53a. (Chapter 6: 252)
Anonymous (2016) *Collaborative Map-Sketch by Glass Student Group for after the storm Project* [paper and ink]. collection of the artists [image by Gemma Leamy]

Figure 53b. (Chapter 6: 252)
Anonymous (2016) *Detail: Collaborative Map-Sketch by Glass Student Group for after the storm Project* [paper and ink]. collection of the artists [image by Gemma Leamy]

Figure 54. (Chapter 6: 254)
Underground Network (2016) *Collaborative Group Map-Sketch in Response to after the storm Brief* [paper, ink, clay]. collection of the artists [image by Lisa Naas]

Figure 55a. (Chapter 6: 254)
Underground Network (2017) *Casts of Tree Roots in Exhibition* [glass]. collection of the artists [image by Lisa Naas]

Figure 55b. (Chapter 6: 254)
Underground Network (2017) *Site Specific Installation for after the storm* [wood, resin, glass, sound]. collection of the artists [image by Anna Vesaluomo]

Figure 56. (Chapter 6: 258)
Faleris, D. Gorania, S. and Naas, L. (2017) *Beginning of Collaborative Word Triangulation Using Glass, Music, and Dance* [paper and ink]. collection of Lisa Naas [image by Lisa Naas]

Figure 57a. (Chapter 6: 260)
Faleris, D. Gorania, S. and Naas, L. (2017) *Final Collaborative Map-Sketch Using Glass, Music, and Dance* [paper and ink]. collection of Lisa Naas [image by Lisa Naas]

Figure 57b. (Chapter 6: 262)
Faleris, D. Gorania, S. and Naas, L. (2017) *Detail of Gods Carrying Souls in Final Collaborative Map-Sketch Using Glass, Music, and Dance* [paper and ink]. collection of Lisa Naas [image by Lisa Naas]

Figure 57c. (Chapter 6: 262)
Faleris, D. Gorania, S. and Naas, L. (2017) *Detail of Vessel Connections in Final Collaborative Map-Sketch Using Glass, Music, and Dance* [paper and ink]. collection of Lisa Naas [image by Lisa Naas]

Figure 58. (Chapter 6: 264)
Naas, L. (2017) *Celestial Bodies* [computer generated drawing]. collection of the artist [image by Lisa Naas]

Figure 59. (Chapter 7: 274)
Naas, L. (2016) *First Annual Review Report* [screenshot of Word Document in multiple pages view]. collection of Lisa Naas and ECA [image by Lisa Naas]

Figure 60a. (Chapter 7: 278)
Naas, L. (2017) *Intersection Lyric* [ink on paper]. collection of the artist [image by Lisa Naas]

Figure 60b. (Chapter 7: 278)
Naas, L. (2017) *Intersectional Thesis Outline* [screenshot of Word Document]. collection of the artist [image by Lisa Naas]

Figure 61. (Chapter 7: 280)
Naas, L. (2017) *January 2017 Sketchbook Pages* [pencil on paper]. collection of the artist [image by Lisa Naas]

Figure 62a. (Chapter 7: 282)
Naas, L. (2017) *Lyric mock-ups with mirrored text and 'intersections'* [ink on paper]. collection of the artist [image by Lisa Naas]

Figure 62b. (Chapter 7: 282)
Naas, L. (2017) *Lyric mock-ups with images and glass writing* [ink on paper]. collection of the artist [image by Lisa Naas]

Figure 63. (Chapter 7: 292)
Naas, L. (2020) *Artist's Book-Thesis Mock-up* [paper, pencil, tape]. collection of the artist [image by Lisa Naas]

Figure 64. (Chapter 7: 298)
Naas, L. (2018) *Idea Events in a New York Hotel* [ink and pencil on paper]. collection of the artist [image by Lisa Naas]

Figure 65. (Chapter 7: 300)
Naas, L. (2018) *Design for Glass Reading Aid* [hybrid computer generated and hand-drawn sketch with ink and pencil on paper]. collection of the artist [image by Lisa Naas]

Figure 66a. (Chapter 7: 302)
Naas, L. with assistance by Cubitts Bespoke (2019) *Detail of Spectacles for the Black Box Dissertation* [acetate, CR-39, glass, metal]. collection of Edinburgh College of Art Library-Artists' Books [image by Christine Serchia]

Figure 66b. (Chapter 7: 302)
Naas, L. with assistance by Cubitts Bespoke (2019) *Detail of Folding Spectacles* for *the Black Box Dissertation* [acetate, CR-39, glass, metal]. collection of Edinburgh College of Art Library-Artists' Books [image by Lisa Naas]

Figure 67. (Chapter 7: 304)
Naas, L. (2020) *Using Spectacles for Magnifying Images and Small Type in the Thesis* [photograph]. collection of the artist [image by Lisa Naas]

Figure 68. (Chapter 7: 306)
Naas, L. (2019) *Testing Spectacles for Reading Mirrored Writing in the Thesis* [photograph]. collection of the artist [image by Lisa Naas]

Figure 69a. (Chapter 7: 310)
Naas, L. (2020) *Closed Book of Lyric Showing Binding Stitches* [paper, ink, linen thread]. collection of the artist [image by Lisa Naas]

Figure 69b. (Chapter 7: 310)
Naas, L. (2020) *Open Book of Lyric Showing Title Page* [paper, ink, linen thread]. collection of the artist [image by Lisa Naas]

Figure 70a. (Chapter 7: 314)
Naas, L. (2020) *Hinged Book of Ideas Showing Title Page* [paper, ink, metal keyring]. collection of the artist [image by Lisa Naas]

Figure 70b. (Chapter 7: 314)
Naas, L. (2020) *Hinged Book of Ideas Showing Several Card Titles* [paper, ink, metal keyring]. collection of the artist [image by Lisa Naas]

Figure 71. (Chapter 7: 314)
Naas, L. (2020) *Book of Ideas Showing Entry "▷A.03.08.17"* [paper, ink, metal keyring]. collection of the artist [image by Lisa Naas]

Figure 72a. (Chapter 7: 316)
Naas, L. (2020) *Book of Ideas Showing Card 11 Front* [paper and ink]. collection of the artist [image by Lisa Naas]

Figure 72b. (Chapter 7: 316)
Naas, L. (2020) *Book of Ideas Showing Card 11 Back* [paper and ink]. collection of the artist [image by Lisa Naas]

Figure 73a. (Chapter 7: 320)
Naas, L. (2020) *Measuring My Days 17 February 2020 Jar* [glass, water, food colouring, paper, ink, string]. collection of the artist [image by Lisa Naas]

Figure 73b. (Chapter 7: 320)
Naas, L. (2020) *Detail of Jar Topper for Measuring My Days 17 February 2020* [paper and ink]. collection of the artist [image by Lisa Naas]

Figure 73c. (Chapter 7: 320)
Naas, L. (2020) *Detail of Jar 'Ingredients' for Measuring My Days 24 February 2020 Jar* [glass, water, food colouring, paper, ink]. collection of the artist [image by Lisa Naas]

Figure 73d. (Chapter 7: 320)
Naas, L. (2020) *Detail of Jar Tag (Backside with 'Contents') for Measuring My Days 17 February 2020* [paper, ink, string]. collection of the artist [image by Lisa Naas]

Figure 74a. (Chapter 7: 322)
Naas, L. (2020) *The Black Box Dissertation Artist's Book (artist's proof, closed box)* [book board, book cloth, adhesive] collection of the artist [image by Lisa Naas]

Figure 74b. (Chapter 7: 322)
Naas, L. (2020) *The Black Box Dissertation Artist's Book (artist's proof, open box)* [book board, book cloth, adhesive, paper, ink, foam board, silk, acetate, CR-39, glass, metal, elastic, linen thread]. collection of the artist [image by Lisa Naas]

List of Lyric Visuals

Chapter 2

Page 45

McElheny, J. (2007) *Endlessly Repeating Twentieth Century Mondernism* [glass and mirror installation]. collection of Museum of Fine Arts, Boston, Massachusetts [source: Museum of Fine Arts, Boston website]

Page 47

Woffenden, E. (2015) *Glass Figures. Clarity Exhibition* [glass sculpture]. collection of the artist [source: Emma Woffenden website]

Page 49

Reed, L. (n.d.) *Untitled* [blown glass vessel]. collection of the artist [source: Laura Reed website]

Page 51

Lou, L. (2006–2008) *Continuous Mile* [glass beads sculpture]. collection of Corning Museum of Glass [source: Corning Museum of Glass website]

Page 53

Perez, J. (2011) *Carroña (Carrion)* [blown glass installation with taxidermy]. collection of Corning Museum of Glass [image by Lisa Naas]

Page 55

Wilson, F. (2013) *I Saw Othello's Visage In His Mind* [glass and wood sculpture]. collection of Corning Museum of Glass [image by Lisa Naas]

Page 57

Petters, A. (2010–2012) *disegno II* [glass sculpture]. collection of the artist [source: Anne Petters website]

Page 59

Riello, A. (2009–2013) *Ashes to Ashes Installation* [glass installation with book ash]. collection of the artist [source: Antonio Riello website]

Page 61

Riello, A. (2009–2013) *Detail: Ashes to Ashes* [glass installation with book ash]. collection of the artist [source: Antonio Riello website]

Page 63

Naas, L. (2012) *Pilchuck: Shaping Hot Glass with Newspaper* [photograph]. collection of the artist [image by Tad Bradley]

Chapter 3

Page 73

Camus, T. (2019) *Untitled* (Image of Notre Dame Burning, 15 April 2019) [photograph]. collection of Associated Press [source: AP News digital article by Hinnant, Petrequin, and Ganley]

Page 85
McCaugherty, K. (2019) *Untitled* (Image of *The Gun Violence Memorial Project*) [photograph of glass construction]. collection of Dezeen [source: Dezeen digital article by Gibson]

Page 97
Redmond, J. (2020) *Untitled* (Image of Visiting with Resident at Life Care Center of Kirkland) [photograph]. collection of Reuters [source: MSN News digital article by Miller, Chen, and Kaplan]

Page 99
Schönbeck, F. (n.d.) *My Stress Is Gone Now/Mein Stress ist nun vorbei.* (Window glass after from stone-throw performance). collection unknown [source: *New Glass Review 30*, page 103 by Corning Museum of Glass (2015b)]

Page 101
Honan, T. (2020) *Untitled* (Image of Children Visiting Grandmother Amid Social Distancing During Coronavirus) [photograph]. collection of Irish Times [source: Irish Times online Twitter account]

Page 103
Finch, S. (2012) *Painting Air* (Photograph of hanging glass panels installation). collection of the artist [source: Spencer Finch website]

Chapter 4

Page 115
Kruger, B. (1983) *Your gaze hits the side of my face* [photograph]. collection of Glenstone Museum, Potomac, Maryland [source: National Gallery of Art website]

Page 117
Naas, L. (2009) *Your Gaze Hits still* [photograph]. collection of the artist [image by Lisa Naas and Adrianne Hee]

Page 127
Naas, L. (2009) *Recording the Studio's Discarded Glass* [photograph]. collection of the artist [image by Lisa Naas]

Page 129
Fertig, C. (2018) *my sister's bones* [film still]. collection of the artist [source: Carrie Fertig website]

Page 131
Morgan, H. (2016) *Blue Corner* [glass and concrete]. collection of the artist [source: Harry Morgan website]

Page 135
LaMonte, K. (2017) *Nocturne* [cast glass]. collection of the artist [source: Karen LaMonte website]

Page 137
Gray, J. (2014) *Dancing Around the Truth* [mirrored bison skull]. collection of the artist [source: *New Glass Review 36* by Corning Museum of Glass (2015b)]

Page 139
Naas, L. (2013) *Self-Portrait in Glass, 2013* [kiln formed float glass]. collection of the artist [image by Lisa Naas]

Page 141
Mapplethorpe, R. (1982) *Freesia, 1982* [photograph]. collection of Phillips [source: digital article by Phillips]

Page 145
Kelly, J. (2008) *Torn II* [glass and ceramics]. collection of the artist [source: Jessamy Kelly PhD thesis]

Page 147
Choi, K. (2013) *Korean Glass 16* [blown glass, ceramics]. collection of the artist [source: Keeryong Choi PhD thesis]

Page 149
Norman, R. (1999) *Table of Contents* [screenshot]. collection of the author [source: Renee Adelle Norman PhD thesis]

Chapter 5

Page 173
Wilson, C. (n.d.) *Untitled* (Image of Cane Pulling) [glass]. collection of the artist [source: Clare Wilson website]

Page 175
Tagliapietra, L. (2020) *Untitled* (Image of Cane Bundle) [glass]. collection of the artist [source: Lino Tagliapietra 2020 website]

Page 177
Patchen, D. (n.d.) *Untitled* (Image of Glass Cane Roll-up) [glass]. collection of the artist [source: David Patchen website]

Page 181
Tagliapietra, L. (n.d.) *Poesia (Poetry)* [blown glass]. collection of the artist [source: Lino Tagliapietra 2019a website]

Page 183
Patchen, D. (2011) *Canework Detail* [blown glass]. collection of the artist [source: Wikimedia Commons website]

Page 185
Tagliapietra, L. (n.d.) *Glass Detail, Summing up some techniques* [blown glass]. collection of the artist [source: Lino Tagliapietra 2019a website]

Page 187
Naas, L. (2019) *Microsoft Word Black Rectangle Shape* [digital type in thesis]. collection of the artist [image by Lisa Naas]

Page 189
Rothko, M. (1968) *Black Blue Painting* [painting]. collection of Phillips [source: Phillips website]

Page 194
Fuchs, A. (2001) *Untitled* (Image of 9/11 Ground Zero Aftermath) [photograph]. collection of AFP/Getty Images [source: National Geographic digital article]

Chapter 6

Page 233
W. Halford of London (1870–1920) *Case With Glass Eyes* [leather-covered case with 10 glass eyes]. collection of Wellcome Collection [source: Wellcome Collection website]

Page 235
Anonymous (n.d.) *Prince Rupert's Drop* [glass]. collection of Corning Museum of Glass [source: Corning Museum of Glass website]

Page 237
Pearson, C. (2003) *Spanish Sea Glass* [photograph of sea glass pieces]. collection of the artist [source: Celia Pearson website]

Page 239
Blaschka, L. and Blaschka, R. (circa 1865) *Caryophyllia smithii, Devonshire cup coral* [glass]. collection of Harvard Museum of Natural History [source: digital article by Joe Springer]

Page 241
Blades Biological Ltd (2017) *Amoeba Proteus Slide (CBS 067)* [photograph of Amoeba Proteus on glass slide under microscope]. collection of the company [source: Blades Biological Ltd website]

Page 243
Cowan, A. (2012) *Blue Feelings* [flameworked and hot-sculpted reconstructed American pressed glass]. collection of the artist [source: Amber Cowan website]

Page 245
Duffy London (2016) *Abyss Table* [wood and glass]. collection of the studio [source: digital article by Emma Tucker]

Page 247
Studio Drift (2015) *In 20 Steps* [kinetic glass sculpture]. collection of the studio [source: Studio Drift website]

Page 249
Chihuly, D. (2018) *Ethereal White Persian Pond (detail)* [blown glass installed at Royal Botanic Gardens, Kew, London, 2019]. collection of the artist [source: Dale Chihuly website]

Page 251
Tiffany Studios (circa 1905) *Wisteria Table Lamp* [leaded glass and bronze]. private collection [source: digital article by Christie's]

Page 253
Cristallerie de Clichy (c. 1840–1870) *Trefoil Millefiori Garland on Moss Carpet Ground Paperweight* [glass]. collection of Bergstrom-Mahler Museum of Glass [source: Bergstrom-Mahler Museum of Glass website]

Page 255
Studio Bruce Munro (2020) *Field of Light at Sensorio* [optical fibre, glass, acrylic, light source]. collection of the studio [source: Studio Bruce Munro website]

Page 257
Boursier-Mougenot, C. (2012-ongoing) *clinamen v.2* [porcelain bowls on water]. collection of the artist [source: Artpil digital article]

Page 259
Eliasson, O. (2014) *Your lost outside* [set of 24 partially silvered crystal spheres, paint (black), stainless steel]. collection of the artist [source: Olafur Eliasson website]

Page 261
Park, L. (2014) *Eunoia (Version 2)* [screenshot of video installation performance with Emotiv EPOC brainwave headset, 48 speakers, speaker wires, 48 aluminum plates, water, computer]. collection of the artist [source: Lisa Park website]

Page 263
Gormley, A. (2007) *Blind Light* [installation with fluorescent light, water, ultrasonic humidifiers, toughened low iron glass, aluminium]. collection of the artist [source: Antony Gormley website]

Page 265
Studio Wayne McGregor (2012) *Rain Room* [photograph of dance in Random International's Rain Room]. collection of Random International [source: Wayne McGregor website]

Chapter 7

Page 297
Bortoletti (2015) *Calligraphy Pen* [Murano glass and argentone] collection of Lisa Naas [image by Lisa Naas]

Page 299
Starck, P. (1990) *Pizzeria Napkin with Original Sketches for Juicy Salif* [pencil on paper] collection of Alessi Museum [source: *Dezeen* digital article by Benedict Hobson]

Page 301
Alessi (1990) *Juicy Salif* [aluminium]. collection of Alessi [source: *Independent* digital article by Kate Watson-Smyth]

Page 303
Manet, E. (1882) *A Bar at the Folies-Bergère* [painting]. collection of The Courtauld Institute of Art [source: The Courtauld Institute of Art website]

Page 305
Cassatt, M. S. (1878) *In the Loge* [painting]. collection of Museum of Fine Arts Boston [courtesy of Museum of Fine Arts Boston]

Page 307
Unknown maker (1865) *Mary Todd Lincoln's Opera Glasses* [lacquered brass, glass, ivory] private collection [source: BBC News digital article]

Page 309
Naas, L. (2014) *heartache words in glass* [Bullseye kiln-formed glass]. collection of the artist [image by Lisa Naas]

Page 311
Petters, A. (2017) *Books of Disquiet* [glass]. collection of the artist [source: Anne Petters website]

Page 313
Healy, S. (n.d.) *Herbarium* [flameworked glass]. collection of Glasmuseum Alter Hof Herding [source: Natty Glass on Craft Scotland website]

Page 315
Sarmiento, J. (2007) *Encyclopaedia v. 1–7* [screenprinted and fused glass]. collection of the artist [source: Jeffrey Sarmiento website]

Page 317
Nakanishi, N. (2020) *Stripe Drawing—Flow of time* [six hundred glass panels]. public art installation in Kyobashi Metro Station, Tokyo [source: AGC digital article]

Page 323
Brachlow, H. (2018) *Connotation* [cast glass]. collection of the artist [source: Traver Gallery website]

Page 325
Bokaer, J. (2011) *Why Patterns* [performance still]. collection of Robert Benschop [source: Seth Rogovoy website]

Page 327
Montgomery, R. A. (2006) *Journey Under The Sea* [youth fiction book]. collection of Chooseco LLC [source Chooseco LLC website]

Page 329
Naas, L. (2013) *Dancing Glass* [video still]. collection of the artist [image by Lisa Naas]

Chapter 8

Page 341
Naas, L. (2013) '*Mind the Gap' at Edinburgh Waverley Station* [photograph]. collection of the artist [image by Lisa Naas]

Page 345
Naas, L. (2015) *Hotshop Detail* [photograph]. collection of the artist [image by Lisa Naas]

Page 349
Naas, L. (2017) *Changed Priorities Ahead* [photograph]. collection of the artist [image by Lisa Naas]

Page 351
Anonymous (n.d.) *Hourglass* [photograph]. collection of *Poynter* [source: digital *Poynter* article by Chip Scanlan]

Page 353
Payne, C. (2020) *Valor Glass Vaccine Viles at Corning* [photograph]. collection of *New Yorker* [source: digital *New Yorker* article by Raffi Khatchadourian]

Page 355
Marclay, C. (2010) *The Clock* [video still of film being shown to an audience]. collection of the artist and the Walker Art Center [source: YouTube video by the Walker Art Center]

Page 357
Unknown (2020) *Make Sure To Wear Shoes, Ladies. There's Glass Everywhere.* [computer generated image]. original source unknown. [available from: Monica Padman Instagram account @mlpadman dated 7 November 2020]

Working Titles: A Book of Ideas

PDF Page 22, Card 13
Petters, A. (2017) *Books of Disquiet* [glass]. collection of the artist [source: Anne Petters website]

PDF Page 31, Card 17
Naas, L. (2020) *Anais Nin Quote posted by BrainPickings.org* [screenshot image]. collection of the artist [image by Lisa Naas]

PDF Page 32, Card 17
Weiwei, A. (2010–2011) *Sunflower Seeds at the Tate Modern* [installation photograph of 100 million porcelain seeds]. collection of the artist, Tate.org [source: Tate website]

PDF Page 33, Card 17
Twomey, C. (2006) *Detail of Trophy at the V&A* [installation photograph of 4000 Jasper Blue ceramic birds]. collection of the artist [source: Clare Twomey website]

PDF Page 34, Card 17
Darboven, H. (1997–1998) *accepting anything among everything* [2015 installation photograph-view of framed papers at Talbot Rice Gallery]. collection Talbot Rice [source: digital article by Mara Psyrra]

PDF Page 34, Card 17
Gray, K. (2009) *Forest Glass* [installation photograph of found and "pre-existing" drinking glasses, plexiglass, steel supports]. collection of Corning Museum of Glass [source: Corning Museum of Glass website]

Broken words: A Book of Lyric

Cover Page
Faleris, D. (2007) *Tangle Tree* [photograph]. collection of TangledTree Studios [image courtesy David Faleris]

Colophon Page to *Broken words*
Naas, L. (2020) *TangledTree Studios (black & white logo)* [computer generated image]. collection of TangledTree Studios [image by Lisa Naas]

Introduction

Artistic expression, innovative design, scientific invention, concept construction—these are phenomena of creative capacity, born of ideas. They are uniquely human endeavours and the work is of the world, for the world, about the world, and reflected in and by the world. Ideas have an intriguing duality: they can be both the fancy of the imagination but also practical solutions to real-world problems. The creative process that produces them occurs consciously, unconsciously, with tools, and without tools. Despite its human centre, people have yet to comprehend the creative process fully and are still working to identify the 'thing' that is creativity, not to mention its many moving process parts, variables, conditions, facilitators, and inhibitors. Complicating matters, practitioners of creativity often struggle with language to analyse or communicate their processes, especially idea generation.

This dissertation directly addresses this struggle by offering an associative lyric inquiry as a solution. Used in this thesis, it conveys ideation to the reader from my practitioner's perspective through a dialogue among academic explanatory text, poetic lines and imagery, and practical demonstration of theory. I argue that by using this lyric inquiry—and specifically the associative 'word-working' I introduce next in my Statement of Creative Practice—it is possible to articulate and convey a creative, idea-making process by moving beyond familiar language constructs. In doing so, I challenge the standard thesis writing form, while contributing to creativity research on ideation, specifically the point just before an idea is fully formed for studio development.

This thesis relies on my practice-based ideation research and is staged in glass—the word, its concepts, the material, its history, and the workshops—because glass is my primary medium, but more importantly, it has been, and continues to be, a crucial source for human creativity and idea generation. There are as many ways to approach glass as there are glasses themselves, and countless perspectives from which to view glass. Glass is a meeting point for disciplines, backgrounds, and ideas. 'Glass' (the word) and concepts of 'glass' (glass concepts) in associative contexts are accessible sources for idea-making with glass as a creative medium. This thesis presents the argument that lyrically using 'glass' and glass concepts enables inclusivity and access to the glass medium for university students, regardless of glassworking skill level, ability, or studio availability. Similarly, through glass concepts used lyrically in associative contexts, this thesis is a performance of 'glass', enabling access to the glass medium for reader and author, while challenging glassworking tradition that focuses on physical technique. Indeed, this thesis is, itself, a work of glass.

Statement of Creative Practice

My creative practice is situated at the intersection of art, glass, writing, and design. Mine is an intersectional practice, informed by formal education in studio art, art history, and glass design, as well as by my personal experiences and interests. I shun very specific labels, instead, identifying myself broadly as an 'ideas person'—an artist and thinker whose practice and process involves idea generation and designed, creative outputs. I relate, translate, and mediate in my work, seeking elegant solutions. I work like a conceptual artist, where the idea is of foremost concern, but the material results and details are also important to me. I layer my work to make it accessible on different levels from varying perspectives. My design approach is similar as I aim to provoke thought or reflection in my user. I often ask, 'what if?' and question assumptions through my process and outputs, exemplified by my approach to this research project as well as the form of this written thesis. I cross disciplines and blur boundaries, regularly working with mixed media. More recently, I have collaborated with studio glass artists, computer engineers, composers, and sound designers to question the nature of glass. My creative process nearly always begins with words and their lyric interplay, coupled with quick flashes of associations and combinations in wordplay, images, sounds, memories, and experiences. Ultimately, I try to match my idea to media and processes that best express it, however, I gravitate towards glass as my primary medium, while often incorporating text within final outputs.

For me, glass is an endless source of conceptual exploration as it inherently has contradictory characteristics and a polarity that I find so interesting. It can be hot or cold, viscous or solid, reflective and glossy or matte and absorbing, sharp or smooth, transparent or opaque; it can break, shatter, cut, and do damage, or frame, preserve, and hold safe. In my practice, I look to the glass, my concepts of it, its material properties, amorphous characteristics, and ubiquitous nature to suggest a project or indicate how a project might unfold. I make connections to it through associative lyric writing that draws on my experiences, primarily through words but also through images and sounds. This word-working and associative writing leads me in my dialogue with the glass material, and aids me in realising physical works. My practice outputs include glass objects and sculptures, artist's books with glass, glass and sound installations, and even films focused on glass. My recent combinations of glass, sound, and digital technology blur discipline lines, making it difficult to categorise or label them. Glass as a creative medium is currently crossing boundaries, moving from craft and design into artistic disciplines and other creative

Malleably mixed, textual connection provokes my reflected expression.

(25 August 2017)

fields. My work is currently located in this yet-to-be-defined, interdisciplinary approach to glass, where there is space to employ my associative thinking and word-working.

Glass, words, and the lyric are so important to my personal process, that they are, therefore, points of interest, practice exploration, and scholarly research for my dissertation. As a doctoral student, I was faced with solving the problem (for myself) of the often-maligned process of focused thesis writing, which required critical time away from the studio. For this, I challenged myself to write through my creative process and design a creative thesis book, from concept to content to format to book object. In doing so, I would uphold the spirit of my dissertation project on ideation and creativity, while continuing to work within my creative practice using glass, albeit away from the studios. This thesis is a work of glass, shaped as an artist's book: it is the concentrated result of a conceptual art project to capture and demonstrate my creative idea generation through my lyric inquiry and glass concepts. It conforms to University rules, but it looks and reads differently than most theses. Given this, I offer a 'Reader's Guide' to help the reader navigate its design and layered content.

Reader's Guide

This thesis is characteristically different than other dissertations, in both its structure and its writing forms. If the reader is working with the physical book, then the optical tool and small, hand-bound books will likely stand out as detachable elements. If the reader is viewing the digital copy and has not yet explored beyond this page, then the differences may seem quite subtle to this point. Whichever version the reader is using, these notes will hopefully prove useful.

The main body of this dissertation consists of traditional academic text juxtaposed with my lyric writing. The reader can see examples in this section, where explanatory sentences on the left face my lyric writing on the right. By University requirements, each chapter must open on a right-facing page and I adhere to this with familiar academic text. This academic text continues onto the following left-facing page where it meets a single line (or image) of my lyric on the right. I continue this pattern of academic text (left) and lyric (right) throughout the chapters, except for the final pages of each, which vary. A more developed lyric 'Interlude' completes each chapter. The two types of writing support one another, offering textual nuance and associations for readers to make between the two, if they choose to engage with them together. For instance, the lyric line on page 3 is opposite my Statement of Creative

Go through the glass darkly,[1]

(22 October 2020)

Practice. Readers can assume that the lyric reflects, discusses, reinterprets, or responds to this Statement or an aspect of it. In this case, the line distils the core of the Statement into a single sentence as a lyric reflection and interpretation of the creative ideation discussion on page 2. This ‘reflection’ is an association with and characteristic of glass; it is a key glass concept I use as a design element. While I discuss glass concepts further at the end of Chapter 3, it might help the reader to know up front that I use ‘reflection’ repeatedly throughout the thesis in various ways. For instance, the academic text includes reflections as descriptions of moments when I review my work or process; the lyric often reflects or shows content of the academic text in a different form; and the thesis format mirrors and reflects the research itself.

Throughout the thesis, I developed and wrote the academic and lyric together: they inform each other, however, the academic text pages can be read independently and consecutively, as can the lines of the lyric. Chapters 4 and 5 detail the language of my lyric and Chapter 7 discusses my thesis writing process, book design, and optical tool. It might be useful for the reader to know that, generally, the lyric focuses on my personal experience and understanding of ‘glass’, while the academic text centres on creativity and glass material innovation, my practical applications of association, and my art and design outputs. Both attend to ideation and accessing glass: the explanatory academic text describes it from my researcher-practitioner viewpoint, and the lyric (in associative dialogue with the academic text) demonstrates my process over the course of its reading.

For the two types of writing, I use two referencing systems to keep the voices distinct, with all source information provided in the bibliography. For the academic text, I use formal citations with traditional Harvard referencing. For the lyric pages where I provide additional information, I notate those lines and images with superscripts and use chapter endnotes, which can include additional citations if I provide specific explanatory references. The lyric lines on pages 5 and 7 have examples. (Their corresponding notes are located at the end of this section on page 9.) My notes offer details that the reader might not otherwise know and which are necessary to understand the line or image, however, I do not offer all associations for my words or images. Based on the lyric notes in this section, the reader can assume that ‘Go through the glass darkly’ (page 5) tells the reader to begin making their way through this thesis without knowing all the details yet, because, as I write on page 7, “‘I can see clearly now’”, implying that I will guide the reader to clarity. To encourage a creative response from the reader, which I explain as the thesis unfolds, I leave space

for “I can see clearly now”. [2]

(22 October 2020)

for readers to make their own associations, to draw on their own glass concepts, to think between the types of writing, and to consider relationship possibilities.

Throughout my thesis writing, I worked to respond to a creative practice challenge: I wanted to take my research and translate it into another medium outside the written report to offer it in a form for exhibition to an audience. I used my thesis writing process to help me generate ideas. I explain this in depth in Chapter 7, but it could be helpful for the reader to know that during my writing, I recorded my moments of fragmented idea production when they occurred. This required me to develop a system to convey these idea moments to the reader. Within both academic and lyric text, I use my own notation system of subscripts to address those moments during my thesis writing when I was aware of my own early idea formation. I call these moments 'idea events', when I recognised a piece or an element that might help me respond to my creative practice challenge. The reader will notice small triangle forms within the text in odd places. These point the reader to my *Working Titles* book, found inside the cover of the physical dissertation and at the end of the digital Chapter 8.

Working Titles chronicles my idea events, capturing their origins and formulations as they happened. Those idea events that occurred while I was writing new thesis text are shown subscripted with the symbol '△' beside their trigger words or lines and are written as '△A', '△B', and so forth. I dated the fragments and described them in the log. For those idea events that occurred when I returned to the writing to reflect or edit or re-engage with text already written, the symbol is inverted, subscripted as '▽'. For ideas or thoughts that occurred during a pause in the day's writing or for those that appeared unconnected to any single word or dissertation line, I recorded them by date and notated them as '▷'. Readers are invited to participate in the ideation and association process, by also making notes and dating them.

There are many ways to read this thesis, but the more a reader engages with the text, from varying perspectives, the more its layers will unfold. To assist the reader with these perspectives, I designed the optical tool (or 'glass reading aid'), shown in the opening image. Chapter 7 provides details of its design and use, but I would encourage the reader to consider the object earlier, before encountering the upcoming chapters. The first chapter gives an overview of the thesis while Chapters 2–3 provide the research context in creativity, association, and glass. Chapters 4–5 explain my methodology and processes while Chapters 6–7 deal with my practical work and outputs from the research. Concluding Chapter 8 offers a theory of using an associative lyric in creative ideation for engaging with glass as a creative medium.

Introductory Lyric Notes

[1]This line references the adage 'through a glass darkly', which commonly means 'to have an obscure or imperfect vision of reality' according to Dictionary.com (2020). In Catholic teachings, the phrase is credited to St. Paul in the Bible and much has been written about the deeper meaning of 1 Corinthians 13:12 in relation to being able to see or know God (Beale 2020).

[2] "I can see clearly now" is the first line and title of the popular song by Johnny Nash, first released in 1972 (Nash 2012).

1. Overview: From the Dress Circle

This chapter offers a panoramic, sweeping view of the thesis. It discusses key components: the title, research questions, aims, objectives, original outputs, and contributions to knowledge made by this work. These pages also provide the reader with entry points for understanding my thesis design, while explaining their significance for the reader to consider while studying later chapters.

1.1. Thesis Title

An early look at the book's design is possible through the title explanation. The title itself, *Association in Creative Idea Generation : A Black Box Dissertation Staged in Lyric Inquiry and Glass Concepts,* offers key words of content about the thesis, as well as additional clues, to indicate that this thesis will be untraditional. The first half of the title is straightforward: through this thesis, I will be highlighting association as a key element of creative ideation. The second half of the title is rather nebulous, however, as the individual words might confer multiple meanings. For instance, '*Black Box'* describes the colour of a container but it also can specifically indicate a type of versatile, experimental, intimate theatre space that often allows the audience and performers to mix (Soho Rep 2012). '*Black Box'* can also refer to the data recorder in an airplane's cockpit that aids in the forensic examination of crash instances (Tilley 2015). In terms of computer hardware, a black box is an input/output, electronic device or system that does not usually enable access to its processes; and more broadly, it refers to that which has mysterious, inner workings (Merriam-Webster 2019). Similarly, the reader could infer multiple meanings from '*Lyric Inquiry*' and '*Glass Concepts*' due to various associations and connotations. This second half of the title then, with its potential multiple meanings, alerts the reader to the possibilities of layered meaning within the thesis.

The typography of the title words on the cover page also hints at the book's interior. Two contrasting fonts have been used in the two halves of the title, but the phrases are combined with a colon to show that the one is the other. The colon also stands out in a line of its own to suggest that language constructs are important. Finally, the proximity of the title to the inside cover image of *Spectacles*, highlights the watching theme of the 'Overture' on page viii. Watching the words would mean that '*Staged*' in the title does give weight to the black box theatre definition, suggesting that this dissertation has experimental and performance aspects to it.

1.2. Research Questions

Through explanation in traditional academic language as well as through demonstration using unorthodox lyric writing, this thesis answers two questions:

- How do word and concept associations function in creativity and ideation, and how might I use them to facilitate idea generation and the creative process for myself/my practice and for university students using glass as a creative medium?

- How can I turn the doctoral research process, based in my intersectional practice, into a creative act or creative process itself?

To help ground the work in my personal, creative practice, I wrote my questions in first person, as my research is practice-based. Chapter 4.3.1. extensively discusses this 'practice-based' approach, revisited through a 'scholartistry' angle (Elkins 2005, Knowles, Promsilow, and Cole 2008, Neilsen 2002). I derived search terms from these questions, which helped direct both my early literature research and my early practice-based studio work. These terms included 'creativity', 'creative process', 'creative thinking', 'idea generation', 'ideation', 'tools for idea generation', 'creative association', 'associative combinatorial thinking', 'concepts', 'design process', 'design creativity', and 'innovation'.

1.3. Aims and Objectives

This dissertation has five aims listed below, and following each are objectives:

a) **To explore word and concept association within creative processes as it relates to ideation:** by focusing on the early period in the process when practitioners form ideas for studio work; by examining literature and previous studies seeking connections across disciplines; by presenting my lyric responses to the literature and studies; by demonstrating associations through lyric writing (using 'glass' and concepts of glass) in dialogue with my academic text;

b) **To articulate and communicate my experience of ideation in my creative practice and research process:** by offering an introspective accounting of my creativity—reflecting on past work, describing my process, and capturing my ideas as they form (locating their origins); by using glass concepts as entry points to discuss ideation; by demonstrating my ideation through lyric writing and thesis design;

Mirror, mirror, on the wall…daily questions and a material call:[1]

(14 March 2018)

c) **To present a new technique/tool that facilitates idea generation for university students and for myself as a creative practitioner:** by explaining how I embedded creative association theories and techniques of idea generation into its design; by describing how to use the technique/tool; by discussing outcomes of its use in my qualitative studies of creativity: observations of student use in their practices (and my own), analysis of visual outputs from its use, and results of interviews and surveys I conducted about user experiences of it;

d) **To enable access to glass as a creative medium for students (regardless of glassworking skill level or physical ability) and for my readers:** by offering my ideation technique/tool as a useable, accessible model for an inclusive approach to glass as a creative medium; by describing how my model (using concepts of glass) aids students new to glass as a creative medium; by approaching glass conceptually, using glass concepts within my thesis writing and design; and

e) **To present my research process as a creative process, with its thesis report as a creative work:** by describing how I responded through my creative practice to the doctoral research process; and by applying (and describing how I applied) association theories and techniques, the lyric, and glass concepts to my writing/design to develop a creative thesis: a work of glass.

1.4. Outputs and Contribution to Knowledge

This thesis describes how my practice-based research of the questions (on page 12) yielded diverse outputs as answers to them. Chapters 6–8 detail their development, originality, and specific contributions to knowledge. Some of my outputs are intangible, while others are physical objects; they are varied in nature and include:

- 'Word Triangulation', a new idea generation technique/tool for creative practice and especially for engaging with glass as a creative medium, along with studies of it in use by students and emerging artists;

- *Makers Marks* 'Glass in Translation', a glass object and sound project that explores metaphorical language through design;

- *Celestial Bodies*, the beginnings of a collaborative project, combining dance, music, and glass with a choreographer/dancer and a composer;

Raise your glasses!

(16 October 2019)

- A collection of written, lyric vignettes and a logbook of creative practice ideas, both of which are in digital and hand-bound formats;

- *Spectacles for the Black Box Dissertation*, an optical tool with conceptual and practical applications for assisting the reader with navigating this thesis;

- *Measuring My Days*, a conceptual art project using reclaimed glass jars;

- This designed thesis—the concentrated result of a conceptual art project—a performance of 'glass' and glass concepts shaped as an artist's book; and

- A written theory using an associative lyric inquiry for creative idea generation.

These outputs and this dissertation make multiple contributions to knowledge. They contribute a new meta-creative perspective (Runco 2015) to the research on creativity and ideation through a practitioner's lens, in contrast to most creativity research, done through second-party observation. From this practice-based vantage point, I compiled association theories of creativity, such as Mednick's remote associates (1962), Koestler's 'bisociation' (1964), de Bono's 'Lateral Thinking' (1998), Johansson's 'intersections' (2004), and Johnson's 'adjacent possible' and 'exaptation' (2010). I repositioned them, tying them together and tracing them to Wallas' *The Art of Thought* and his theories of association in the creative ideation process (1926). My working method—employing these association theories throughout my research by using a lyric inquiry (Chapter 5)—turned the research process itself into a generative, creative process. My research supports the theories and adds a new contribution to creativity research: evidence showing the usefulness of an associative lyric inquiry to articulating a creative process and evidence showing its usefulness to ideation for glass as a creative medium. As such, it contributes a new, inclusive approach as an accessible model for students to engage with glass creatively through 'glass' and glass concepts. This thesis is also a contribution to lyric philosophy as it puts the philosophy into practice and resonates on multiple levels (Zwicky 2014): it adds to creativity research (both the objective and introspective observation described in Chapter 2) while also demonstrating a creative process. As a work of glass (detailed in Chapters 7 and 8), its overall form is new for a PhD thesis as an original, creative artwork and, in turn, expands possibilities for dissertations and the glass field. Given this, it could be used as a case study to encourage application and incorporation of creative association theories (including use of words) into design tools, methods, and outputs for students striving to innovate.

For ceilings will break today, in reading they fall.[2]

(14 March 2018, ed. 16 March 2018, ed. 12 April 2018)

Chapter 1 Lyric Notes

[1] 'Mirror, Mirror, on the wall' is a translated quote from the Evil Queen of *Snow White and the Seven Dwarfs* by the Brothers Grimm (1857), as she directly questions the glass hand mirror that she holds. It has become a common phrase, made popular by the Disney retellings of the fairy tale. Walt Disney's animated film (1937) used the phrase 'magic mirror on the wall' to address the spirit in the mirror.

[2] This line references the proverbial 'breaking of the glass ceiling': being the first, doing the impossible, getting ahead, and innovating.

‘Interlude 1’

Mirror, mirror, on the wall…daily questions and a material call:
Raise your glasses!
For ceilings will break today, in reading they fall.

Statement on ‘Interlude 1’

For this first chapter and ‘Interlude’, I used idioms to provide accessible entry points for the reader into my lyric writing, my use of ‘glass’, and the design of this thesis. This first ‘Interlude’ is a type of warm-up, with language to get the reader actively thinking about associations and how the words might be in dialogue with surrounding text or images. I also wanted to demonstrate that while my lyric is a different form of writing than my academic text, I often develop it from an everyday experience. ‘Glass’ and its associations are commonly used in the English language as figures of speech or as metaphors or signifiers of a scenario. For instance, mirrors have long been used and understood in general society as symbols associated with concepts such as beauty, narcissism, magic, and truth, and therefore, the reader might infer from the first ‘Interlude’ line, that the lyric reflections in this thesis might have any or all these traits. The reference to the Brothers Grimm story and the Disney animation with ‘Mirror, mirror, on the wall’ also suggests that it is already common to ask questions of glass material. Throughout this thesis, I will be questioning concepts of glass and the nature of glass. The second line, ‘Raise your glasses!’ suggests dual directives: it refers to common toasting with drinking glasses, telling the reader to celebrate, and it also points the reader to the *Spectacles for the Black Box Dissertation* object, shown on the inside cover. The third line directly references the glass ceilings that shatter when breakthroughs occur and limits are pushed beyond the norm. Writing this dissertation pushed the boundaries of the traditional thesis. Reading it will do the same. These everyday phrases, highlighted in ‘Interlude 1’, acknowledge the role that glass material and ‘glass’ play in daily life, in extraordinary circumstances, and in the representation of concepts based on its associated material properties.

2. Creativity Context: Scena

Creativity is a rather contemporary area of research. Centuries-old beliefs held that the creative process occurred through genius only and was divinely given or related to the spirits and madness (Bethune 1839, Faherty 2018). These are still prevalent views even today as shown by Elizabeth Gilbert's *Big Magic: Creative Living Beyond Fear* (2015). Recent studies, however, both scientific and those based in the arts and social sciences, are currently challenging the idea that the process is unknowable. Countering the myth of genius is work like that of neuroscientist Charles J. Limb, a leading, contemporary figure on this topic: he works with artist subjects and analyses their brain patterns to learn about the creative process as they play, perform, and create within lab environments (Limb and Braun 2008, McPherson and Limb 2013). Margaret Boden, a prominent cognitive scientist, is forwarding the field by studying computers and their capacity for creativity (2004). Recent psychology studies, like the one conducted by the University of Kent using Edinburgh College of Art students, focus on artist personalities and character attributes as underlying traits of creativity (2015). From the humanities, case studies and research compilations of artist routines, habits, and schedules are common (Podio 2016, Spreadbury 2018). From popular culture, professional artists, writers, and designers such as Brian Eno (Red Bull Music Academy 2013), Tiffany Shlain (2013), Neil Gaiman (The Wheeler Centre 2011), and Ed Catmull (2014) are joining the discussions and debates with articulations of personal processes. Books such as Sarah Thornton's *33 Artists in 3 Acts* (2014) and Howard Gardner's *Creating Minds: An Anatomy of Creativity seen through the lives of Freud, Einstein, Picasso, Stravinsky, Eliot, Graham, and Gandhi* (2011) offer biographical and historical accounts of creativity as well. Due to all the attention during the past few decades, numerous models and theories of the creative process now exist across many disciplines and take many forms.

This chapter discusses some history of creativity research across disciplines as well as prominent theories. It presents overviews of various process models and focuses on idea generation. With this as the backdrop, I highlight how various association elements in the process are present by different names and in different modes across the fields and models, and while doing so, posit that perhaps these elements are essential to creativity and idea generation. Before these discussions, however, this chapter offers definitions and assumptions, while presenting the dissertation focus within the scope of 'creativity'.

2.1. Creativity Definitions and Dissertation Assumptions

2.1.1. Creativity, Creative Process, Creative

Descriptions of creativity by active practitioners are often expressed in lyric phrases and metaphors, suggesting valuable clues to defining the subject and its processes. Designer Nigel Cross explains that 'the creative designer interprets the design brief not as a specification for a solution, but as a starting point for a journey of exploration; the designer sets off to explore, to discover something new' (2011: 7). This 'journey of exploration' is the extended metaphor used in *Navigating the unknown: The creative process in contemporary performing arts*, a book in which six performing artists discuss the creative process together (Bannerman, C., Sofaer, J. and Watt, J., 2006). 'Peter Turchi, fiction writer and author of *Maps of the Imagination: the Writer as Cartographer*, concurs that 'artistic creation is a voyage into the unknown. In our eyes, we are off the map' (2004: 13). This 'off the map' exploring is what writer Rebecca Solnit calls 'getting lost', which she asserts is basic to the process: 'for artists of all stripes, the unknown, the idea or the form or the tale that has not yet arrived, is what must be found' (2005: 2). These similar descriptions provide a perspective on seeking the new and unfamiliar, but leave a definition of creativity and the creative process wanting.

'A single variety of creativity is a myth' and this, plainly stated by psychologist Howard Gardner, suggests just some of the difficulty in defining, understanding, communicating, and researching the subject (2011: 35). Adding to the confusion is that 'creativity' in a colloquial sense, has also come to refer to the activities of all those employed in the art and design industries. Creativity definitions vary depending on the discipline of study, the people, products, or history studied, and the conditions of the creativity. Psychologist and developer of 'lateral thinking' Edward de Bono agrees when he writes that 'idea creativity is not the same as artistic creativity' (2007: 5), though this dissertation author and conceptually inclined artist would argue that they can be the same. Experts, however, do agree that there are different types of creativity, but even they categorise and characterise creativity differently. Cognitive scientist Boden distinguishes between 'psychological creativity' or 'P-creativity', which is surprising, valuable, and new to the person who had the thought or produced the output, and 'historical creativity' or 'H-creativity', which is different as an idea or output that is surprising, valuable, and new to the world at large (2010: 41–43, 2004: 2). She writes that each of these can take three forms: 'combinational' (making unfamiliar connections), 'exploratory' (pushing at the boundaries of a domain or accepted style of thinking), and 'transformational' (radical, daring, and not previously existing), with the

Into the looking glass and down the rabbit hole[1]

(7 March 2018)

last holding the most surprising results (2010: 41–43, 2004: 3–6). Working decades prior to Boden, psychologist Jerome Bruner, also identified surprise as a 'hallmark of creativity', categorising it, and creativity in turn, by its effectiveness (1974: 209). Psychologist Mihaly Csikszentmihalyi, discusses 'creativity' with a small 'c' versus capital 'C' 'Creativity' (2007); though Mark Runco, editor-in-chief of the *Creativity Research Journal*, challenges this as a false dichotomy (2014a). Csikszentmihalyi's little 'c' creativity describes creativity that is common in general society: everyday, imaginative acts that range from cooking, to making, to building, to decorating (2007: 17). On the other hand, Csikszentmihalyi's big 'C' 'Creativity' 'is a process by which a symbolic domain in the culture is changed' (2007: 17). He writes that 'new songs, new ideas, new machines are what ['C'] creativity is about' (2007: 17). This kind of creativity occurs when a person 'brings novelty' into this domain and experts validate the innovation (2007: 15). David P. Cropley, Professor of Engineering Innovation, concurs writing 'the first thing needed for creativity is the *generation* of novelty' (2015: 87).

Cropley's use of the word 'generation' identifies what is implied in the previous descriptions and characterisations: that creativity is generative and has results. Those results might be crafted, drafted, built, written, captured, sculpted, or imagined. They might be physical outputs, such as products, artwork, inventions, machines and/or intangible outputs, such as ideas, concepts, scientific theories, and mathematical formulas (Boden 2004: 1, Csikszentmihalyi 2007: 17). As such, creativity runs through all disciplines and is present in both everyday life and paradigm shifts in human society. There is wide agreement among psychologists and cognitive scientists that creativity, which engages the mind, is an aspect of human intelligence, available to all, and possible to teach (Boden 2004, Bruner 1974, Csikszentmihalyi 2007, de Bono 2007, Holyoak and Thagard 1999). There is also a 'standard definition' of creativity that Runco and Jaeger point to as having been developed through the scientific method during the history (albeit short) of creativity research in the 1900s (2012). They suggest that any definition of creativity take this into account and build upon it: that originality (novelty) is involved and that it is effective, useful, or valuable (2012: 92).

As creativity is an aspect of human intelligence, the cognitive sciences lead the way in the research on the subject, and this is a reason that characteristics and definitions offered by the field are considered here in this dissertation concerning the art and design studios. Undoubtedly though, some artists, designers, and craft persons agree with the cognitive science field on this matter, as is evidenced by the language present in their practices. 'Thinking through making', 'thinking through craft',

where the fun house ▽D emporium churns—[2]

(12 March 2018)

‘thinking through drawing’, and ‘design thinking’ are just some of the everyday phrases common to studios; they form the subject for books, exhibitions, and lectures (Adamson 2007, Cross 2011, Ingold 2012, Royal Academy of Arts 2015–2016).

For this dissertation, my definitions of creativity and the creative process are formed of key words derived from the overlap of the cognitive science descriptions in conjunction with those from art and design practitioners. ‘Creativity’ then, is the generation of new, novel, original, or innovative outputs that can be physical or intangible and ‘creative’ is a state of encompassing creativity. The ‘creative process’ is the activity concerned with the production of these original or novel outputs, and includes the mental activity (both conscious and unconscious) that is involved. This creativity extends beyond the fields of art and design, can be found within every discipline, and is required of every student pursuing a doctorate degree and intending to contribute ‘original’ knowledge to his or her field of study. This dissertation focuses on university-level students engaging in the traditionally-labelled creative disciplines (the fine arts, design fields, craft, music, creative writing, etc.) and PhD research students tasked with contributing new knowledge to their disciplines. In this thesis, the word ‘artists’ represent practitioners in those traditionally-labelled creative fields mentioned above. The word ‘creatives’ encompasses those practitioners of creativity—people working in these fields as well as those outside of these disciplines.

▷G

2.1.2. Ideas, Concepts, Idea Generation for Creative Practice

Noted above, creativity outputs include those that are intangible, such as ideas and concepts. As this dissertation specifically focuses on idea generation for creative practice, additional definitions are needed for this context. In Boden’s description of creativity, idea outputs ‘include concepts, poems, musical compositions, scientific theories, cookery recipes, choreography, jokes—and so on’ (2004: 1). In common, lay language, the word ‘concept’ is often synonymous and interchangeable with ‘idea’. Here though for Boden, a concept is a type of an idea. But what comprises the idea? How is ‘concept’ different than ‘idea’ and how is it a type of idea? Clarifying this language is important as both ‘idea’ and ‘concept’ are recurring thesis terms.

It is widely accepted that new ideas, of which many are developed through a creative process, underpin innovation and are new combinations of older ideas, facts, and other elements such as memories and experiences (de Bono 1977, Johansson 2004, Johnson 2010, Young 2003). As a definition though, this still does

There is the effect of living backwards:[3]

(12 March 2018)

not quite satisfy because ‘idea’ is used within the descriptor. Attending to ‘concept’ first then, might enable a definition for ‘idea’. The most recent research out of neuroscience and psychology includes Lisa Feldman Barrett’s new theory of constructed emotion, which has its foundation built on the research of concepts, concept construction, and knowledge of concepts (2017). Answers might be here. She explains that a concept is a collection of neural patterns that contain all the information about the subject or ‘thing’ at hand, including past experiences of it, as well as accompanying internal, involuntary, bodily responses to it (2017: 28). Throughout her book *How Emotions Are Made: The Secret Life of the Brain*, she uses a ‘bee’ example to explain a concept and the concept’s construction (2017). Barrett demonstrates that a ‘bee’ includes sensory perception of it, from what it looks like to what it sounds like to how it moves. The concept of ‘bee’ also includes every instance of ‘bee’ specific to the person experiencing ‘bee’; this involves even bodily responses to the insect (heart racing), memories (stinging), experiences (pain), and teaching moments about ‘bee’, like parents telling a child to stay away (Barrett 2017). Her theory proposes ‘that emotions are not inborn, and if they are universal, it’s due to shared concepts. What’s universal is the ability to form concepts that make our physical sensations meaningful’ (2017: 38).

Concepts in psychology and neuroscience, are the earliest and smallest building blocks of knowledge and just like Csikszentmihalyi’s little ‘c’ creativity, are part of the everyday. Barrett explains that the brain organises and re-organises these neural patterns ‘to perceive and flexibly guide’ action (2017: 28). Humans build up concepts from detailed sensory input from their environment, from their bodies internally, and from past experiences of a concept by using stored information in the brain (2017: 98). Everything is a concept, from a bee, to sadness, to glass, to the colour blue, to ‘everything’ itself. Specific concepts change and become more complex as a person experiences more instances of them that contain new information (Barrett 2017). She also says that ‘concepts are a primary tool for [the] brain to guess the meaning of incoming sensory inputs’ (2017: 28). Humans are able to construct new concepts from the knowledge they have to guide their actions; Barrett calls these ‘goal-based concepts’ (2017: 89-92). In her case of ‘bee’, an example might be ‘things that protect from bee stings’. She asserts that ‘concepts are not static but remarkably malleable and context-dependent…goals can change to fit the situation’ (2017: 90). Upcoming chapters of this dissertation describe concepts of glass—‘glass concepts’—and highlight Barrett’s assumption in examples of design and engagement with them. Additionally, glass concepts are present throughout the writing of this thesis within the

in riddles riddled with puzzles to solve,

(19 April 2018)

lyric prose opposite the academic text. Chapter 3 (pages 96–101) provides details and offers additional reasons for the focus on glass concepts within a dissertation on idea generation and creativity.

'Concepts' then, are holistic mental constructions that account for all the bits and pieces of information comprising a person's reality and imagination. They are also the elements of mental construction that make up 'ideas'. 'Ideas' and idea outputs of a creative process are more extensive and complicated mental constructions that often have some specificity in their forms, like poems, theories, and jokes. The creative process draws upon concepts but can also produce them. This dissertation uses these definitions of 'concepts' and 'ideas' for general purposes, but as I often work like a conceptual artist (Statement of Creative Practice, page 2–4) and explore ideation in the scope of creative practice, additional details and definitions are still needed for clarification. In this dissertation, I examine the point in the creative process when artists are working to identify and to begin developing the bits and pieces that are their key concepts as they relate to a specific brief. During this part of the process, they are striving to put together or create new ideas to drive their projects. Visual artists, designers, and musicians all attend to this in different, numerous ways, and I discuss various models of the creative process later in this chapter. For now, it is important to define 'concept' in relation to creative practice.

Various creative disciplines use this term 'concept', but consider it differently and use it slightly differently than in the above definitions. Academic philosophers Peter Goldie and Elisabeth Schellekens debate 'concept' in art within their introduction to *Philosophy and Conceptual Art.* They write that when approached historically, concept art or 'conceptual art' 'refers exclusively to the artistic movement that took place roughly between 1966–1972' and to the works produced during this period (2009: xi). They argue though, that if approached philosophically and more inclusively, 'conceptual art' has certain characteristics in common, including an emphasis on ideas and the view that the artwork need not be an object (2009: xii). In her article 'The Aesthetic Value of Ideas', Schellekens goes as far as to claim that the idea is the art and that the idea is the material of the art work, citing founding conceptual artist Sol LeWitt to support her argument (2009: 74). In LeWitt's reflective *Art Forum* article 'Paragraphs on Conceptual Art', he wrote 'In conceptual art the idea or concept is the most important aspect of the work' (1967: 80). Philosopher Wesley D. Cray acknowledges the academic consensus that 'conceptual art' is about ideas, but challenges Schellekens' extreme view, positing instead that 'conceptual artworks are

refracted as nested matryoshka.[4]

(19 April 2018)

not ideas but art[e]facts imbued with ideas' (2014: 235). This dissertation uses the 'conceptual art' from the philosophical, inclusive viewpoint, acknowledging that 'conceptual art' holds the idea as primary, above object physicality—meaning, there does not have to be an art object for there to be conceptual art. For me, the output aesthetics are still very important to whatever form the conceptual art takes. Later, in Chapters 5, 7, and 8, I discuss conceptual art within the context of my research outputs.

Among design researchers, students, and practitioners, 'concept' appears to be as complex a subject. For instance, shortly before I wrote this section, an e-mail thread begun by then PhD Candidate Lars Albinsson titled 'The concept of concept?' circulated on the PhD-Design JISCMAIL forum; more questions than answers or definitions seemed to surface throughout the course of that online conversation (2017–2018). From Nigel Cross's writing on design activities and protocol studies, the reader understands that 'design concept' is the solution and strategy to the design issue (2001 and 2011). Arguably though, the interdisciplinary team of Salu Ylirisku, Giulio Jacucci, Abigail Sellen, and Richard Harper elaborates and defines 'design concept' most clearly in their article 'Design Research as Conceptual Designing: The Manhattan Design Concept' (2016). They liken it to a scientific concept and suggest that a 'design concept' has the same three main characteristics as a scientific concept: '(i) concepts *give a name* to the phenomenon that is being studied, (ii) *concepts enable the collaborative orientation* towards the phenomenon that a concept addresses, and (iii) concepts *propose a way* to perceive and structure the phenomenon that is being oriented to' (2016: 650). They emphasise that in addition to these characteristics, a 'design concept' is also '*purposive* and *generative*'; the concept itself outlines or implies principles that direct the overall design project and is the '*design driver*' (2016: 650). 'Conceptual design' or 'conceptual designing' is understood to be the period when solutions are sought for a brief and design problems are explored through framing and re-framing (Ylirisku, Jacucci, and Sellen 2016). This dissertation adopts the team's definitions of 'design concept' and 'design driver', but because my practice is situated where art, glass, writing, and design meet, I instead use 'project driver' throughout the thesis, because it is better suited for my intersectional practice. 'Concept', as a single word, still refers to the holistic mental constructions detailed earlier in this section; it plays an important role in developing ideas and the overarching driver for a project. *How* these concepts associate is an anchoring discussion in this dissertation, examined in detail throughout my writing.

In his 'Design Cognition' chapter within *Design Knowing and Learning*, Nigel

Optics and illusion,

(19 April 2018)

Cross refers to the early development of the design concept in his study on designers and their protocol activities, noting that this beginning work creates 'partial solutions' and a 'guiding theme' (2001: 82, 85). Researcher Jane Darke seems to discuss the same early outputs as guiding themes that lead to the design concept; she calls these starting points 'the primary generator' and defines it as the 'concept or objective that generates a solution' (1979: 38). She describes the primary generator as 'a way into the problem' for the architects in her study of their design methods (1979: 38). Darke explains that the primary generator 'can in fact be a group of related concepts rather than a single idea' (1979: 38). This dissertation focuses on 'primary generators' and the creative process period that develops these 'partial solutions' and idea fragments that ultimately lead to the project driver. I discuss these earliest concepts, their relationships, and their roles in developing project drivers throughout the thesis.

It is evident from the descriptions and definitions in this section that there are many overlaps in the disciplines and the topics, but 'generative' is key to creativity, ideas, and art and design practice. Based upon the definitions assumed, this dissertation acknowledges that not all art and design work meets the full definition of 'creative'. Nor are all ideas necessarily artistic or 'designerly' (see the Glossary, Appendix A for additional definitions and detail). Aspects of creativity are discussed in later pages of this chapter; and tools, methods, and conditions for engaging in early idea-making are considered in Chapters 6–7. If the dissertation assumption is that creativity is found throughout society and present throughout academia, and the definition of creativity is not tied to a single discipline, it would follow that this thesis should consider creativity research from a wide array of fields to situate this research within the scope available. The following section discusses creativity research, methods, studies, and theories across disciplines and time periods.

2.2. Creativity Research

2.2.1. Historical Overview

With creativity present in everyday life, throughout academia, and highlighted in historical events and paradigm shifts in society, a history of creativity itself is well beyond the scope of this dissertation, as is a history of idea generation. However, a brief historical overview of creativity research is possible and important for situating this dissertation. As noted in the previous section, the field of psychology leads the way in creativity research and has the most extensive history of studying the topic. In

the way in is the way out.[5]

(19 April 2018)

their chapter 'A History of Creativity Research', psychologists Robert Albert and Mark Runco state that 'nearly every major twentieth-century psychologist (e.g., Freud, Piaget, Rogers, and Skinner) has taken creativity seriously and explored what it means to be creative, and at present the field can only be described as explosive' (1998: 17). They wrote this two decades ago. Since then, the disciplines of neuroscience, artificial intelligence, business management, education, design, and others have increased efforts and research outputs in attempts to obtain understandings of creativity and the breakthrough leaps in knowledge that shape society. For an historical overview of creativity research, the field of psychology and its literature offer the most information and provide background to its beginnings.

R. Keith Sawyer, psychologist, designer, and student of Csikszentmihalyi, states that modern creativity research began in the 1950s and 1960s with the first wave of creativity research focusing on personality (2012: 4). Albert and Runco grant that an important shift in the research perspective took place in the 1950s, but argue that it was not a paradigm shift and that empirical studies into creativity had begun in the late 1800s (1998: 28). Madelle Becker, a scholar at the University of Illinois at Urbana-Champaign, posits that the foundations for modern creativity research were formed as early as 1837 within Reverend George Washington Bethune's address to Union College (1996: 220—221). She states that these early writings on creativity in the 19th century reflected a philosophical or generalist perspective with discussions of creativity wrapped within those on genius (1996). Becker explains that the themes surrounding creativity were similar in theme to those by researchers of the 20th century, with authors concentrating on five basic questions:

1. What is creativity?
2. Who has creativity?
3. What are the characteristics of creative people?
4. Who should benefit from creativity?
5. Can creativity be increased through conscious effort?

(1996: 220)

She also acknowledges that researcher conclusions were questionable because the scientific method was still developing at the time (1996: 220). Albert and Runco argue that until Darwin's *On the Origin of Species,* published in 1859, creativity was enclosed within the larger debate raging throughout the 18th century by philosophers and psychologists on the subject of freedom and was not yet a concept of research on its own (1998: 24). They write that it was 'only after Darwin worked out the processes underlying natural selection that several basic characteristics of creativity

Enfolded, multi-lens perspective lends spider-sight,[6]

(15 May 2018)

were brought into sharp focus' (1998: 24). They credit Francis Galwin, a scientist and contemporary of Darwin, as the first to use empirical evidence (in this case, measurements of individual differences) to show that 'genius was divorced from the supernatural' and to suggest that it might be possible with scientific studies to answer questions around creativity (1998: 25).

The psychology researchers of the 1900s did just that, investigating the questions that Becker offers from the previous century, but through studies using the scientific method and aimed at gathering empirical evidence. Albert and Runco cite American psychologist Catherine Morris Cox and her 1926 Stanford University study 'The early mental traits of 300 geniuses' as the most important work on creativity prior to World War II (1998: 27). Using an historiometric method of investigation, she and her colleagues exhaustively coded biographical, autobiographical, and sociocultural information for 300 historically eminent men to estimate IQs and childhood traits (1998: 27). Albert and Runco explain that her study coincided with the development of ego psychology which in turn led to the increasing interest in research on 'personalities, values, talents, and IQs of exceptionally creative men and women' (1998: 28). This is where Sawyer picks up the history. He credits Dr. J. P. Guilford, president-elect of the American Psychological Association in 1950 and his annual meeting keynote speech to the same organisation as the 'stamp of approval' for, and start of, modern creativity research (2012: 16). Psychology professor Michael Mumford concurs that Guilford's address and his introduction of the divergent thinking test was a seminal moment in creativity research (2003: 108). Guilford's divergent thinking test rated a person's creativity by the 'frequency of uncommon, yet acceptable, responses to items' (Guilford 1950: 452). Mumford explains that this test was a 'viable new method for studying creativity as an empirical phenomenon' and it enabled a 'systematic study of creativity [to] bec[o]me an active area of scientific investigation' (2003: 108). (In the same paragraph, Mumford calls the test 'ubiquitous' and 'infamous', decrying research reliance on it, because it limits the scope of creativity research.) Sawyer characterises the creativity research of the 1950s and 1960s as focused on the individualistic approach with studies of the personalities of exceptional creators (2012: 4). He writes that in the 1970s and 1980s, researchers shifted their attention to the internal mental processes that occur while people are engaged in creative behavior (2012: 4).

Many researchers of creativity during these decades were influenced by the four-part framework introduced by Mel Rhodes in his 1961 article 'An Analysis of

resolute to jump beyond the god gaffers—[7]

(18 May 2018)

Creativity' and Sawyer suggests that their research can be considered along those same divisions (2012: 11). After searching for a definition of creativity for five years, Rhodes claims that he amassed 40 definitions, analysed them, and noted that the content formed four strands (1961: 306–7). His four strands, 'the four P's of creativity', are comprised of person, process, press (or place), and product (1961: 307). He acknowledges though, that 'each strand has a unique identity academically, but only in unity do the four strands operate functionally' (1961: 307). For this dissertation, a good argument could be made that my research falls most categorically into the process strand of enquiry, with process central to all five of my aims (pages 12, 14) in Chapter 1. Rhodes defines process as the 'mental processes that are operative in creating ideas' and 'applies to motivation, perception, learning, thinking, and communicating' (1961: 307–8). After drawing a comparison with a young science of botany, Rhodes concludes his article by putting a call out to fellow educators and creativity researchers to 'distinguish the strands of the phenomenon and then carefully to classify new knowledge according to the pertinence thereof to either person, process, press [place], or product' (1961: 310). Putting this thesis and my research into a single category would oversimplify the complexity and layers within my project, as I argue in later chapters that person, place, product, and process are intertwined in how they influence one another in creativity. At the same time, the research strands are too vast to investigate all thoroughly in this dissertation, so I focus on process. Additionally, since Guilford's address and Rhodes' call, the depth and breadth of each strand has grown enormously and many fields have taken up the subjects, so to cover even one strand completely is outside the scope of this thesis.

With the explosion of creativity interest, researchers have also identified and categorised various approaches to the subject based on methods and theories. Mumford cites the publications of Runco's *Creativity Research Handbook* in 1997 and American psychologist Robert Sternberg's *Handbook of Creativity* in 1999 as a 'watershed event in the history of creativity research' because they summarise and categorise the creativity research up to the turn of the century (2009: 107). A chapter in Sternberg by Richard E. Mayer discusses 'how' to study creativity as 'perhaps the most contentious issue' and lists six overarching approaches: '*psychometric, experimental, biographical* (including case study and historiometric), *biological, computational,* and *contextual* (including cultural and evolutionary)' (1999: 452). The reader should note that Mumford, Runco, Sternberg, and Mayer are all psychologists. A decade later, in 2009, mathematician Bharath Sriraman reviews the literature to

heavens…to see even Galileo's might! [8]

(18 May 2018)

develop a similar summary, listing a long number of approaches (2009: 16–17). He relies heavily on the psychology literature in his references. None of these summaries, descriptions, or approaches listed by Sriraman or Mayer include artistic approaches or practice-based approaches (discussed extensively in Chapter 4.3.1.) to study creativity (like I do in my research and describe in Chapter 5). There is a thread of process research literature, however, that leads up to my work and this thesis. It highlights association in creativity and the next two sections follow this thread.

2.2.2. Process Research: The Wallas Model

The 'creative process', as defined earlier in this chapter on page 28, is the activity concerned with the production of original or novel outputs, and includes the mental activity (both conscious and unconscious) that is involved. Todd I. Lubart, of the Laboratoire Cognition et Développement at Université René Descartes–Paris V, states in the *Creativity Research Journal* that the creative process is 'the sequence of thoughts and actions that leads to a novel, adaptive production' (2001: 295). Much of the research around the creative process, especially during the 20th century, focused on modeling or outlining this sequence of events. In 1926, with *The Art of Thought*, psychologist Graham Wallas formalised the first stage-based model that has remained the predominant description ever since (Lubart 2001, Sadler-Smith 2015, Sriraman 2009). Eugene Sadler-Smith, of Surrey Business School, goes so far as to call the Wallas model an 'in-house assumption among creativity researchers' (2015: 342). The model is so prevalent that a large swath of creative process research has developed from the Wallas outline or uses it in some way—confirming, expanding, revising, or questioning it (Ghiselin 1954, Hadamard 1949/1954, Lubart 2001, Sadler-Smith 2015, Sriraman 2009). The first creative industry practitioner to discuss a similar model appears to be James Webb Young, an advertising expert who wrote *A Technique for Producing Ideas,* published and printed in 1940 (Young 2003). Since then, Young's small missive has been widely distributed and highly influential, especially in the advertising industry (Bengtson 1982: 4). As the Wallas model is the source upon which so much creativity research has been based or assumed, and since professionals like Young acknowledge it in practice, I found it necessary to examine *The Art of Thought* for myself and for this thesis. While this thesis does not intend to develop or revise any general model of the creative process (though I do explore it in my practice in Chapter 5), my focus is on the earliest part of the process,

9



(18 May 2018)

generating the project drivers and ideas that set the creative work on its path to realisation. I read Wallas to learn what he and his key research offered in this regard.

Wallas developed his model by analysing the introspective accounts of the process by creatives from all disciplines, but he relied heavily on the words of physicist Hermann von Helmholtz and mathematician Henri Poincaré to determine the stages and describe them (1926). After recounting a speech by Helmholtz, Wallas names the first three stages as 'Preparation', 'Incubation', and 'Illumination' (1926: 80). From Poincaré's account, which he also uses in support of these stages, he adds 'Verification' (1926: 80). For Wallas, 'Preparation' includes research on the issue at hand from many perspectives (1926: 80); but he explains that a person's education and experiences make up the sum of the 'Preparation' (1926: 83–84). The 'Incubation' stage, according to Wallas, is not voluntarily or consciously thinking about the problem, but rather voluntarily removing oneself from the problem and consciously working on other problems or mentally relaxing while subconscious thought on the topic takes place (1926: 86). He discusses the 'Illumination' stage as a period of unconscious work on the issue, during which there is a time of 'Intimation', described as when the creative has a feeling that success is coming (1926: 97). The success or insight, often seemingly sudden, is the concentrated result of the 'Illumination' stage (1926: 94). 'Verification' is essentially all the work that comes after the insight: 'the validity of the idea [is] tested and the idea itself [is] reduced to exact form' (1926: 81). These are the four stages often assumed as the overarching start-to-finish sequence of events that leads to a creative output. Marion Botella, Franck Zenasni, and Lubart, all from Université René Descartes–Paris V, even call the Wallas outline a 'macroprocess model', as opposed to microprocesses, which they say are underlying mechanisms such as divergent thinking or convergent thinking (2018: 1–2). Wallas is often cited for this model, but the nuances of his text and stage-based theory seem to have been lost through the years. Throughout his examination of the creative process, he weaves a key discussion (often overlooked by researchers) concerning association of thought. Considering his stages in his original context of association might support an argument that they are as much about microprocess as macroprocess.

To improve thinking, Wallas is interested in creating an art of thought or guidance for the 'mental processes which constitute the higher forms of thought, and lead to the formation of new and useful ideas or decisions by distant and unaccustomed links of association' (1926: 54). He spends the first chapters placing thought, and research around thought and this linking by association, into context. He

10



(13 February 2020)

discusses association theory up until his time and philosophers such as Aristotle, Thomas Hobbes, and John Locke (62–64). His intention for the book is clear: he is addressing young adults to help them improve their thinking—that 'it is this process of "association" that their art [of thought] will attempt to improve' (1926: 61). Wallas writes that the first step to developing an art of thought is to observe the association of thoughts. He states that this has been done introspectively in two ways: that the observer remembered and recalled the associative train of thought or that the observer 'watched' the associative thoughts and resulting ideas as they occur (1926: 62–63). He explains that it is difficult to recognise and distinguish psychological events because they intermingle all the time and affect one another, and therefore it is also difficult to know when or how to try to influence or manage thoughts (1926: 79). Through examples, he also acknowledges that thought can take various forms such as words, images, memories, or feelings (1926: 72–75). To reduce variables, he turns to creators, artists, poets, mathematicians, and inventors, seeking to examine thought processes that have a beginning, middle, and end. He aims to dissect their accounts of thought processes that led to their successes: 'we take a single achievement of thought—the making of a new generalization or invention or the poetical expression of a new idea—and ask how it was brought about' (1926: 79).

That context sets up the section of his book that is so often referenced, but Wallas wrote some key lines as he introduced the stages. He writes that 'Helmholtz here gives us three stages in the formation of a new thought' [my emphasis] (1926: 80). Then he discusses Poincaré's account to support the three stages. Wallas quotes from Poincaré's book *Science and Method* where Poincaré discusses his inspirations:

> It never happens that unconscious work supplies *ready-made* the result of a lengthy calculation in which we have only to apply fixed rules... All that we can hope from these inspirations, which is the fruit of unconscious work, is to obtain points of departure for such calculations. (Poincaré 1913: 62, Wallas 1926: 81)

Poincaré emphasises that the first part of the process (which corresponds to Wallas's first three stages) yields only 'points of departure'. The 'Verification' stage is all the testing and form-finding that follows. These 'points of departure' seem related to Darke's 'primary generator' and Cross's 'partial solutions' (page 36) and to Young's 'partial ideas', which I discuss in the following section. They are starting points holding potential for driving creative work. This is where my interest and research lies.

According to Wallas, association of thought is a key player—perhaps even

11



(13 February 2020, edited 17 February 2020)

an underlying mechanism—leading up to these 'points of departure'. During his discussion of 'Preparation', he writes:

> The educated man has also acquired, by the effort of observation and memorizing, a body of remembered facts and words which gives him a wider range in the final moment of association, as well a number of those habitual tracks of association which constitute "thought-systems" like "French policy" or "scholastic philosophy" or "biological evolution". (1926: 83)

By 'final moment of association', Wallas refers to the insight or point of departure that is the concentrated result of the 'Illumination' stage. Describing the 'Intimation' period, just before the insight, he writes that 'our fringe consciousness of an association-train is in the state of rising consciousness which indicates that the fully conscious flash of success is coming' (1926: 97). That flash of success is the 'final moment of association'. This thesis and my research explore the making of these 'points of departure'. I try to observe and capture the thought associations that lead to these points, to examine them, and to facilitate the making of future points of departure. My thesis is specifically situated in the body of creativity process research that discusses association, especially that which involves words. The next section highlights key texts.

2.2.3. Process Research: The Association Thread

From Wallas, following the writings on association in creativity research and creative practice lead the reader through multiple disciplines, including advertising, mathematics, poetry, psychology, business, popular science, and fiction writing. This section offers a chronological survey of important works discussing the subject after Wallas published *The Art of Thought* in 1926. It also draws attention to modes of association, while highlighting the role of words in these ways of relating.

I noted in the section prior that James Webb Young appears to be the first creative practitioner to acknowledge a similar creative process model to the Wallas one (page 44). Young's description of his own phase-based model reads quite similarly to Wallas', however, in his preface dated 1960, Young explicitly states that he developed his model independently for a university lecture, writing 'no literature on the subject was at the moment available; nor had I any recollection of having seen any' (2003: 15). On the last page, Young does direct the reader to *The Art of Thought* for further exploration of the subject, acknowledging a connection (2003: 64). The book outlines Young's practice for producing ideas, basing it on his years of professional work,

12



(21 February 2020)

▷I

using his own experiences for examples and referencing those of colleagues, contemporaries, and other creatives as support for his model. His goal with the text is to offer readers his principles behind idea-building in practice and a method to achieve them—his model. This model has the same four phases of the Wallas model: a preparation 'ingestion' stage to gather raw materials (including facts, experiences, and words), an incubation phase, a 'eureka' illumination stage, and a verification stage to put the idea out into the working world (2003). While Young does not mention association in his book, he adds an additional relationship-seeking stage to the process that the Wallas model does not have. Between preparation and incubation, Young includes a stage he refers to as the 'mental digestive process', where the mind seeks relationships among the bits of knowledge gathered. Young defines an idea as 'a new combination of old elements' and asserts that the 'capacity to bring old elements into new combinations depends largely on the ability to see relationships' (2003: 32). During this mental digestive stage, one looks at individual facts from all angles and turns them over in the mind, regularly putting two facts together to see how they fit to form partial ideas (2003: 46). While he never discusses the word 'association', Young's technique centres on finding relationships, which makes association a critical factor: how two elements relate might be due to how they associate and where two elements meet is certainly a point of association. To 'see relationships' is to see associations, to see shared traits, commonalities, or differences among various elements, and to see the links possible among them.

Not long after Young's book was published, the mathematician Jacques Hadamard wrote and published *An Essay on The Psychology of Invention in the Mathematical Field* in 1945. Throughout it, he explores the Wallas stages of the creative process in relation to his own practice of mathematical creativity and to those practices of mathematicians and creatives in other fields. Like Wallas, he discusses two types of creativity observation: objective methods, observing from the outside where the experimenter is other than the thinker, and 'introspective' or 'subjective' methods, 'where information about the ways of thought is directly obtained by the thinker himself who, looking inwards, reports on his own mental process' (1954: 1–3). He writes to communicate those stages more precisely and to support the Wallas model by using his own introspective observations as well as the qualitative data he gathered through surveying his contemporaries in mathematics with a questionnaire. Like Young, he asserts that new ideas are combinations of other ideas, stating that 'it is obvious that invention or discovery, be it in mathematics or anywhere else, takes

13



(13 February 2020)

place by combining ideas' (1954: 29). His survey point number 30 directly addresses how the mathematician creates these combinations, by asking for information about the raw elements or material of thought: 'It would be very helpful for the purpose of psychological investigation to know what internal or mental images, what kind of "internal word" mathematicians make use of; whether they are motor, auditory, visual, or mixed' (1949: 140). Hadamard devotes his sixth chapter to considering the answers he received to this inquiry. He describes differing opinions on the matter, providing examples of the absence of words, the use of words, as well as the employment of visual, auditory, and even kinetic mental imagery in the creative process (1954: 84–85).

Albert Einstein responded to Hadamard's questionnaire, specifically addressing this point of the survey; his answers are included as Hadamard's Appendix II (1949: 142–143). His response is important to this thesis because Einstein directly addresses association. He confirms that it is his 'combinatory play' and 'associative play' with mental elements that bring about his new ideas, but for him, 'the psychical entities which seem to serve as elements in thought are certain signs and more or less clear images' for which there is 'a certain connection between those elements and relevant logical concepts' (1949: 142–143). He writes that words are only part of a second stage for him to communicate the logic (1949: 142–143). Einstein writes the very interesting line that 'the play with the mentioned elements is aimed to be analogous to certain logical connections one is searching for' (1949: 143). His statement resonates with me: I see my lyric word-working mixed with flashes of sound, memory, and visual imagery (described in pages 2–3) as also being analogous to logical connections, which find expression, ultimately in my physical art and design works. In my research, I am interested in the points of connection and relationship among those mental elements and how to bring them into association.

Einstein's survey response also caught the attention of Brewster Ghiselin, a poet and academic, who includes it in *The Creative Process: A Symposium,* his anthology of introspective creative process descriptions first published in 1952. Descriptions range from Mozart's to Picasso's to Carl Jung's to his own 'The Birth of a Poem', in which he writes, 'there are not many very full accounts of the production of specific works' (1954: 127). Ghiselin singles out Poincaré's 'Mathematical Creation', originally published in 1908 and included in the anthology, as perhaps containing the most nearly complete accounting (1954: 127). This is the same accounting from which Wallas outlined his stages. Though he does not cite Wallas,

14

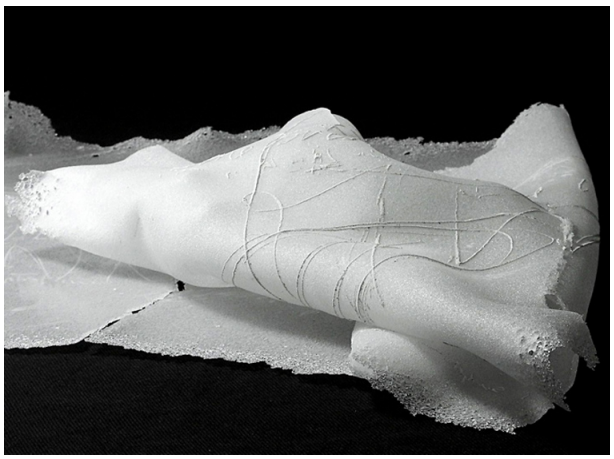


(13 February 2020)

Ghiselin is clearly familiar with the four-stage process model, and he references the stages throughout his introduction (1954: 1–21). He does the same in his article 'Automatism, Intention, and Autonomy in the Novelist's Production' (1963). Like Young and Hadamard, he does not discuss the 'association' in either of these writings, however, he discusses relationships, connections, and the shaping of psychic elements as part of the creative process. For instance, in the article, he argues that what occurs just outside of the creative's focus, even if it seems unrelated to the work or problem at hand, is worthy of attention and awareness to understand fully the process and its products (1963: 303–304). He even uses metaphorical language of staging, such as 'off-stage' or 'in the wings' to locate these kinds of thoughts (1954: 11). This is in line with Wallas, who states that 'a fringe-thought may sometimes be recognized as more important than the main thought-train during whose course it arises' (1926: 139–304). Ghiselin offers author Henry James as an example, suggesting that while James was aware of thoughts and feelings during the regular occurrence of cavalry riding down his Parisian street, he did not connect any of it to his own work, even though it factored into his writing (1963: 303–304). Importantly, Ghiselin may be one of the first to delve into the breaking of associations and patterns as ways to establish the new, writing that 'the creative order...is not an elaboration of the established, but a movement beyond the established...the hold upon us of what we know and are, must be broken' (1954: 4).

Ghiselin's anthology was a significant source for psychologist Sarnoff Mednick, who appears to have developed the first formal theory of the role of association in the creative process. He published this in the *Psychological Review* article 'The Associative Basis of the Creative Process' (1962). Based on his close analysis of the introspective accounts contained in Ghiselin's book, Mednick puts forth his hypothesis in the form of a definition, stating that the creative thinking process is 'the forming of associative elements into new combinations, which either meet specified requirements or are in some way useful' (1962: 221). He qualifies this by writing that 'the more mutually remote the elements of the new combination, the more creative the process or solution' (1962: 221). This echoes Poincaré, who asserted that for mathematicians, the most fruitful combinations 'are often those which are formed of elements borrowed from widely separated domains' (1913: 51). In terms of his associative theory, Mednick lists three ways to attain creative solutions: through 'serendipity' or by accidentally bringing elements together, through 'similarity', where the elements are evoked by commonality, and through 'mediation', where a third

15



(21 February 2020)

element or concept serves to bridge the two (1962: 221–222). For Mednick, the more remote the elements one uses and the greater the number of associations one makes, the more creative the person is likely to be (1962: 224). The assumption then, is that a person who has the ability to bring mutually remote ideas together in a useful way will be creative (1962: 222). This is quite like Young's statement about the capacity of a person to see relationships, quoted earlier on page 52. Additionally, it reinforces Ghiselin's hypothesis that the 'off-stage' thoughts are worthy of attention. Mednick is known for his development of 'The Remote Associates' test, based on his association theory, to score a person's level of creativity (1962: 227). His test uses a series of three disparate words where the subject must add a fourth that 'serves as a specific kind of associative connective link' for the others (1962: 227). Fifty years after Mednick published his theory, Benedeck and Neubauer offered a study they conclude provides clear support for Mednick's hypothesis 'that creative people show a higher fluency and uncommonness of associations' (2013: 286). They also state that their findings suggest both high creative and low creative people follow similar associative pathways to make connections, but highly creative people do this more quickly and retrieve more uncommon associations (2013: 286). While this thesis does not focus on assessing levels of creative behaviour, I am interested in innovating and producing art and design work that questions tradition and jumps genre boundaries through creative construction. Mednick's theory, then, is important for me to know how he believes this is achieved.

Arthur Koestler, a prolific and acclaimed essayist, journalist, and novelist, was also interested in the creative order and the ways in which associations of psychic elements formed new ideas. He read Hadamard as well, and in his handwritten notes in the book and on a separate page tucked into his copy of *The Pyschology of Invention in the Mathematical Field*, Koestler twice highlights Hadamard quoting Jean-Marie Souriau, a French mathematician, who wrote that 'To invent, one must think aside' (Hadamard 1954: 48, Koestler n.d.). Hadamard examines this statement in relation to 'Preparation' and suggests that to think aside, one must prepare by not going the expected route and by encountering other disciplines than one's own (1954: 54). Perhaps Souriau's statement and Hadamard's assertion were elements that sparked Koestler to formulate his theory of 'bisociation' in the creative process. Koestler undertook a major, systematic study of the creative process by investigating humour. In 1964, he published his theories and findings in *The Act of Creation,* which centres on his 'bisociation', a term he coined to 'make a distinction between the routine skills of thinking on a single "plane"… and the creative act,' which he asserts 'always

16



(28 February 2020)

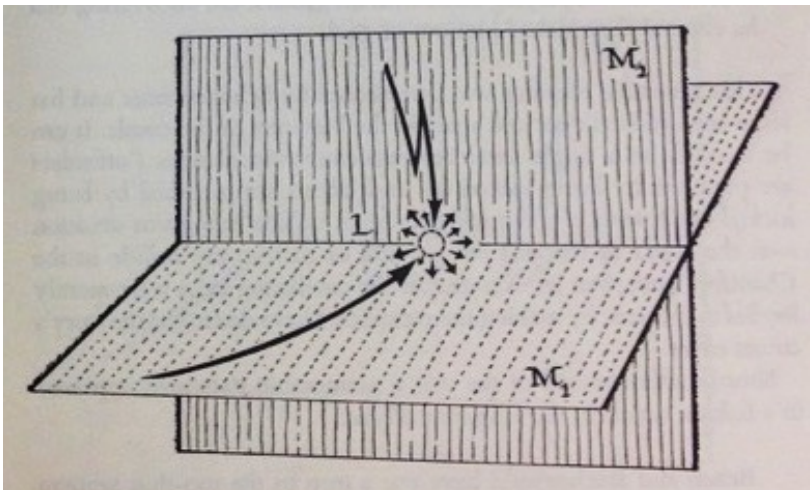


Figure 1. Koestler's visual depiction of an idea, event, or situation 'L', which occurs when two 'habitually incompatible frames of reference M_1 and M_2' meet (1964: 35)

operates on more than one plane' (1964: 35–36). He writes that the creative act is 'linked not only to one associative context, but *bisociated* with two' (1964: 35). Figure 1 above is the visual graphic that Koestler uses to describe his bisocation theory. Koestler argues that when two associative contexts (two frames of reference or two systems of thought) or 'two matrices of perception or reasoning interact with each other the result…is either a *collision* ending in laughter, or their *fusion* in a new intellectual synthesis, or their *confrontation* in an aesthetic experience' (1964: 45). In other words, where two different planes of context bisect, one will find either the joke, a theory/hypothesis, or an art work. At this meeting point, Koestler writes that the event 'L' of Figure 1 (the joke, the theory, the art work) 'is made to vibrate simultaneously on two different wavelengths' (1964: 35). He discusses this bisociation as a pattern underlying these three kinds of creative acts or ideas (1964: 35). His book examines the joke and humour in various stories, anecdotes, and comic acts as it 'is the only domain of creative activity where a stimulus on a high level of complexity produces a massive and sharply defined response on the level of physiological reflexes' (1964: 31). Koestler writes that by breaking down the nature of the two bisecting matrices to discover the logic between them, the focal point of creativity that holds them together can be understood (1964: 64). By studying humour, and using it as the control, he posits that one can learn about the other two types of related creativity and generalise in this way. Though his study makes assumptions about humour without attending to culture, time, and personal nature, his work has been highly influential to creativity researchers, so much so, that even key 21st-century, artificial intelligence researchers, like Margaret Boden, cite Koestler as having done the foundational work (2004: 33).

17



(28 February 2020)

Shortly after Koestler published his bisociation theory, Edward de Bono, author and psychologist, invented his 'lateral thinking' in 1967 (de Bono 2016). De Bono writes that lateral thinking is a technique that has 'generative qualities' and is 'the process of using information to bring about creativity and insight restructuring' (1977: 7). He also says that lateral thinking is as much an attitude as a technique and requires a 'willingness to explore the least likely pathways' (1977: 42). It involves the deliberate generation of alternative perspectives and the challenging of assumptions (1977: 93). Seeing new relationships, breaking old patterns, and searching for remote associates seem to be at the heart of his technique, recalling the work of Young and Ghiselin. He asserts that insight is brought about by alteration in pattern sequence, which is brought about by provocative stimulation; and his lateral thinking provides this stimulation (1977: 41). Most of his exercises seem to involve developing associative skills and seeing relationships by making use of gameplay, visual imagery, and wordplay (2007). Important to this thesis is that he insists outright on pattern breaking, challenging assumptions, and seeking alternative perspectives. To do this, he encourages using new analogies, both verbal and nonverbal to establish new relationships (1977: 147–148).

Cognitive scientists Keith J. Holyoak and Paul Thagard concur in their *Mental Leaps: Analogy in Creative Thought*, picking up the association thread with extensive research across disciplines on analogical thinking in creativity (1999). They explain that carrying over associations from a known, source domain (with familiar learned patterns) to a relatively, unfamiliar, target domain is the essence of analogical thinking (1999: 2). This 'carrying over' develops a systematic set of correspondences between the two, creating 'a tension between two perspectives: the thing as itself and the thing as something else' (1999: 9). They write that the metaphor (important to this thesis) is the figurative device most directly linked with analogy, and that it involves 'speaking of one thing to say something about another' (1999: 214). In analogical thinking, ideas from one domain are carried across to another to understand the unknown through the known.

Like de Bono, Holyoak, and Thagard, Frans Johansson, a corporate thinker and leadership trainer, is interested in altering perspectives and seeking new relationships for innovative outcomes; he published his theory in 2004 on how to do this in *The Medici Effect: Breakthrough Insights at the Intersection of Ideas, Concepts and Cultures.* Like Koestler, he is interested in the intersections that result in creative acts and new ideas, but while Koestler is interested primarily in how the psychic elements combine in the spaces and environments of the mind, Johansson is interested in the associations and intersections that take place among people, cultures, and physical

18



(5 March 2020)

environments to bring about paradigm shifts in society. He uses case studies and analysis of historical events and inventions to support his theory that innovation requires intersectional ideas, which combine concepts from different fields, requiring interaction with diverse groups of people (2004: 73). Specifically, to find new intersections, he writes that 'associative barriers' must be broken (2004: 37–38). To make barriers fall, he suggests exposure to different cultures, reversing assumptions, and taking multiple perspectives on a subject (2004: 45). To find new combinations, Johansson insists that diversifying one's occupation, associating with diverse groups of people, and seeking new intersections will lead to creative ideas (2004: 73). A contemporary example of this type of intersection would be where computer programming met animation to produce the first full-length, digital feature animation in Pixar's *Toy Story* (Catmull 2014).

Steven Johnson has similar association theories to Johansson's about the spaces and environments in which good ideas develop; his 2010 *Where Good Ideas Come From* focuses on their patterns and also uses case studies and analysis of historical examples for supporting evidence. The writer and start-up creator posits that seven patterns are inherent to the development of creative ideas and high innovation. Two of these patterns—the operation of the 'adjacent possible' and the use of 'exaptation'—are critical to this thesis. His 'adjacent possible', a phrase he borrows from scientist Stuart Kauffman, refers to that which is nearby (ideas, people, materials, resources, etc.) to tap into for developing new combinations, which, once formed, push and extend the boundaries of the adjacent possible to allow for additional combinations (2010: 31). The adjacent possible offers potential combination by association, be it physically, geographically, literally, figuratively, or virtually, but is also limited by those same associations (2010: 30–31). Johnson posits that 'exaptation' is also essential to the making of a good idea. He borrows this term from evolutionary biologists Stephen Jay Gould and Elisabeth Viba who coined it in 1971 to mean a trait created for one purpose, but 'hijacked' to serve another (2010: 153–154). Johnson says that the essence of exaptation in relation to new ideas is that in one context a tool (or a thing, a system, a principle, etc.) can be used for one purpose, but if it is 'hijacked' and associated with another context, it can be used in a different way (2010: 157). He offers Apple's retail strategy as an example of exaptation: Steve Jobs took the high-end, hotel concierge and created the equivalent for a consumer electronics store with his Genius Bar (Johnson 2016). To practice exaptation, seeing relationships among elements must be key. 'Seeing relationships' is a recurring idea here and useful for my research, which puts these theories into practice. The next section explains this.

2.3. The Next Knot in the Thread: My Practice-based Research

In this chapter, I have provided an overview of creativity research and followed the thread of association in process research, to collate its primary theories and related techniques. I have shown that in its many forms, association is fundamental in theories of the creative process, especially in idea generation. In my research and thesis, I put these association theories into practice to generate ideas, by focusing on the adjacent possible, making exaptations, seeking intersections and bisociations, breaking patterns, and making analogies—all of which I refer to as 'modes of association'. I use various combinations of these throughout the research process (Chapter 5), in the design of my idea generation tool (Chapter 6), and even within the writing and design of this thesis (Chapter 7). While association of mental imagery and elements have featured in this discussion, I am most interested in words. Young writes:

> We tend to forget that words are, themselves, ideas. They might be called ideas in a state of suspended animation. When the words are mastered the ideas tend to come alive again…Thus, words being symbols of ideas, we can collect ideas by collecting words. (2003: 65)

Barrett's research on concept construction (page 30) echoes Young's assumption and supports it through the study of emotions and words. Barrett writes that to 'build a purely mental concept, you need another secret ingredient: words' (2017: 97). She insists that words enable mental associations because words hold concepts (2017: 99). Hadamard's survey of mathematicians and Einstein's response clearly show that other forms of mental imagery, including those that are wordless, can be involved in creative concept construction (pages 52, 54). In her study on emotion words, she gives evidence that one key way adults possess concepts is by possessing or knowing words (2017: 47). This is significant because my assumption is that creativity is found throughout society, in the historically creative figures as well as the average person, and words are a common denominator among people.

Words hold concepts and concept combinations form new ideas, therefore, words and their associations are a focus of my research. My practice is particularly well-suited to host this research on idea generation because of its reliance on words and inherent intersections of art, writing, glass, and design. Following Hadamard by observing creativity both introspectively and objectively (page 52, 54), I use my word-working and lyric writing to put the modes of association into practice to study ideation. The most important word to my creative practice and this thesis is 'glass'. Chapter 3 discusses glass, the physical material, its societal impact, and glass concepts.

Chapter 2 Lyric Notes

[1] This is a reference to Lewis Carroll's children's books *Through the Looking Glass, And What Alice Found There* (1897) as well as to *Alice's Adventures in Wonderland* (1920), both fantastical, creative journeys into the unknown, in which the protagonist Alice goes seeking, but for what, she does not know at first. Her explorations in *Through the Looking Glass, And What Alice Found There* are enabled by her hand mirror (her looking glass) and was the inspiration for one of my early post-graduate explorations in glass that I displayed as an artist's book in 2013 (see Chapter 4, page 116).

[2] Fun houses are usually public amusements for all, found as part of theme parks that incorporate glass and mirrors to distort perception and senses for personal experiences (where one visitor might enjoy and find delight, another might become nauseated or scared). By 'fun house' in this line, I am referring to the conceptual space in the mind that does the creating. It adds the novelty by warping perspectives of time and space and generating new perspectives. Here, the 'fun house' alludes to and plays with the idea of the big 'C' creativity and the little 'c' creativity against Alice's experiments with her size in the book *Alice's Adventures in Wonderland* (Carroll 1920).

[3] In *Through the Looking Glass, And What Alice Found There,* Alice says at one point that she's confused about the conversation on time and jam that she and the Queen are having. The Queen responds, 'that's the effect of living backwards' (Carroll 1897: 97). My lyric line with its 'there is' suggests that the 'fun house', creating mind is where the effect of living backwards is…within a confusion of time and memory and a compilation of all that has been experienced.

[4] Matryoshka dolls (Russian nesting dolls) are traditional wooden toys that fit one inside the other, and they open by twisting apart the top and bottom of the largest doll, to reveal another similarly shaped doll, smaller in size, but usually painted a little differently (Gagne 2011, Kostomárova 2015). This second doll opens in the same manner to reveal another doll and so on, for as many dolls as the maker carved. 'The Matryoshka Principle' is sometimes used to describe a similar nesting system or object within an object design, coined originally by the computing industry but adopted by other fields such as business management (Dines 2017, Gagne 2011). In the case of my academic text opposite this lyric line, the discussion is about a concept within a concept. Ultimately, this dissertation will show my idea generation technique ('Word Triangulation') within another 'Word Triangulation' (Chapter 7).

[5] This line is the same kind of paradoxical language found in T. S. Eliot's *Four Quartets* poem which has been influential for me over the years. My line addresses Jane Darke's suggestion that the primary generator is the way into a design issue—the primary generator is also what will enable the way out (1979) and (Chapter 2, page 36).

[6] While there is debate over the first inventor of the eye glass lens, it is clear that the lens invention itself, ultimately led to multiple key breakthroughs in technology (Keyence Corporation of America 2012). These breakthroughs allowed for the advancement and even generation of whole fields of science, e.g. the telescope and astronomy (amazingspace.org 2018 and Cox 2017), and the microscope and microbiology (Vision Engineering n.d.). The single glass lens is a foundational unit and multiple lenses, interacting in different ways, enable new possibilities for imaging—one of the newest is the Light16 phone camera with 16 lenses and 'folded optics' (Moynihan 2015). Similarly, while psychology provides a foundational lens from which to view creativity, clarity will follow from viewing the subject from multiple discipline perspectives and putting them together in new ways. Even greater resolution might be had if creativity research evolves so that the fields collaborate or if new methods or ways of seeing the creative process are introduced. 'Spider sight' is used in the lyric line to reference the unique evolutionary advancement of the jumping spider's vision,

where four pairs of single lens eyes have 'a division of labor', but work together to 'allow a very small animal to have a very extensive visual system' (Pappas 2012).

[7] The gaffer persona—the primary glassblower of a glassblowing team (Corning Museum of Glass 2006)—developed a genius status in contemporary icons such as Dale Chihuly and Lino Tagliapietra, and retains a stereotype of olympic proportion (Gunner 2019, Kangas 2017, and Netflix 2019). If glass students can look beyond the gaffer, as the lyric line encourages, they will see that glass is a celebrity in its own right, with an extensive history in creativity.

[8] Galileo is credited with building and developing in 1609 the first refracting telescope, which used one convex glass lens and one concave glass lens (Amazing Space 2018). The founder of astronomy, he was the first to use a telescope to look at the stars in the sky and in his lifetime built about 100 telescopes using, experimenting, and refining glass lenses and their unique magnifying properties (Amazing Space 2018 and Cox 2017).

[9] This is an image of glass and mirror installation E*ndlessly Repeating Twentieth Century Modernism*, created in 2007 by Josiah McElheny. The Museum of Fine Arts Boston, where I saw the work, quotes McElheny as saying that he aims to explore how 'the act of looking at a reflective object could be connected to the mental act of reflecting on an idea' (2020).

[10] Emma Woffenden's *2015 Glass Figures* is shown as photographed by Gilmar Ribeiro in the Clarity Exhibit (Woffenden n.d.). I was a student at Pilchuck Glass School when Woffenden was an instructor.

[11] This is an image of Laura Reed's blown glass vessel from the end of her MFA studies with ECA, just as I was beginning my own MFA work (Reed n.d.).

[12] I saw Liza Lou's *Continuous Mile* (created 2006–2008) first when I was researching as an MFA student and in person during my 2018 visit to the Corning Museum of Glass. Corning describes the piece as: 'The monumental sculpture is composed of a coiled and stacked cotton rope, measuring a mile in length, sewn with more than 4.5 million glossy black glass beads. It is a work about work, about process, about finding meaning in the everyday' (Corning Museum of Glass 2015a).

[13] When I visited the Corning Museum of Glass, one of my favourite glass installations was on display: *Carroña (Carrion)* by Javier Perez. It is a large-scale metaphorical piece on the dying tradition of Venetian glassworking. I snapped this image when I was there.

[14] I took this image when I visited the Corning Museum of Glass in 2018 and am reflected in the mirror that is Fred Wilson's *I Saw Othello's Visage In His Mind,* created in 2013. The title is taken from a quote from Shakespeare's *Othello* play, which I studied during my MFA in 2014.

[15] This is an image of *disegno II* by Anne Petters, Artist in Residence during my MFA studies. Like Anne writes, I too, am fascinated by 'our never-ending flow of thoughts, the phenomenon of imagination itself' (Petters 2010–2012).

[16] This is an image of Antonio Riello's *Ashes to Ashes* (Riello n.d.).

[17] This is a close-up image of Antonio Riello's *Ashes to Ashes* goblet urns of burned books (Riello n.d.).

[18] I attended Pilchuck Glass School in 2012. This image shows me shaping glass with paper.

‘Interlude 2’

Into the looking glass and down the rabbit hole
where the fun house emporium churns—
There is the effect of living backwards:
in riddles riddled with puzzles to solve,
refracted as nested matryoshka.
Optics and illusion,
the way in is the way out.

Enfolded, multi-lens perspective lends spider-sight,
resolute to jump beyond the god gaffers—
heavens…to see even Galileo’s might!

Ever after the gesture
by innuendo or suggestion
in movement toward or from
(pausing only to recollect)
transfers to transform
for sights unseen
and tales unborn.

Statement on ‘Interlude 2’

‘Interlude 2’ discusses creativity from my perspective as a creative practitioner who works with glass as a primary medium. It offers a shape or an arc for my overall process and while it is not explanatory language or step-by-step instruction, it does tell the reader what happens when I work on a project. I follow the glass—a characteristic, a property, an association, a related reference—and I follow it as far as it leads me. I look at that aspect of the glass from as many perspectives as I can, until I am quite turned around, confused, and deep in a tangle of layered thoughts, that mixes time and experiences. I work as if I have a puzzle or riddle to solve, trying to untangle and sort through these layers. To help me express what I believe I might have found in the unsorting, I return to the glass medium with the puzzle piece—an emotion, an experience, some words, a clear thought. I consider not only how glass is made, but also its contemporary roles in society and its rich history. I then use glass to give form to the puzzle piece and I try to show in my work, what I see through the glass from my new-found vantage point.

This ‘Interlude’ picks up the motif of mirrors and glass reflections in popular culture, which ‘Interlude 1’ introduced. It is all about looking and what happens when the looking is done from multiple and alternative perspectives. It is about what happens when associations build, due to proximity and special relationship. The lyric images of the final third of the chapter each tell a story individually, but put them in closer relationship and a different story emerges due to their association. One plays on the other to change and reshape it.

3. Glass: Staging Ground

Due to its extraordinary material properties, glass is (and has been) at the heart of many discipline, industry, and societal shifts throughout the past five thousand years of our history. In other words, glass—and human, creative experiment with glass—have played pivotal roles in the development of Homo sapiens, our species, for nearly all recorded history. This chapter provides information on glass material, its history, and uses as it relates to human creativity and innovation. It includes a discussion of glass concepts to introduce the potential for glass material, the word 'glass', and their associations to be staging ground for contemporary creativity research.

'This is the Glass Age… we are living in the Glass Age *today*' (Corning Incorporated 2018). Using its website and YouTube videos, Corning Incorporated, arguably the world's leading expert on glass material, publicly pronounced that the Glass Age is now, at the time of this writing, and it did so as early as 2014 (Corning Incorporated 2014). Following this, in a niche academic publication, the executive leaders of Corning Incorporated and the Corning Museum of Glass, David L. Morse and Jeffrey W. Evenson argued in the *International Journal of Applied Glass Science*, that 'the world has entered the Glass Age' because of the quick succession of major technological advancements in glass materials science and because of the critical and ubiquitous role that glass plays in society (2016: 409). A 2018 headline in the popular news outlet *The Atlantic* followed suit and declared glass to be 'Humankind's Most Important Material' (Main 2018). Corning likens the Glass Age to such time periods as the Bronze Age and the current Information Age, but concentrates on the last 150 years or so (2018, 2016). As the company was founded in 1851, the focus is a bit biased and their videos on the Glass Age have been criticised by some audience members in the YouTube comment sections as mere ads for the company (Corning Incorporated 2014). The case can be made, however, that the Glass Age has been ongoing for many centuries because the advancements and innovations in glass history parallel much of the story of human creativity as this chapter discusses.

3.1. Glass Material

Glass is a material with extensive physical properties which are often contrasting to the point of being polar extremes. As it is worked and shaped, the material can appear to change states from liquid to solid form, moving from hot to cold temperatures. We know it in our daily lives as flat or spherical, opaque or

translucent, shiny or dull, coloured or clear, paper-thin or centimetres thick. These characteristics enable its capacity to preserve, frame, and safeguard, as well as its opposing ability to break, shatter, and inflict damage. They also allow for the diversity and functionality of glass material found throughout society. From tableware and decoration to architecture to modern digital screens and fibre optics to vaccine vials, glass has been—and still is—at the forefront of innovation.

It is the material structure of glass that makes this possible. Glass, as we commonly know it (that of our drinking vessels, lenses, lightbulbs, and so forth), sits outside of the three classic states of matter that are gaseous, liquid, and crystalline (Corning Museum of Glass 2011d). The Corning Museum of Glass describes it as 'Being neither a liquid nor a solid, but sharing the qualities of both, glass is its own state of matter' (2011d). It is non-crystalline, an amorphous solid (Howes and Laughlin 2012: 62, Zallen 2004: 3). Material physicist Richard Zallen explains that like crystals, glasses are 'bona fide solids and share the essential attributes of the solid state', however, their 'fundamental difference is in the basic nature of their microscopic, atomic-scale structure' (2004: 3). Philip Howes and Zoe Laughlin, material researchers and makers involved with the Institute of Making, describe the atomic glass organisation as 'random—there is no repeating order' as opposed to the patterns in crystalline solids; it is this random arrangement that 'makes the structure amorphous, a defining feature of all glasses' (2012: 62). Zallen would argue that 'randomness' is a better term for the gaseous state; that for glass, atoms may be located anywhere but there are neighbour correlations, just not the equal patterns of the crystalline state (2004: 12). His schematic sketches show the differences between a crystalline solid, an amorphous glass, and a gaseous state (Figure 2).

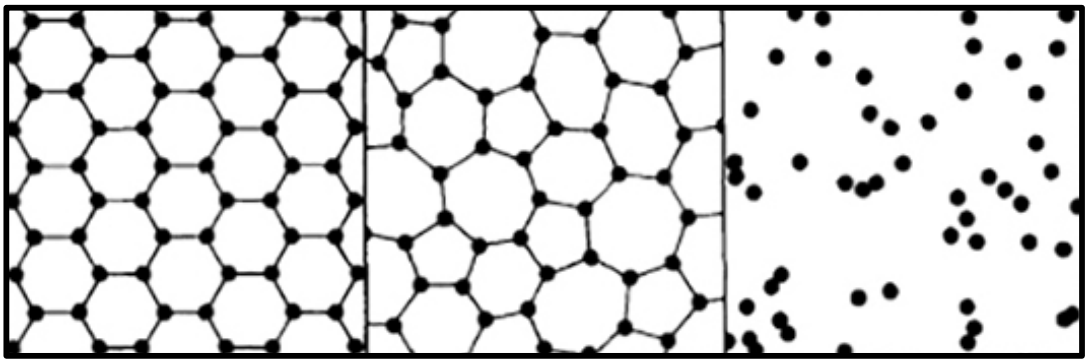


Figure 2. Zallen's schematic sketches of a crystalline solid (left), amorphous glass (middle), and a gaseous state (right).

1



(15 April 2019)

The manufactured glass of our daily lives usually consists of three main components: the ‘former’, ‘flux’, and ‘stabilizer’, of which silica (as silicon dioxide found in sand) is commonly used as the ‘former’ (Corning Museum of Glass 2011d). The ‘flux’ (often soda ash) helps the ‘former’ melt at lower temperatures and the ‘stabiliser’ (such as calcium oxide in the form of limestone) ‘keeps the finished glass from dissolving, crumbling, or forming unwanted crystals’ (Corning Museum of Glass 2011d). For these components to become glass, these ingredients must be heated to high temperatures. Glass in its purest form, made only of the ‘former’ (silica for instance), consists of silicon and oxygen atoms, that make and break atomic connections when heated to high temperatures (Howes and Laughlin 2012: 62). Howes and Laughlin explain that ‘it is the transience of these connections that allows the glass to flow’ and when cooled, the connections become difficult to break and the atoms fix into place as an amorphous solid (2012: 62). Zallen argues that almost all ‘condensable matter’ can be prepared as amorphous solids and made into a glassy state by heating to high temperatures and then bypassing crystallisation; he asserts that speed of the cooling rate is key to achieving this and specific to the individual material (2004: 5–7). Murugasen, Sagadevan, and Shajan concur in their article on the preparation, techniques, and tools used for investigating glasses (2015: 695). Due to this—the common abundance of amorphous solids—Zallen suggests that the most specific definition of glass would include a note on the cooling method used to create it; he says that most of the glass we know is made by ‘quenching’ the melt of ingredients (2004: 3). Murugasen, Sagadevan, and Shajan describe the melt-quenching method as a slow cooling process where the glass is untouched during the cooling (2015: 694–695). There are several methods of cooling and bypassing crystallisation which Zallen (2004) and Murugasen, Sagadevan, and Shajan (2015) describe. The quenching method, along with the former, flux, and stabiliser variables, indicate that numerous, diverse glasses abound, but still other factors are involved.

The chemical make-up of the glass will determine its physical properties and characteristics. In addition to the former, flux, and stabiliser as base ingredients, materials such as metals and other periodic elements, can be added to the mixture to alter or define the properties of the glass (Howes and Laughlin 2012: 63). For instance, adding iron colours the glass green, while adding gold colours the glass a deep red, but adding boron strengthens its resistance to thermal shock (Corning Museum of Glass 2011d). Changing any ingredient changes the chemical make-up of the glass, in turn, changing the nature and characteristics of the glass. The making

Vaulted, exalted, your view soars through time,

(16 April 2019)

processes themselves also inform the final glass product; glasses can be blown, pressed, cast, flame-worked, and drawn as examples. With these chemical and process variables, there are, as the Corning Museum of Glass states 'already tens of thousands of workable glass compositions and new ones are being developed every day' (2011d). Each offers distinct properties, detailed in part by the Corning Museum of Glass as ranging from elastic and bendable, to heat absorbent, to mechanically strong, to electrically insulating, among others (2011d). These characteristics lend themselves to different functions and uses, and for centuries, humans have been exploring and exploiting glass and its material properties. Certain creative uses of glass have led to innovations that have changed fields, created new disciplines, and even altered cultures and societies. The next section discusses major historical examples. These could be characterised as instances of Csikszentmihalyi's big 'C' 'Creativity' or Boden's related 'historical creativity', which were discussed in Chapter 2 (pages 24–26). The following section provides an overview of glass and its connection to creativity and innovation by highlighting some of these big 'C', historically creative events, and where possible, offering examples of the creative techniques or ideas employed to produce them.

3.2. Historical Connection to Creativity and Innovation

3.2.1. Ancient Beginnings

Glass is a material that occurs in nature, formed in various ways, for example by lightning striking sand or by volcanic molten rock cooling to become obsidian (Corning Museum of Glass 2020b). Ancient peoples, dating back to the pre-historic Stone Age—the period of several million years before metal use began in 2000 BCE—used the glass remains of these natural events for decoration and tools (King 2019). The height of natural glass use was by the Aztecs in Mesoamerica in the time of the European Renaissance; they systematically mined obsidian for decoration, adornment, knives, and spears (Stocker 1987). Glassmaking, combining the necessary raw materials and melting them to make glass (as opposed to glass-working, the shaping of glass into objects) is not substantiated, documented human activity until around 2500 BCE. It is unknown if it was originally accidental or not.

The earliest known record of recipe instructions for glassmaking was written in cuneiform on a clay tablet from Mesopotamia (modern-day Iraq and Northern Syria), dated between the 14th and 12th centuries BCE, and currently held in the British

Where the South Rose bloomed perennially.[2]

(16 April 2019)

Museum (Tait 2012: 8). Glass historians and archaeologists trace back the manufacturing of glass to as early as 2500 BCE in this area between the Tigris and Euphrates Rivers; it is widely accepted as the origin place of glassmaking and the rough date of origin (Corning Museum of Glass 2020c, Harden 1968: 36, Nicholson, Jackson, and Trott 1997: 143, Tait 2012: 21). No specific origin date has yet been identified and while Mesopotamia is the recognised origin of place, archaeologists Nicholson, Jackson, and Trott argue that Egypt had glassmaking capabilities prior to its known glassmaking industry, fully operational around 1500 BCE (1997: 143-144). Glass historian Vávra argues similarly while also discussing, as evidence, an Egyptian glass bead dating to 3500 BCE, that may or may not have been made intentionally (1954: 15). Glassmaking was not only evident in these ancient times, but it appears that the glass industry thrived with centres for glassmaking and glass-working (Corning Museum of Glass 2020c, Nicholson, Jackson, and Trott 1997).

Early ancient glass was a luxury item, often used for decoration and adornment as pendants and beads for the upper classes (Corning Museum of Glass 2020c, Tait 2012: 23). Figure 3a shows a pendant example of this early glass from Northern Mesopotamia, which was probably made by pressing it into an open mould to acquire its shape and eight-pointed star motif (Corning Museum of Glass 2002a). Glass forming consisted primarily of pressing or casting methods using moulds to shape the glass (Corning Museum of Glass 2020c). Another example of pendants and beads crafted in a flat, open mould is shown in Figure 3b, but this necklace traces back to the Mycenaeans in Greece (Corning Museum of Glass 2002b).



Figure 3a. (left) Disk Pendant with Star Pattern, Northern Mesopotamia, 1500–1200 BCE
Figure 3b. (right) Necklace with Pendants and Beads, Greece, 1400–1250 BCE

Prayers I left in your thin space,[3]

(16 April 2019)

Around the middle of the 16th century BCE, a technological breakthrough in mould-making and casting methods called core-forming, enabled glassworkers to begin exploiting the physical properties of glass, which in turn, enabled the development of the glass industry in the ancient Middle East (Tait 2012: 22). The core-forming technique 'involved covering a mud core with glass, then removing the hardened mud to create a hollow vessel' (Corning Museum of Glass 2020c). This method used the glass material's ability to harden and hold various shapes, and even surround hollows and negative spaces. Core-forming enabled the first glass vessels and the technique remained a primary glassworking method for the next fifteen hundred years. The vessels, such as those in Figures 4a/b below, were small objects, just centimetres high, used to hold perfumes and scented oils (Tait 2012: 26). Early glassworkers exploited the material's ability to imitate—to take on shapes, patterns, textures, and colours they associated with other materials—adding value to the objects by replicating semi-precious stones like lapis lazuli and turquoise (Corning Museum of Glass 2011c, Tait 2012: 26–28). Evidence of trade routes and exchange among peoples like the Egyptians and Greeks supports the theory that these were in demand by the aristocracy (Nicholson, Jackson, and Trott 1997, Walton et al. 2009).



Figure 4a. (left) Cosmetic-jar, 18th Dynasty Egypt, 1390–1352 BCE, Height: 8.7 centimetres
Figure 4b. (right) Jar, Egyptian, 1399–1300 BCE, Height: 9 centimetres

Glass was already both useful and valuable then in ancient times, but it was technical innovation in glassworking around 50 BCE that put glass material on the path to its current ubiquitous role in society. While the exact source is uncertain, scholars and archaeologists believe that Romans, in the Syro-Palestinian area long tied to glass production, were the first to inflate glass with air by blowing into it, and

In the divide between here and There,

(16 April 2019)

to develop new melting procedures and high temperature furnaces (Corning Museum of Glass 2011b, Tait 2012: 62). Glassworkers likely first blew into hollow glass tubes to create small bubbles in the glass and later enhanced the method through clay and metal pipes (Tait 2012: 62). These innovations enabled the production of larger vessels with varied forms, and, in turn, glass functionware and containers became more available, less expensive, and more common in everyday use (Corning Museum of Glass 2011b, Tait 2012: 62). Figure 5 shows an example of this early blown glassware (measuring 29.3 cm high). Glass tableware arguably reached its height in elaborate form and style under the influence of Italian Renaissance artists (Tait 2012: 216). Figure 6 shows a period example. Glassblowing innovations in production and technique dominated the industry until the power-driven machines of the 1800s CE.



Figure 5. Roman Flagon, 75–125 CE



Figure 6. Venetian Pitcher, 1560–1590 CE

3.2.2. Common Era: Beyond Decoration and Functionware

Prior to the machine, glassblowing techniques were refined by hand, as were other casting methods, flat glass decorating, and finishing processes. Glass centres proliferated and the early centuries of the Common Era saw relatively high production and knowledge exchange, along with a multitude of innovative uses of glass that extended well beyond the decorative arts and functionware. These new uses exploited additional characteristics of the material, especially its optical properties—its ability to be reflective or translucent, to carry colour, and to disperse or distort light. For instance, archaeologist David Whitehouse discusses window glass first made by the Romans during the 1st century CE, found at Pompeii (2013); and Vávra writes of archaeological evidence of mirrors dating to the 3rd or 4th century CE (1954: 40).

In between the colours that sift the air.

(16 April 2019)

As with the earliest vessels, window glass and mirrors became more common and accessible over time, and their production increased in scale, increasingly elaborate in scheme. Moving from the domestic, personal domain of hand-held items and small portals, both mirror and window glass became important architectural materials to the building and development industries. Arguably, Sainte-Chapelle, a Parisian Christian church constructed in the 13th century CE, took stained glass to its apex with 1,113 coloured windows forming the walls of the upper chapel, as seen in Figure 7 (Centre des Monuments Nationaux 2018). Similarly, the Palace of Versailles uses the mirror on a grand scale. Its Hall of Mirrors gallery (Figure 8), a ceremonial room built for King Louis XIV in the 17th century CE, contains 357 individual mirrors assembled wall-height to project and reflect the French prosperity and manufacturing innovation of the time (Château de Versailles n.d.).



Figure 7. Upper chapel windows enabled by the Gothic vaulting in Sainte-Chapelle



Figure 8. The Hall of Mirrors at Versailles: walls of mirror, glass doors, and glass chandeliers

4



(4 Feb 2020)

Windows and mirrors were only two of a plethora of creative uses developed for glass before the Industrial Revolution; the lens was another. This visual aid was one of the most important because it served as a foundational element for invention and discovery. The Romans of two thousand years ago experimented with the glass they were making and understood the principles of magnification (Keyence 2012, Vision Engineering 2018). It was an 11th-century Arabian scholar, Ibn Al-Haitham (Alhazen), however, who is credited with the first real appreciation of the action of a lens, specifically how it refracts light and the ability of a convex form to produce a magnified image of an object (Hennig n.d., Mudry 2000: 877, Tbakhi, A. and Amr, S. 2007: 465). Marvin Bolt, Curator of Science and Technology at the Corning Museum of Glass, reports that 'the earliest glass "lenses" were magnifiers placed directly on objects', helping their users with inspection and 'true lenses that improved vision appeared first in spectacles around 1285[CE]' (2016). The Museum of London holds an early pair of these 'rivet spectacles' shown in Figure 9, which date back to 1400 CE (Cubitts 2019, von Ancken 2017). Demand for more eyeglasses increased when printed books appeared, as the lens assisted with reading (Museum of London 2020).



Figure 9. Rivet spectacles, from 1400 CE London, were bone-framed and originally held convex lenses kept in place with copper wire

Experimentation with lenses, especially by spectacle makers, continued over the next few centuries, giving rise to new inventions which extended human vision: the microscope and telescope. Varying accounts credit different individuals for the first instruments and these include Hans and Zaccharias Janssen, Hans Lippershey, Cornelius Drebbel, and Wilhelm Boreel, but all agree that the Dutch invented them

Ash to ashes perhaps or ash contained[5]

(4 Feb 2020)

both sometime in the late 1500s or early 1600s CE (Bolt 2016, Hennig n.d., Mudry 2000, Vision Engineering 2018). Both shared similar early designs, constructed of one or two lenses positioned at the base of a wood or paper tube, which was covered in leather (Bolt 2016). Figures 10 and 11 show an early telescope and microscope respectively. While the telescope brought distant objects on Earth seemingly closer, the microscope offered access to worlds yet unexplored with the naked eye.



Figure 10. One of Galileo's first telescopes



Figure 11. 17th-century CE microscope

These instruments and early experimentation with their lenses resulted in the formation of entire disciplines and industries based on glass and its optical properties. In 1609 CE, Galileo Galilei was the first to point the telescope skyward and study what he saw, founding the field of astronomy (Amazing Space 2018, Cox 2017). He was prolific in his research as well as his design outputs for improving the instruments. He developed the first refracting telescope using convex and concave lenses, which facilitated his celestial discoveries and enabled his theory that the sun is the centre of the solar system (Amazing Space 2018). Microbiology was founded when Dutch draper and microscope hobbyist Antonie van Leeuwenhoek documented his research findings and sent them to the British Royal Society during the mid-1670s CE (Pelczar, R. and Pelczar, M. 1999). It took another two centuries for the field to grow, but today there are numerous branches of microbiology dedicated to studying tiny organisms such as bacteria, viruses, fungi, and protozoa while relying on the optical (lens) microscopes (Pelczar, R. and Pelczar, M. 1999, Microbiology Society 2020). Important early discoveries using the microscope include research that lead to the smallpox vaccine and penicillin, both of which enabled paradigm shifts in medicine

By brick by brick, in forever buildings.

(4 Feb 2020)

for disease treatment (Microbiology Society 2020). Little bits of glass were at the heart of these major breakthroughs in science, which shaped society and our understanding of the world.

More diverse uses for glass found their way into society as the various material properties of glass continued to be explored. For example, musicians began incorporating glass into their music-making by exploiting its sonic properties. As early as the 14th century CE, musical singing glasses were known in Persia (Apel 1972). These glasses, which were often wine glasses filled with water to various levels to generate specific pitches, were played by running wet fingers along the rims. In mid-1700s CE, Benjamin Franklin invented the glass armonica, a musical instrument of glass bowls tuned to notes by their varying size, fitted one inside the next with cork, and played by hand with moistened fingers (The Franklin Institute 2018). Making use of both the colouring and reflective properties of glass, the kaleidoscope was invented by the Scotsman Sir David Brewster in the early 1800s CE and sold as both toys and optical devices for pattern makers (Encyclopaedia Britannica 1998). In 1839 CE, the Daguerreotype was introduced and photography was born (Hennig n.d.). Around the same time, Scandinavian fisherman took advantage of the buoyancy of inflated glass and began using glass floats to support their nets (Pausch and Hardy 2015). This idea spread throughout the fishing industry; glass floats were used in Japan and Russia as well, with anthropologists in the 1900s CE using them to track the ocean currents (Laughlin 1948). In about 1879 CE, Thomas Edison, an American inventor, took advantage of the high melting point of glass and its translucent characteristics to develop the incandescent electric light, held in a glass vacuum bulb (The Franklin Institute 2020). In this way, electric light began to illuminate the home by way of glass. Aided by the Industrial Revolution and its new machines for production, the use of glass exploded in the late 1800s CE—new bottling mechanisms made glass a household container item (Corning Museum of Glass 2011b).

From the late 1800s CE, invention and design with glass proliferated to the point where it is now beyond the scope of this dissertation to trace all the progress. Making techniques for the earliest uses of glass were refined and invention developed from invention, new glasses were produced, and niche markets appeared. For instance, glass use in windows traces back to the 1st century CE. Today, the average home owner has a plethora of window glass from which to choose, each with varying characteristics and purposes for the house: float glass, safety-laminated glass, obscured glass, tinted glass, tempered glass, insulated glass, low-e glass, wired

Small vaultings with barren spaces,

(4 Feb 2020)

glass, and heat-strengthened glass are all options (CC Windows 2018). In short, glass arguably infiltrated the whole of society. While it is not possible here to describe all achievements with glass or uses of glass during the previous one hundred-twenty years, I do want to make mention of some notable accomplishments that show the wide-ranging, modern significance of the material. At the turn of the 20th century CE, designers like Louis Comfort Tiffany experimented with colour blending during the glass melting process to produce visual, aesthetic effects on object surfaces such as that in Figure 12 (Victoria and Albert Museum 2020). He employed teams of artists, designers, and craft workers to produce such a range of products that 'consumers at almost every economic level had access to his religion of beauty' (Charles Hosmer Morse Museum of American Art 2019). In the early 1900s CE, Corning's Pyrex glass (a recipe with boron oxide) was a breakthrough for both science laboratory equipment and home cooking with its clarity, strength, and resistance to chemicals and temperature changes (Corning Incorporated 2020, Pyrex 2020). The development and production of fiberglass (tiny, thin strands of glass that can be woven together as in Figure 13) in 1940 CE by the Owens-Corning company had a similar impact upon different sectors of the economy (Lamm 2007). It could be used to insulate the average home against the cold, but it was also used in wartime ship building and later in car production when it was discovered that fiberglass set in resin yielded rigid, lightweight, mouldable material (Lamm 2007). Later that decade, glass brought moving pictures into the home as well: the cathode-ray tube, an electronic display device with a glass envelope, fed the television (Sheppard and Cavette 2020). Glass was for the masses.



Figure 12. 1895 CE vase, Tiffany design



Figure 13. 2020 CE Fiberglass mat

Made for memories to reside there,

(4 Feb 2020)

Glass was also for the artists. The 1960s CE saw the beginning of a new movement in art using glass as an individual artist's material in the studio setting, as opposed to industrial mass production in big factories (Klein, 2001: 6). Harvey Littleton and Dale Chihuly are credited with the founding of the Studio Glass Movement in the United States, which focused on the individual maker, the artist's physical techniques of working the glass, and an attempt to recover and renew glassworking methods lost to the earlier industrialisation of glass (Jacobson 2012: 46, Jungerius 2020, Klein, 2001: 6). American artists reached out to Italian maestros and Studio Glass developed with Venetian influence and the teachings of Lino Tagliapietra and others (Art Alliance for Contemporary Glass 2016, Jungerius 2020, Morris Museum 2017, Oldknow 2021). Prior to this time, most glass forms were made to be functional, and while there had been the occasional vessel intended for admiration and not use, the first true, free-form, glass objects were made during the Studio Glass Movement (Tait 2012: 218). Using the glass material in small studio settings and without the time constraints of factory production, artists experimented with form, traditional techniques, and freedom of expression (Tait 2012: 218). Figure 14a/b show examples of the sculptural art objects that Chihuly and Littleton were producing. Studio Glass and the Venetian style spread globally (Oldknow 2021); and it dominated glass art and design, arguably until the beginning of the new millennium.





Figure 14a. (left) Chihuly's *Tawny Birch Macchia*, 1981 CE
Figure 14b. (right) Littleton's *Blue Sliced Descending Form,* 1986 CE

Glass shaped daily lives, multiple disciplines, and various industries then, and it continues to do so today. The ability of glass to transport light through fibre optics ushered in the digital world with voice and data communications at the turn of the 21st

Wakened for public viewings, unrest bare.

(4 Feb 2020, edited 5 Feb 2020)

century CE; its possibilities for carrying and maximising optical power are still being explored (Ballato and Dragic 2016). The durability and strength of glass enable us to carry mobile devices with 'Gorilla Glass' that resist scratches and breakage (Bajarin 2017). Glass solar panels capture the sun's energy to power buildings more efficiently (Service 2018). New nanostructured glass is being used to record and retrieve large amounts of data to safeguard records for the future (University of Southampton 2016). Artists are still experimenting, even incorporating glasses from other fields into their work, like Karen LaMonte's use of Hench dissolvable bioglasses in her sculpture (Cook 2019). Most recently, glass is advancing medicine with new anti-microbial glass and specialised vials for vaccine delivery (Corning Museum of Glass 2020a, Khatchadourian 2020). For all of this—for the many roles of glass and its importance to society—the United Nations declared 2022 as 'The International Year of Glass' (International Year of Glass 2022 2021). Indeed, we have been living in the Glass Age for a long time and might well remain in it.

3.3. Glass Concepts

In the previous section, I argue that glass has infiltrated all aspects of society with its many uses and functions. Glass concepts have done the same. For as many physical types of glasses that can be made, there are just as many glass concepts. As discussed in Chapter 2, Barrett describes concepts as dynamic, fundamental building blocks of knowledge that are holistic, mental constructions, containing all instances and experiences of the subject (pages 30). Glass concepts then, are wide-ranging and can include any instances of glass mentioned in this chapter: in history, innovation, art, design, science, daily life, and hands-on experiences with the material. For glassworkers, they include the sights, sounds, and smells of the glass studios, how the glass feels while working with it, and the outputs of their efforts. In his book *glass,* author John Garrison explores its conceptual nature and describes how 'glass' exists, not only as objects, but also as concepts in language, film, and stories, where it acquires additional meanings (2015). Glass concepts incorporate the word 'glass', related phrases, and words that indicate glassy states or glass-like characteristics, as well as their associations and connotations. They include lyrical uses of 'glass' and how 'glass' and related words are used within adages of language.

Currently, an artistic shift is occurring away from Studio Glass into a widely-encompassing space, one embracing a focus on concepts, including glass concepts.

6



(31 March 2020)

American Craft Magazine calls the shift 'post-studio glass', highlighting 'Glass Secessionism', founded in 2011 by glass/video artist Tim Tate and scholar William Warmus, to move away from technique-dominated Studio Glass for focus on concept and artistic vision supported by technique (Moses 2014, Tate 2013). Artist-researcher Jerome Harrington calls the space the 'expanded field' of glass (2012). Concurrently in 2011, he began 'Glass in the Expanded Field' at the Gerrit Rietveld Academie in the Netherlands to map contemporary glass trends by examining works in/of glass and their proximity to Studio Glass (Harrington 2012). Analysing the results of the mapping in 2012, Harrington writes that 'the principal and dominant mode of operation for glass as an area of activity is work produced through a mutually dependent relation of skilled making and expression of concept' (2012: 8). Works furthest from Studio Glass (but noted as in the realm of glass as an area of activity) 'prioritised concept' over craft and skilled making (Harrington 2012). These include Harrington's *The Glass Archive*, comprised of books with 'glass' in their titles (Harrington 2017), and Rui Sasaki's *Walking on Glass*, a glass installation upon which visitors may walk (Sasaki n.d.).

This new space of glass activity in the arts is so wide that concepts of glass are shaping work that does not even contain the physical glass medium, but are works of glass all the same. Today's creatives are blurring discipline boundaries: merging technologies, techniques, and using glass material or glass concepts in conjunction with or to make their sculpture, sound art, paintings, performance, installation, and more. For example, Riikka Haapasaari's 'glass-informed' filmmaking merges glass concepts and moving picture-making in both process and film outputs (2021). Haapasaari acknowledges that her approach incorporates artisanal 'glassy-thinking' and points to the term used by Susie J. Silbert, Curator of Modern and Contemporary Glass at Corning Museum of Glass (2021: 63). Speaking at the Bard Graduate Center in 2017, Silbert describes 'Glassy Thinkers' as 'focused on the methods and methodologies of glassmaking as a means for art making' in her lecture titled 'Blue Chip Artists, Glassy Thinkers, and Boro Boys: Navigating Contemporary Glass' (2018: 10:00). Silbert asserts that 'Glassy Thinkers' are paving a path forward in contemporary glass and while their products are often 'dematerialised', their outputs are such that they 'could only have been made by people who are paying close attention to the properties and possibilities of the material' (Bard Graduate Center 2018: 10:55). Silbert also describes contemporary makers she calls 'Blue Chip Artists', established artists who hire skilled glass workers to realise their ideas in glass to evoke meaning through the 'phenomenology' and 'associations' of the glass (Bard Graduate Center 2018: 8:05).

7



(14 April 2021)

Glass, due to its ubiquity and unique nature, is a concept for all of us though, not only the ‘Glassy Thinkers’ and ‘Blue Chip Artists’. Each of us derives our glass concepts from our experiences with the physical glass all around us and the ‘glass’ in our language. In this thesis, I argue that glass concepts can be access points or entry ways for understanding and working creatively with the medium. Upcoming Chapters 6–8 focus on this. At this juncture though, I think it is important for me to offer the reader a description of how I work with glass concepts, so that the reader can begin to consider this thesis, with its embedded glass concepts, as a work of glass. In my creative practice, I often use the concept ‘glass material properties are like human characteristics’. (A simple example of this is that glass can be ‘stressed’ as can people.) I work between this concept of glass and the material to determine how I might use the glass medium to express human emotions or relationships. To explain, I can provide an important example from my practice during my MFA studies. Figure 15a below depicts the result of combining a titanium shape with hot glass and then marvering it. In the image, the test piece is solid: the glass is clear, enveloping the dark-coloured titanium. Figure 15b shows the same test piece a few days after its creation. The titanium had stressed the glass so much that it cracked, and a small piece had broken away, taking with it a paper-thin, metal coating of titanium on its underside (Figure 15b).



Figure 15a. Hot glass and titanium marver test



Figure 15b. Stressed test and breakaway piece

I studied this test piece, concentrating particularly on the thought of the small glass piece ‘separating from the body’ and later wrote an auto-ethnographic, imagined interview with myself about my practice (Appendix B, Naas 2014a). This lyric writing helped me tease out additional concepts. I wrote specifically about how we are touched

8



(1 April 2020)

by our relationships and how they ‘tak[e] bits of me away’ (page B-4). This ‘taking bits of me away’ came directly from the little piece of glass taking the titanium sliver from the test body. The phrase ‘taking bits of me away’ became my project driver for a new glass project in Fall 2014. I realised the words as an intricate, lacy, glass cast of my torso (Figures 16a/b). In this case, my glass concept (‘glass material properties are like human characteristics’) helped me convey in glass, how I see my relationship experiences: they change me, with each one ‘taking bits of me away’.



Figure 16a. *Embodiment,* 2014



Figure 16b. Profile detail, *Embodiment*

Glass concepts factor throughout this thesis: in my academic text, lyric lines and images, ‘Interludes’, and in its design. Those that I feature prominently are ‘optical’ in nature and include ‘reflection’, ‘mirroring’, ‘lenses’, and ‘filtering’, among others. For dialogue between the academic and lyric, I often use reflection points as meeting points to relate the two writing forms. For instance, I placed the image on page 101 for two reasons: it continues the lyric line of thought from the previous lyric pages, and it also reflects the composition and content of Figure 15b from page 100. In the lyric image, a joyful woman greets her grandchildren, separated by glass due to a pandemic lockdown (Irish Times 2020). As in Figure 15b, a small body is on the left beside a larger body on the right, and as the main test body is separated from the small bit, the woman is separated from her young family members. The reflection enables the pages to meet at this point and their association might convey new details to the reader: the stress released in the broken glass of Figure 15b can be connected to the woman’s expression of joy, echoing my concept ‘glass material properties are like human characteristics’. Upcoming chapters also offer examples of my glass concepts in practice.

9



(14 April 2021)

3.4. Glass as a Staging Ground for Creativity Research

Glass material, glass concepts, and ‘glass’ then, offer ideal starting points for creativity research, as they provide fertile ground for the association-making that I described as theories underpinning creativity (pages 44–64). Glass is at once, wholly ubiquitous—to the point of being mundane and taken for granted in our lives—and at the same time, so unique as a material, that it is driving and enabling tremendous feats of human creativity. One could even argue that it is inherently creative, given that its chemical make-up depends on transient atomic connections (pages 72, 74), just like new, creative ideas require new associations. We may never know exactly how the new ideas were generated that brought about the early innovations with glass, but we can conjecture that association played a role. Certainly, the early use of glass as imitating other materials was a way of associating glass with luxury and adding value by association (page 80). For both the telescope and the microscope to be developed by the Dutch during the same period (page 86, 88), it is feasible to imagine how the adjacent possible (page 64) might have worked: perhaps physical association by the inventors or friends of the inventors or leaked news out of neighbouring areas led to concurrent innovations. An example of exaptation (page 64) in glass creativity is when Galileo pointed his telescope to the sky (page 88): he used the available technology in a new way. My research into idea generation puts the creativity association theories into practice using ‘glass’, glass concepts, and glass material, because they are fundamentally suited for the task and accessible to everyone.

In my creative practice, I work with ‘glass’ and my glass concepts, even more frequently than I do with glass material, especially in my ideation for studio projects. Often, I turn to lyric writing to tease out the associations and clarify relationships. It is my way of turning over the glass material in my mind before I have a set direction for a project. Due to this, I chose a lyric methodology for my practice-based research. In the previous section, I use the broken test example to highlight my glass concepts, as well as my inclination toward lyric writing for association-making (pages 100, 102). The imagined interview to which I refer is my early, introspective, creativity research. In it, I captured my awareness of my insight moment in my creative process—Young’s ‘eureka’ moment (page 52) and Wallas’ ‘Illumination’ (page 50). I point the reader to this writing piece, Appendix B, for more detail, because it foreshadows both my path in creativity research and the circumstances I faced, which I describe in Chapter 7. The next chapter describes how I determined a lyric methodology through my practice and it details the philosophies which frame my research and this dissertation.

Chapter 3 Lyric Notes

[1] Notre Dame Cathedral burned during the night on 15 April 2019 (Hinnant, Petrequin, and Ganley 2019).

[2] 'South Rose' in this line refers to Notre Dame's South Rose stained glass window.

[3] 'Thin space' or 'thin places' are terms used to articulate a spiritual resonance about a space, place, or even a building. In *Man Seeks God, My Flirtations with the Divine*, author Eric Weiner describes them as 'those rare locales where the distance between Heaven and earth is compressed and you can sense the divine' (2011: 55).

[4] This image shows the glass houses of the *Gun Violence Memorial Project* (Gibson 2019).

[5] 'Ash to ashes' is a direct reference to the Christian funereal phrase 'ashes to ashes, dust to dust'. I also was thinking about how the glass (made of ash) is now being used to contain symbolic ashes.

[6] This image shows a resident at the Kirkland, Washington care home (the first hotspot for the coronavirus in the United States) receiving a visit with her relatives. The glass window has played important roles during the pandemic. In this case, with the coronavirus exploding in the care home, it enables the worried family to visit their relative in residence, but keeps the virus contained from them. The mood of the photograph is sombre and sobering. (Miller, M., Chen, C. and Kaplan, J. 2020)

[7] Included in *New Glass Review 30*, this image is from Franz Schonbeck's *My Stress Is Gone Now*, window glass from a performance of stone throwing (Corning Museum of Glass 2009b: 103) and it is noted by Jerome Harrington in his 'Glass in the Expanded Field' project (2012).

[8] In contrast to the Kirkland pandemic image, the mood of this photograph is quite joyous. The children in the scene are visiting their grandmother in Ireland on St. Patrick's Day. The image highlights the role of the glass window in social distancing, facilitating small moments of joy during the pandemic, while protecting vulnerable elders from possible asymptomatic carriers. (Irish Times 2020)

[9] *Painting Air* is Spencer Finch's installation of hanging glass panes, which reflect, refract, and distort his painting on the wall that is an abstraction of Monet's garden at Giverny (Finch 2012).

‘Interlude 3’

Vaulted, exalted, your view soars through time,
Where the South Rose bloomed perennially.
Prayers I left in your thin space,
In the divide between here and There,
In between the colours that sift the air.

Ash to ashes perhaps or ash contained
By brick by brick, in forever buildings.
Small vaultings with barren spaces,
Made for memories to reside there,
Wakened for public viewings, unrest bare.

Statement on ‘Interlude 3’

‘Interlude 3’ highlights the polarities I see held within the glass material: its verses are contrasting descriptions of two architectural glass works which resonate with me very personally; and the final images punctuate the duality of glass windowpanes during the Coronavirus pandemic. The glass, its properties, and associations enable and shape my responses to the two works. The first verse, written in the early hours of 16 April 2019, is my lament and homage to Notre Dame de Paris and its glass, after its devastating fire. It describes how the space and light, coloured by stained glass windows, affected my visit to Notre Dame at a pivotal point in my life. I had studied its architecture in my Catholic high school and then again as a college art history major. It was for Notre Dame that I crossed the Atlantic in 2005, my first trip abroad, to experience its architecture: the vaults, buttresses, and the stained glass. In a sense, my interest in travel and art history, indeed, even my student residency in Scotland can be traced back to this building, my experience of it, and the light cast from those stained glass windows in its sacred Gothic interior. The glass shaped the light to invite the sublime into my experience, creating my first encounter with a thin space and what I mark as an exceptional life-giving experience.

The second verse describes my understanding of *The Gun Violence Memorial Project*. Each of its four houses are built of 700 clear, glass, empty bricks to represent the number of people who die by gun violence each week in the United States (Corley 2020). Finding the project while I was working on this glass chapter was rather arresting for me, as my father committed suicide with a gun in September 2019. The memorial’s use of glass is cold, stark, funereal, and completely in contrast (in appearance, purpose, and feeling) to Notre Dame’s glass. The transparency of the glass showcases objects left by mourners, making for transparent facts of the lives affected. The verse contemplates the senseless, common, and ongoing death by gun violence.

‘Interlude 3’ shares my sadness in my home country, the United States. With no equivalent to Notre Dame—built of creative acts spanning centuries, intertwining histories of many countries, while enticing millions to pilgrimage—it continues to build houses of empty glass bricks, while I watch from afar.

4. Methodologies: Set Framework

This chapter focuses on the three methodologies that support my doctoral project: lyric philosophy nested into scholartistry, with both framed by a meta-creative approach. I discuss how they relate to my practice, why they fit this project, and how they connect to each other. My two research questions guided my choices initially (Chapter 1, page 12). I used key elements of the questions, such as 'word and concept associations', 'creativity', and 'turn…into a creative act' to seek out and study potential, suitable philosophies, but it was in working through my practice that helped reveal methodologies for my research. I then consciously chose to use them.

4.1. Determining a Research Strategy through My Creative Practice

4.1.1. Reflecting on Past Work Completed Prior to Doctoral Study

While I use glass as a primary medium in my art and design outputs, the beginnings of my projects, my idea generation, and my project drivers are almost always held in words as textual fragments, lyric phrases, or poetic lines. As I described in my Creative Practice Statement, my ideation includes quick, associative flashes of words, images, sounds, and memories, but I rely on words to describe and capture the idea bits (page 2). My sketchbooks hold more words than drawings; Figures 17 and 18 show sketchbook pages that are typical of my process. My drawings appear as little more than doodles, while pages of technique descriptions sometimes interrupt project thoughts, as in Figure 17 below.

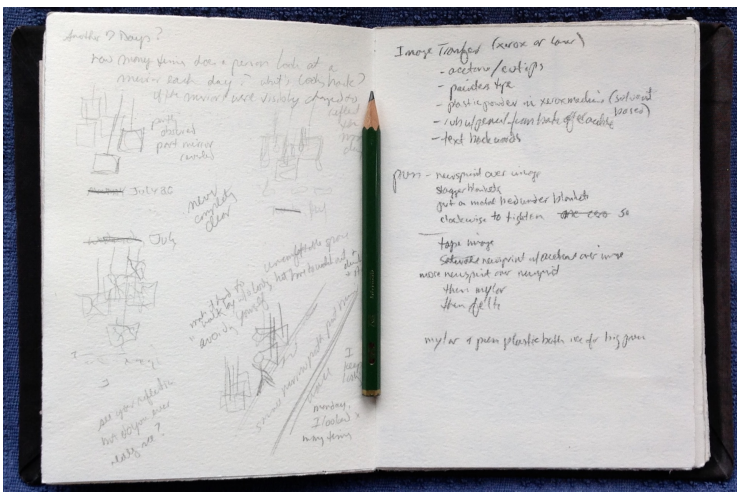


Figure 17. Sketchbook interior showing the beginnings of a mirror project on the left-facing page and a description of an image transfer process on the right-facing page

Quotes, questions, definitions, lists of synonyms, and other associative words and references are common. Often, I will scratch out a thought on whatever paper is around me and I will add it to one of my books with a more developed description as in Figure 18 below. I do not always keep the scrap papers, but occasionally I will take photos of them so they are digitised or I will incorporate the words into longer writings, held as electronic documents that are archived and searchable.

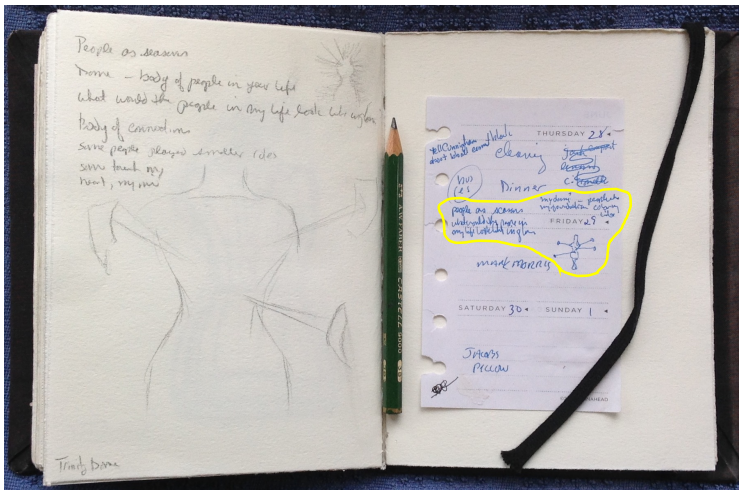


Figure 18. Sketchbook interior showing a torn diary page on right-facing page; the project idea bits are highlighted in yellow and more developed on the left-facing page

My ideation feels complete when I have a short textual piece that holds my thinking, even if it does not contain the word 'glass'. The text becomes my project driver. For instance, my MFA degree show work began from the simile 'my sorrows are like secrets...they whisper', which I included in my *Sorrows* blog post (Figure 19).

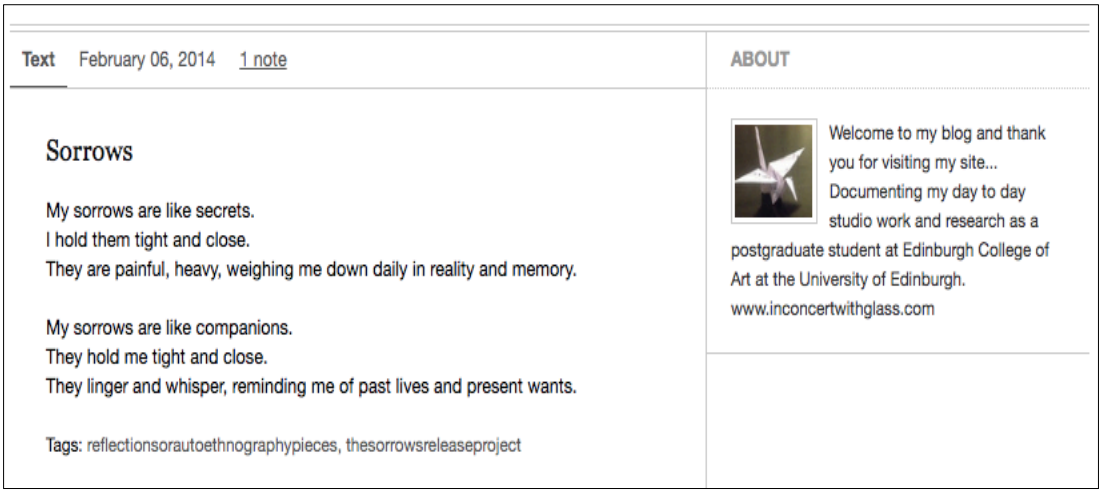


Figure 19. Screenshot of the lyric text I wrote to capture my thoughts on sorrows (Naas 2014b)

The first notes hung in the evening's gloaming, but there was light enough.

(1 June 2019)

This simile became the project driver, with the poetic words as additional context. They informed the choices I made to create most aspects of *The Sorrows Release Installation* in 2015 (Figures 20a/b). I designed the dark, fragile glass to be lace-like and see-through, speckled with voids. As such, the glass presented quiet statements in unique pieces, but the five hundred together were weighty, and these polarities were reflected in the accompanying soundscape built from thin sounds of my whispers.



Figure 20a. *The Sorrows Release Installation*

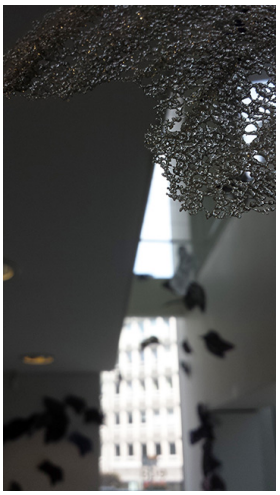


Figure 20b. Detail, *Sorrows*

I worked this way even in my early practice, when I created *Bound to Break* in 2009 (Figures 21a–c). The project driver 'we wear our mental trappings as accessories' led me to make and wear flame-worked chains and cast glass shackles for self-portraits resembling fashion photographs. I bound them together to tell a story.

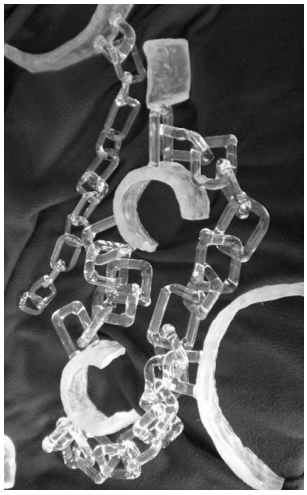


Figure 21a. Shackles/Chains

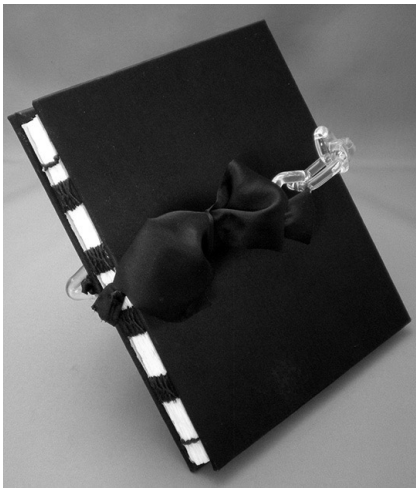


Figure 21b. *Bound to Break* book



Figure 21c. Open book

She wrote, “I am all of glass” and[1]

(3 May 2019, edited 1 June 2019)

Book platforms—artists' books especially—like my *Bound to Break,* are regular features of my creative practice. In an artist's book, the form of the book can be essential to conveying its content and meaning, and artists make them to be art pieces unto themselves (Evenhaugen 2012, Victoria and Albert n.d.). This is the intent for my books and I have made some very elaborate book forms that also experiment with the ways in which a reader experiences the content and writing. My *Come Undone* book from 2011, shown in Figures 22a–c, deals with similar themes as *Bound to Break*, and is its companion piece. I designed the book cover to resemble a corset and it is the size of a female torso. The reader must work to unlace the corset bindings to get at the text, images, and secrets stitched into the supple, leather interior. Once unlaced, the right and left book flaps open to offer different ways to read the book.



Figure 22a. *Come Undone* book

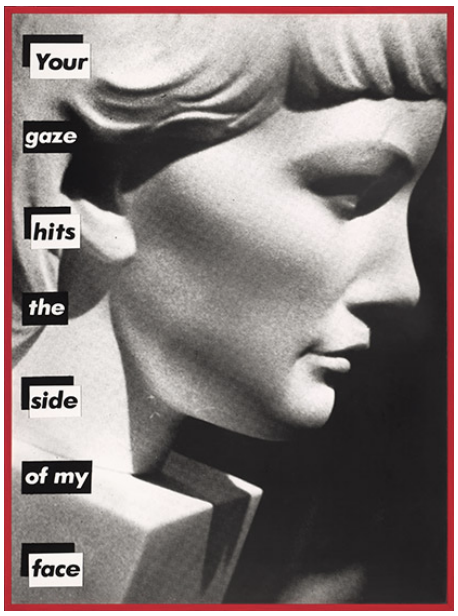


Figure 22b. Detail of the closed book form with ties and bindings



Figure 22c. *Come Undone* unlaced, with covers open to reveal split pages; the reader chooses how to turn the pages, but the images and text still line up to tell the story

2



(3 May 2019)

I have also used book platforms as alternative, intimate gallery spaces for my practice. My book ideas usually begin with some form of textual premise, just as any glass I make. For instance, *A Looking Glass Book,* from my first semester in 2013 as a postgraduate student, developed from my thought that 'as a "mature" student, I feel like Alice in Wonderland in the MFA Glass programme at Edinburgh' (Figures 23a/b). I used it to showcase my collaborative glass projects with colleagues, while simultaneously telling my story of my ECA experience. I juxtaposed images of our glass work with text excerpts from the Lewis Carroll book *Through the Looking Glass and What Alice Found There* (1897). The pages are held between the dried-out newspaper used to shape the glass during our hotshop sessions. Astute readers will find mirror writing throughout—Alice's lines that convey my more personal thoughts.



Figure 23a. *A Looking Glass Book* displayed to show one side of its concertina format

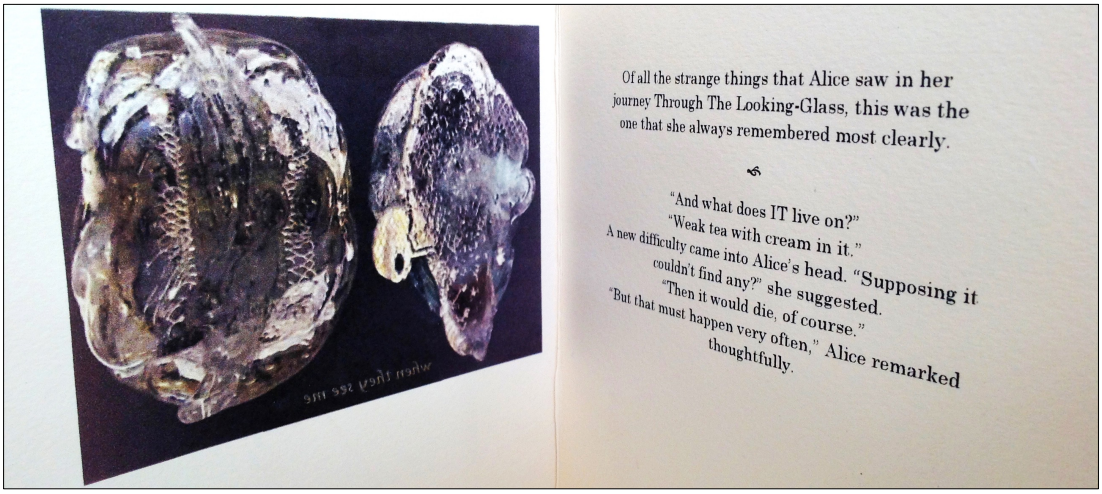


Figure 23b. Detail of *A Looking Glass Book,* displaying the 'Nesting' glass project and mirror writing (left) paired with Lewis text (right), to relay my American puzzlement over workshop tea breaks in Scotland

3



(3 May 2019)

This consideration of my practice and past ideation revealed evidence that words are essential to my idea-making and project driver development. Lyric forms and experimentation with the lyric are also present throughout my work. This reflection, however, was on past, completed work. Before I could commit to a methodology or framework for my dissertation project, I felt it imperative that I attempt to meet my second aim detailed in Chapter 1: 'to articulate and communicate my experience of ideation in my creative practice' (page 12). For me, this meant going beyond a reflection on previous projects and considering my creative process in its working moment. I wanted to try to be aware of my idea generation as I was doing it or as it was happening to me, whichever the case—I wanted to try to capture this. The following section describes my participation in a brief, for which I focused my attention on my ideation process as it was happening, and captured it in words.

4.1.2. Expressing My Creative Process

Early in my doctoral studies, I knew from reflection on past work, that words were essential and inherent to my process, but I did not know just how integral they were for me. I was aware that I used word association, but at the time, I still struggled to articulate my working process, its patterns, and overall arch, in the manner of the previous section. Seeking clarity and qualitative data on the creative process as an act, I challenged a group of my colleagues to respond to a brief I developed to investigate the essence of the creative process (Appendix C). In the 'Project Brief' on the third page of the document, I asked participants to 'express, detail, describe, and/or relay the essence of [their] creative process in [their] own unique way' (page C-3). Initially I had not intended to participate, but as soon as I had the heart of the brief typed out as that statement, my mind began working on how I would respond.

I chose to participate in the 'Expressions of the Creative Process' brief and began a Google document where I could keep images, web links, and my notes on the topic. While I use paper sketchbooks in my practice, I also use electronic documents because they are conducive to my writing and word associations. I can quickly pull in images off the Internet to reflect more precisely what is in my mind as I make visual associations with my writing. I can also link to movies or sounds or other artists' work as the thoughts occur. When the work requires collaboration, I can share them with colleagues who can comment on or contribute to the document's content. Specifically, I like to use Google documents and Word documents in this way, as a type of digital sketchbook or digital commonplace book, and I refer to them as 'studio

And I am all of glass!

(3 May 2019)

mandalas'. I start a new document when I am working out a new problem, beginning a new brief, or musing on a specific subject for my practice. I set out an intention or purpose for the document at the top of the page. For me, these documents are akin to stepping onto a yoga mat for physical practice—they are spaces where my mind can practice stretching its ideas, focusing on specific postures or phrases, and aligning or balancing thoughts. I interacted with my document 'Studio Mandala on my Creative Process' regularly until I had a response to my own brief (Appendix C, pages C-4 to C-8).

From the outset, I thought that I would produce a final, physical work involving glass material, as it is so primary a medium for me. I even announced this to the participants at the end of the 'Project Brief' when I stated: 'I believe my artist expression will take some form of me creating a puzzle, using glass and words as my output' (page C-3). Three artists participated in the challenge with me: a filmmaker who makes glass works, a stained glass artist, and a photographer. Their expressions can be viewed within Appendix C (pages C-9 to C-11). The filmmaker created a short video from her perspective, with glass acting as an extension of herself. The stained glass artist created a stained glass piece. The photographer developed prints by using only analogue methods and without a camera lens. To my surprise though, my end product contained no glass, not even the word 'glass' or glass as a concept. My response, the result of my interaction with my studio mandala document and many days of thinking about my creative thinking and acting process, took the final form of poetic prose. I titled the lyric lines 'A Liminal Time':

> In dialogue with myself
> My mind continued the conversation.
> The words ushered forth...
> A puzzle? I questioned.
> Puzzled, I wondered.
> What puzzling translation!
> In bed I was falling asleep…seeking to connect
> Unhinged visuals bantered by half-awake memories
> Like 'garlic and sapphires in the mud'
> Embedded. Hinged together.

I had captured my ideation process moments, almost right as they occurred. What my studio mandala does not show, was me forcing myself out of bed at night, before I fell asleep, to write down the thoughts that were the outline of this poem. My experience seems similar to those of other artists, writers, and inventors working while in states

Deep breath...keep on center, she thought.[4]

(3 May 2019, edited 1 June 2019)

between wakefulness and sleeping, as described in ‘The Hour Between Dog and Wolf’ by psychologist Melissa Burkley (2019). My poem provides a perspective on my awareness of my mind’s work, as I relaxed and began to fall asleep. In bed, I was aware that I was still working on my response in my mind and considering pieces like the Rubik’s Cube puzzle from my Google document. The fourth, fifth, and sixth lines in the poem demonstrate how I was reframing the pieces and looking at the ‘puzzle’ word, its concept, and its function in language. I was looking at ‘puzzle’ as if it were a puzzle piece—these lines show my idea generation process. The poem then moves on to describe the puzzle-like association I made with another visual element and experience, my memory of reading and studying T. S. Eliot’s poetry, evident from my reference to ‘garlic and sapphires in the mud’, his line from ‘Burnt Norton’ in *Four Quartets* (1971: 15). This association and turning of language and flashes of sensory experience was my process captured. It is my process. Further, the poem’s ending of ‘Embedded. Hinged together.’ explains that my process finishes when I make a deep connection or link ideas together. But to substitute the word ‘link’ for ‘hinged’ changes the meaning of that line. That which is ‘hinged’ both fits in place but is moveable, which is different than that which is ‘linked’. There is much unpacking of my poem that I could do, but what is most important here, for this section, is what I learned from placing attention on my process and writing the poem to capture it: that my most genuine expression of my ideation and creative process is a lyric piece of writing.

This lyric of ‘A Liminal Time’ is a complete articulation of my process. It is as complete as the pages of explanation I would need to write to account for the entire poem. I considered pushing forward from there to form an output of glass, and I spent some days thinking about what glass form I might make. I realised, though, that it would be a forced effort—that the prose was my expression and contained my ideation process. I did not need to produce further to convey my creative process. This short text captures what I believe to be the heart of my creative process, especially my idea generation. These two insights, that my expression of my creative process is a lyric piece of writing and that it is a complete articulation, led me to research lyric philosophy as a methodology to guide my practice-based PhD work.

4.2. Lyric Philosophy

4.2.1. Introduction to the Philosophy and Choosing the Lyric as a Methodology

Canadian poet and philosopher Jan Zwicky is credited with naming and articulating lyric philosophy with the publishing of her book *Lyric Philosophy* in 1992.

Breathe of toasted Times and burnt blocks[5]

(19 March 2018 edited 3 May 2019)

Philosophy professor and author Donald Phillip Verene goes so far as to say that she 'invented' it (1994: 124); but scholar Warren Heiti points out that Zwicky provides examples in her book of other practitioners of the philosophy, reaching as far back to Herakleitos and Lao Zi (2015: 189–190). This suggests that the practice might be ancient, as Herakleitos was a pre-Socratic, Greek philosopher of the late 6th century BCE (Graham n.d.) and Lao Zi (or Laozi or Lao-tzu) was a Chinese, Daoist philosopher from the same period (Littlejohn n.d.). That the philosophy potentially has these ancient roots appealed to me, because I work with glass, a medium with its own ancient roots. Conversely, 'the *lyric* has come to signify a contemporary movement' as scholar Tina Northrup writes (2012: 192). I read this as somewhat parallel to glass experiencing its own contemporary, artistic movement now, as I explained in Chapter 3 (pages 96, 98). While Zwicky's 'invention' of lyric philosophy is arguable, my searches in its regard led me to her, her expertise, and her treatise, which she further developed in a revised and corrected, second edition published in 2014.

My first encounter with Zwicky's work, reviewers, and critics, indicated that the philosophy is well-suited to practice-based art and design research. Lyric philosophy 'advocate[es] for modes of inquiry that are not solely reliant upon logic and reason, but embrace such conventionally "artistic" paths to knowledge as emotion, intuition, and physical sensation' (Northrup 2012: 192). Embracing artistic pathways to knowledge as a core tenet of the philosophy seemed a crucial attribute for any methodology I might choose, as I was intending to provide an artist's/designer's perspective on creativity. Zwicky's philosophy proposes that analytic, logical philosophies, expressed in propositional language, are not the only pathways to clarity of thinking; and *Lyric Philosophy* as a philosophy and as a book, pushes against these traditions. Verene points out that this is not the first philosophy to do so, citing Hegel as well as Lockean, Cartesian, and Kantian traditions (1994: 127–128). Zwicky herself, calls her *Lyric Philosophy* 'a rebellion' (2014: 18). While this may be the case, significantly, Heiti also assures readers that 'Zwicky repeatedly cautions that she is not attempting to supplant analysis with lyric' but says rather, 'her work might be read as reminding philosophy of the range of its indigenous resources' (2015: 191).

This pushing against academic traditions, along with the philosophy's particular attention to language constructs and writing forms, seemed very much in harmony with my creative practice. What made it a clear choice for me as a methodology though, was when I recognised the familiarity of Zwicky's textual and image juxtapositions. Her writing also seems associative in a manner similar to my

while crackling bits chatter of losing heat in the bins.[6]

(19 March 2018)

ideation described on pages 109–122. The form of her writing is clearly important to relay her content to the reader. Zwicky confirms this in the preface to *Lyric Philosophy,* writing that '*how* we say is fundamental to *what* we mean' (2014: 13). This essential feature of the philosophy is in line with my practice and need for my art form to be in union with its content; and it recalls Frank Lloyd Wright's design principle to which I aspire: that 'form and function are one' (Wright 1949: 298). I wrote in my Creative Practice Statement that the processes, materials, and form are critical to expressing the meaning I hope to convey to my audience (pages 2–4). Glass and book platforms have enabled immense flexibility with form for me, therefore, it was exciting to find a philosophy that felt so familiar and open to media and structure, especially with regard to writing and expression of theory. For me, this meant that lyric philosophy could guide my process with lyric ideation, my practice, as well as my final written thesis.

Zwicky's book takes the form of a hefty 861 pages for the second edition, but contains an unusual amount of seemingly random white space and is not as text-heavy as its size would suggest (Figure 24). A closer inspection reveals that she uses the section symbol (§) followed by a number to denote pages, and these numbers are always the same on the left and right pages for each new section. Zwicky provides the reader with only a few lines of guidance. She writes that she couples her own writing on the left, which is 'organizationally dominant' with what she calls a 'scrapbook; a way of paying intellectual debts; a series of suggestions for further reading; a chorus of *agents provocateurs*; the vocal score for a conceptual opera; a homage' (2014: 18). This helps explain the white space, because her writing on the left is often aphoristic and brief, while content on the right (text and sometimes images or even musical scores) frequently continues into other right-facing pages.

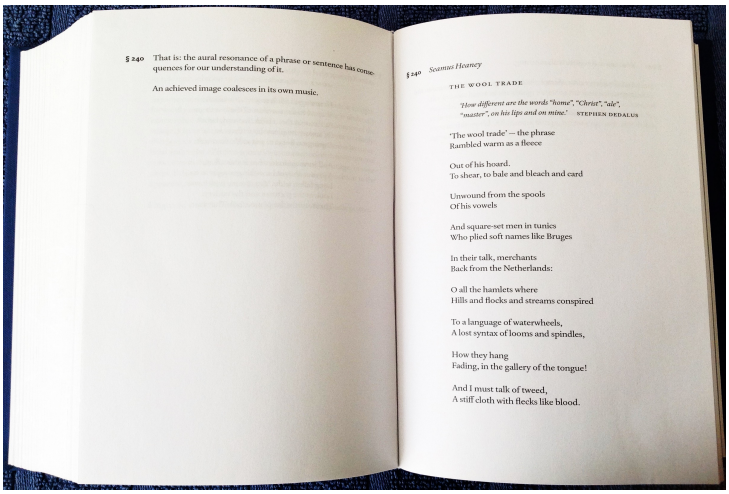


Figure 24. Interior example pages of Zwicky's *Lyric Philosophy*

7



(13 May 2019)

If the reader takes Zwicky at her word, then the 'how' of her work—this layout, as well as the prose, imagery, and graphics on the pages—are all fundamental to the meaning and theory she is attempting to convey to the reader. Zwicky's book is both a defense of the practice of lyric philosophy and a contribution to it (Heiti 2015: 189). Reviewer Alex Neill writes that the book 'is about philosophy and about art; it is a book about philosophy as art and about art as philosophy' (1994: 373). The paragraphs and pages above provide a general depiction of the philosophy, but offer no formal definition. Heiti explains that lyric philosophy 'might be roughly understood as thinking in which clarity assumes the form of resonance' (2015: 188). Zwicky does not explicitly define it, but she does offer characteristics and possible answers by showing and demonstrating to the reader. Heiti writes: 'importantly, criteria for the concept of lyric philosophy are never stipulated in that book, and refraining from such stipulation is connected with the very nature of the investigation' (2015: 188). Zwicky's lyric philosophy claims that what the 'lyric' achieves 'if its medium is words, is speech that integrates various human modes of understanding-emotional, logical, physical, among others' (2013: 18). She writes that 'lyric meaning resists summary and paraphrase as much as it resists analysis' (2013: 1). This is not unlike creativity and the creative process itself; there is inherent difficulty in its analysis because so much is intangible. Reading Zwicky's lines reinforced my choice of lyric philosophy as a good fit for this project on creative idea generation. The next section discusses characteristics of lyric philosophy, along with its practice.

4.2.2. Zwicky's 'Lyric' and its Characteristics

'Resonant', 'gestural', 'integrated', and 'polydimensional' are characteristics elemental to Zwicky's lyric philosophy (Heiti 2015: 188). I would add 'associative' and 'multi-voiced' as well. These characteristics seem to arise from Zwicky's interest in the 'gestalt' and how she attempts to attend to it in her writing. A few words on 'gestalt' and the Gestalt tradition in philosophy and psychology might be useful to provide some context for Zwicky's work before a discussion of the lyric characteristics (which will follow). Philosopher and psychotherapist Jürgen Braungardt, writes that Gestalt psychology is a theory of the mind, developed in Germany in the early 20th century, to understand how humans acquire and maintain perceptions of meaning (2019). He explains that 'Gestalt psychologists believe that the mind actively shapes perceptions, and aims to form units, or [gestalts]' (2019). These units of perception can be found in different scenarios, but the meaning remains whole. As example, he offers knowing

8



(16 May 2019, edited 19 July 2019)

a melody, even if it is played at a different tempo or with different instruments, writing that ‘we remember the melody as a gestalt that can appear in different materials, or with different backgrounds’ (Braungardt 2019). Wholeness of meaning is also central to the Gestalt tradition, as opposed to analysis of parts (Sills, Lapworth, & Desmond 2012: 3). Psychotherapists and authors Sills, Lapworth, and Desmond offer the example of breaking a flower into its parts (root, stem, leaf, petal, stamen, and pistil) for analysis, arguing that this would not capture the totality of the flower in a garden (2012: 3). The Gestalt considers the whole flower in relationship to its environment.

In Zwicky’s lyric philosophy, wholeness and the unit of perception as a gestalt are of primary importance. In her own words on meaning and the lyric, she introduces the reader to this in her article ‘What is Lyric Philosophy? An Introduction’ (2013). She writes that ‘language is a limited instrument—vast, supple, complex, but limited’ (2013: 19). She sees a loss of meaning in the analytical and in its breaking apart of the whole into parts as an attempt toward understanding (2013: 18–19). She asserts that what is lost by analysing parts is the relationship of the part to the whole and the relationship of the parts to each other. Zwicky offers her ‘lyric’ as a language solution which will attend to the ‘gestalt’ or essential wholeness of the concept (2013: 17–19). This lyric language is not limited to words as she demonstrates (Figure 25).

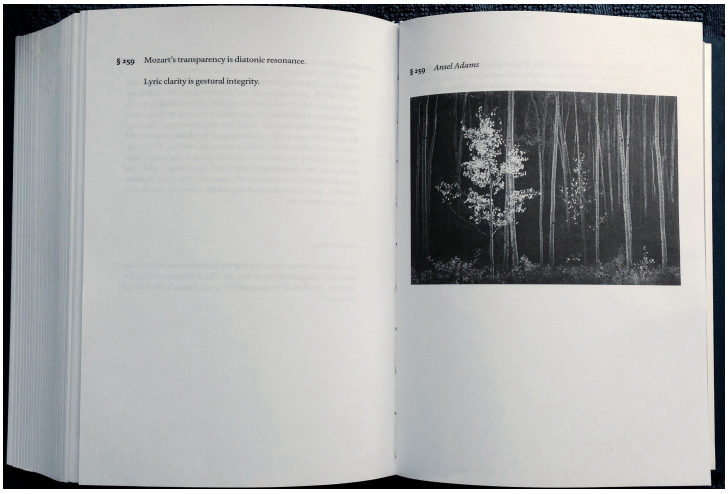


Figure 25. Interior pages of Zwicky’s *Lyric Philosophy* pairing her text with an image of Ansel Adams’ photograph *Aspens, Northern New Mexico, 1958*

Zwicky’s lyric, as described in the previous section, pairs her short, concise, aphoristic text with poetry, images, music, stories, ads, arguments, letters, and more. These juxtapositions have additional purposes than those she explicitly states in her preface; they act as more than the credits, references, suggestions for further reading,

9



(13 May 2019)

or even provocations she offers (2014: 18). Many serve the reader in the same way that Braungardt's example of melody does—they demonstrate how the gestalt held in Zwicky's words can also be held in another form or medium.

The couplings are associative and gestural, pointing toward meaning through the coupling itself. Zwicky never outright explains them, but the reader can still gather meaning. For example, in Figure 25 (page 130), the reader can see that she pairs her statements on the left-facing page with Ansel Adams' photograph *Aspens, Northern New Mexico, 1958* on the right. Zwicky writes two lines separated by space: 'Mozart's transparency is diatonic resonance' and 'Lyric clarity is gestural integrity'. She is providing the reader with her theory about the lyric. If form is so significant to Zwicky and her philosophy, then placement of content is key to meaning. The proximity of her words about lyric clarity to those about Mozart, juxtaposed with Ansel Adams' photograph, suggests that the reader can find meaning about the lyric from one to the other, as well as through their association and relationship. While I am not a musician, I know that 'transparency' is clear, a type of clarity, and that 'diatonic' refers to harmony (at a minimum), and I can take that thought and consider *Aspens.* From my perspective as a visual artist, I understand Adams' composition as one of balance and harmony through his framing and capturing of highlights and shadows, and the echoing of lines and patterns throughout the image. Then I take those thoughts back to Zwicky's statements to gather more meaning. By 'gestural integrity' and 'resonance', I believe Zwicky means that the gestalt of balance and harmony can be found in both Mozart's music and Adams' image. While meaning can be understood from the one through the other as I discussed, new meaning is made when they are coupled. Heiti discusses this as components of a whole, standing 'attuned' in relationship to one another and 'transit[ing] vibrations to each other' (2015: 193).

When gestural resonance runs through a lyric work, then it is 'integrated', taking on another characteristic of the philosophy (Heiti 2015: 188). I can understand Zwicky's words about resonance and Heiti's words about vibrations in the same way I understand designer David Hicks' interiors. On his perspective of colours, he writes that he believes 'categorizing certain combinations as "discordant" or "complimentary" can be misleading and inhibiting...to me, pink and red, for example, do not "clash", they "vibrate" in a stimulating and interesting way' (1987: 55). Hicks' designs rebuke tradition with its unusual colour pairings to create integrated interiors and a new visual language. Zwicky's pages do the same for theory writing. She constructs sentences in such a way that a reader must sit with them for a while and visit them again, not

Listen to the glass.[10]

(13 May 2019)

unlike how a viewer takes time with a painting and finds something new in it with each viewing. She presents her work as an artwork. Meaning held in her pages is not confined to words or explained only through words; her full lyric language is one of association through multiple expressions, which pushes against the tradition of text-heavy analysis.

Meaning expressed in this lyric language can have multiple, nuanced layers which is characteristic of the philosophy in practice. In the example of Figure 25 (page 130), I explained that while I am not a musician (I have not studied Mozart and cannot read music), I can still gather meaning from the pages. I also described how I gather meaning by drawing on my experiences and associations with the content, while carefully considering its placement and form. The multi-voiced language (in Zwicky's case, the differing media, artists, and writers of the right-facing pages) come with contexts that have their own associations and information. Consequently, as a reader, I do have to work sometimes to uncover the meanings or to try to articulate the intangibles conveyed or the tacit knowledge I gather through the lyric. A musician reading Zwicky's work will understand the scores that she includes and her musical references in ways that I will never be able, but that does not make my reading of her work 'less than'. Rather, the layers foster inclusivity. Layered and nuanced meaning enables varying perspectives on the same subjects and opens the work up to a diverse audience, if readers can suspend expectations of traditional format. Layered meaning throughout the pages of Zwicky's book also helps create the polydimensionality that Heiti states is a feature of lyric work (Heiti 2015: 199). In Zwicky's case, Heiti offers that 'there is more than one path through the woods of the book', writing that 'it is a book about time; it is a new sort of over-view of Wittgenstein's work; it is a respectful quarrel with Anglophone philosophy's recently exclusive commitment to systematic analysis... and it is also a contribution to ecological ethics' (2015: 196). Consistent with the philosophy, this polydimensionality is only revealed if the work is considered as a whole; it cannot be uncovered through analysis of parts. Heiti also helps define a work of lyric philosophy as 'a resonantly integrated, polydimensional structure' (2015: 199). Zwicky's associations, multiple voices, and resonant parts operate in dialogue with one another to create her layered meanings and polydimensionality, therefore, I would add that a feature of the lyric includes its components in some type of dialogue.

These characteristics, then, might indicate other contemporary practitioners of lyric philosophy and their works. Heiti refers to Lucy Alford's essay, 'We know it in our bones: reading a thirty-five-acre plot in rural Virginia with three poems by Charles

11



(21 May 2019)

Wright' as a contemporary example. Alford never mentions lyric philosophy but explains in her abstract that she is 'examining place in dialogue with poem... explor[ing] how physical and formal elements in both terrains can produce parallel aesthetic, bodily, and emotional effects and resonances' (2015: 219). Throughout her writing, she discusses the suspended quality of time that she senses in a specific rural town and then takes this gestalt that she tries to describe and offers three poems to show how she sees it existing within the texts as well. Her sentence construction, while lengthier than Zwicky's, makes a similar request of the reader to 'sit and revisit' the lines for gathering additional meaning. For example, she writes:

> It's odd to speak of an object composed of grammared sound sharing a rib with a place so devoid of it; odd to think of a place constituted by stone, soil, cellulose, and light as resonating with an object whose elements are sound and sign. But the resonance is there. The hard part is tracing it or revealing its mechanisms. (2015: 221)

Peter Turchi's *Maps of the Imagination: the Writer as Cartographer* could be seen as a book of lyric practice as well, though he does not name it as such. In it, he offers guidance and writing techniques to aspiring writers, especially those of the fiction genre, but at the same time he manages to provide an in-depth examination of maps, their history, use, and construction. Additionally, he demonstrates some of the techniques in the way he writes and how he uses the layout of the book. For instance, he introduces the concept of the associative leap, which bridges passages of text through association by leaving words unstated to create spaces or blanks for the reader to fill (Turchi 2004: 54–55). He regularly uses this technique in his writing to construct his book-length metaphor of the writer as cartographer. He makes writing suggestions to his reader, provides written examples, quotes, and selections from other works to support arguments, but then moves seamlessly and sometimes without warning into a discussion of mapmaking. The reader must work to keep up and follow the leap he makes between subjects. By following him and his figurative blanks and spaces, the reader must draw on associations and fill in the missing pieces, gathering intangible insights in the process and developing a tacit knowledge of the associate leap technique of which Turchi writes.

While Turchi uses these figurative, associative leaps to develop the form of his book, Zwicky uses the white spaces of her pages, to make for physical crossings that the reader must navigate. In my research, I have not read any review or critique of her work that comments on the plentiful white space her format creates. She hints in her preface at what they could be, when she writes that the left-facing pages contain

12



(22 May 2019)

‘a vocal score for a conceptual opera’ (2014: 18). Perhaps a musician might read them as music rests of some sort? In my creative practice though, composition and balance of the page are always prime considerations, so I had been wondering how her unusual layout would operate for me, as a reader who is not a musician. What I found is that the format leaves a lot of room for the reader to think within this white space. The white space offers the reader a respite and a pause from the density of her content, however brief the textual pieces. In this white space, a reader might sit to revisit the work she offers. The blank space also encourages the reader to develop (and in my case sometimes to word-work or visualise) a personal response to her textual provocations.

Zwicky’s philosophy and the lyric characteristics feel very familiar to me, even though my first encounter with her philosophy did not occur until the beginning stages of my doctoral research. I believe I am inclined to be a practitioner and was already engaged with the philosophy before I read her work. My *A Looking Glass Book* that I described on page 116, is a strong example from my own practice. It is multi-voiced, with dialogue taking place among the glass images and the Carroll text. It is polydimensional, showcasing my collaborative project, while narrating my perspective of that project, as well as my experience as a new, mature, post-graduate student at ECA. It is associative and asks the reader to work to make leaps between the glass and the text. It also asks the reader to sit a while and consider the mirror writing for further insights. *A Looking Glass Book* is a small work but significant in that it exemplifies how Zwicky’s philosophy and her lyric language are natural fits for me as a creative practitioner, as well as suitable choices for me as a practice-based doctoral researcher. With its malleable media and embedded associations, lyric philosophy is inherently flexible and creative: it is an inclusive, accessible way forward for any practice-based researcher or any creative wanting to show as well as tell meaning or wanting to connect content with its expression in format. It is not, however, without its critics and the next section describes some of the criticism of Zwicky’s philosophy.

4.2.3. Criticism

The harshest critics of Jan Zwicky and her lyric philosophy appear to be Colin Davis and Donald Phillip Verene, with both questioning foundational elements of the philosophy as well as specific aspects of Zwicky’s writing itself. In ‘“Now I Get It”: The Dogmatic Assurance of Lyric Philosophy’, Davis acknowledges that he is concerned more with literature and film, and is not a philosopher, though he says he sometimes

13



(23 May 2019)

writes about philosophy, as he did in this article (2013: 62–63). One of his primary issues with the philosophy is its language, both its reliance on an intuitive understanding of the world that goes beyond words (those meanings held in gestalts) and the 'rhetorical intimidation' of the actual words in the book (2013: 64). In the previous pages, I set out my case for lyric philosophy as a fitting, guiding methodology for my doctoral research, based on my creative practice and my understanding and familiarity with the concept of gestalts. Davis essentially says that gestalts do not work for him: 'I do not myself get it' (2013: 65). He writes that he experiences Zwicky's 'use of the first-person plural as a form of bullying', of being told how he should feel and what he should do (2013: 64). He makes a good point about Zwicky's use of 'we'. The reader cannot be expected to have all the experiences of the author to be part of the 'we' in every instance that she uses it. However, another reader such as myself, might take her words to be inclusive, regardless of sharing the same experiences or not. Through associations of a reader's own personal making, the reader can be part of her 'we'. As with any art, the artist's intention is important, but the reader's (or viewer's) interpretation is equally significant. I would argue that her multi-voiced work enables multiple perspectives, and therefore, some ambiguity in interpretation. With all this in mind, I did carefully consider my use of the first-person plural before employing it within my doctoral project and I do so as well throughout the writing of this thesis.

A tenured philosophy professor at Emory University, Verene seems 'to get' what Davis does not. In his article 'Lyric Philosophy', he writes: 'Lyric philosophy attempts to begin with the lyrical relationship to the world and move from it, not to poetry, as would be the usual case, but to philosophical understanding' (1994: 126). He explains that 'this differs from the impulse to philosophize by analysis or the impulse to put the parts of the world together as a system' (1994: 126). He takes issue though, with Zwicky's choice of textual inclusions, or rather, what she does not include, explaining that she misses a large part of what is available in the history of philosophy (1994: 127). He also criticises her aphoristic writing, explaining that a philosopher must be able to do more and 'write the great book' (1994: 129). Verene questions whether Zwicky's form must be aphoristic (1994: 130). Zwicky is arguing for a new, philosophical language, however, one that is neither rhetorical nor straightforwardly poetic. She is also asking the reader to take her work as a whole, rather than to look solely at her words alone. Due to the hundreds of right-facing textual complements, it seems to me that Zwicky is quite open to how words can be shaped into sentences, so long as those sentences ring true to the form of the work

14



(23 May 2019)

and maintain lyric characteristics. For Zwicky, it means she blends her background of poetry and analytical philosophy. Verene acknowledges this when he writes that Zwicky's work 'is the work of a poet trained in Wittgenstein and contemporary Anglo-American philosophy, applying her insights and basic approach to the world to get beyond either analysis or system as the basis of philosophy' (1994: 126). Zwicky's *Lyric Philosophy* demonstrates her philosophy and urges a new language and way of thinking, with a system of her own creation.

I would argue that her book is her contribution to lyric philosophy as a 'scholartist', or as expressed by authors J. Gary Knowles and Sara Promislow, one who 'possess[es] a creativity and artfulness about inquiry and scholarship... and a willingness to take risks and not be bounded by the conventions of academic discourse and research while being grounded in them' (2008: 5). While lyric philosophy guides my project, I also have chosen to embrace the scholartist's perspective, by blending my art, design, and scholarship. The next section describes this 'scholartistry' and how my use of the lyric is part of my scholartistry.

▷H

4.3. Scholartistry

4.3.1. In the Realm of Practice-based Research

The previous section discussed how I came to lyric philosophy and determined it to be in harmony with my creative practice. I concluded that it *seemed* an appropriate guiding methodology for my practice-based, doctoral research. I wondered if there were space for this 'lyric' in doctoral research and if so, had that space been created yet in academia? Author, researcher, and scholar Lorri Neilsen answers positively in her chapter 'Lyric Inquiry', from the *Handbook of the Arts in Qualitative Research: Perspectives, Methodologies, Examples, and Issues* (2008). With references to Zwicky, she argues that the lyric (and other 'aesthetic writing') can be used in academic research (2008: 93–94). She cites her 2001 article, 'Scribbler: Notes on Writing and Learning Inquiry', and explains that 'Increasingly, scholars are choosing to explore phenomena in ways that fuse their scholarship with their aesthetic perspectives; the resulting scholartistry' challenges how researchers arrive at knowledge, thus making room for the lyric (2008: 94–95, 2001). This 'scholartistry', with its fusion of scholarship and art, caught my attention as the kind of work I aspire to do.

Before discussing scholartistry in more detail as an emerging research methodology, some comments on 'practice-based research' and the on-going debate

The turn is the key.[15]

(6 June 2019)

over nomenclature and definitions is important for context. At the University of Edinburgh, the 'Design MPhil and PhD Programme Handbook 2018–19' refers to my ECA research degree programme as having 'practice-based degrees with submission by portfolio', but does not define the term 'practice-based' (2018b: 26). Regulation 62 within the University document 'Degree Regulations and Programmes of Study Postgraduate Degree Programme Regulations 2018/2019' elaborates with a few lines on the thesis and portfolio requirements, but also does not define the term (2018a: 22). Through this regulations document, however, the reader understands that 'practice-based' allows for artefacts, artworks, and other output forms to be 'an integral part of the contribution to knowledge made by the overall work of the candidate' (2018a: 22). One of the reasons for the lack of definition might be that practice-based research is not new and has a history as a research approach. Another might be that 'practice-based' is not specific to a field, but is widely encompassing of disciplines, processes/methods, and outputs—all too numerous to count—while enabling a variety of interpretations. Researcher Linda Candy and artist/researcher Ernest Edmonds (both of whom work in the United Kingdom and Australia) support this with their description of 'practice-based research' as 'a research approach that has yet to reach a settled status in terms of definition and discourse, despite its presence in academic contexts for over 35 years' (2018: 63).

The debate over naming and defining 'research' and 'practice' and their combinations within art, design, and other traditionally-labelled 'creative' disciplines of academia has been ongoing since at least the 1990s (Gray and Malins 2004: 3). I would posit that perhaps the debate began much earlier, as even artist Pablo Picasso discussed the argument of research and his painting practice in his 1923 'Statement to Marius de Zayas' (Barr 1946: 270–271). The debate revolves around the definitions of the various terms being used (i.e., 'practice-based research', 'practice-led research', 'practice as research' 'research through practice', 'arts-informed research', 'arts-based research', etc.), the differences among countries and schools in their application of these terms in education, as well as the practical issues and even validity of PhDs in art and design. It is not my intention, however, to make these debate issues central to my dissertation. Ken Friedman, guest editor of *Leonardo*, is currently working on much of this for the journal, with discussion about the topic on the PhD-Design forum (2018). While I do wade into the debate fringes by questioning traditional research reporting and artefacts of practice, I first need to distinguish 'scholartistry' amid these other terms to situate my thesis for the reader.

16



(2 July 2019)

Some definitions for ‘practice-based research’, ‘research’, and ‘practice’ must be established, in turn, to describe scholartistry and its characteristics. While I do not agree with all their views and opinions, Candy and Edmonds offer a simple definition for ‘practice-based research’ that I can accept: ‘an original investigation undertaken in order to gain new knowledge, partly by means of practice and the outcomes of that practice’ (2018: 63). They also define ‘practice’ as activity and the ‘application or use of an idea, belief or method’; and ‘research’ as ‘a systematic investigation to establish facts, test theories and reach new knowledge or new understandings’ for the public (2018: 64). These definitions work as well. Candy and Edmonds state that their assumption underlying their definition of ‘practice-based research’, however, is that ‘*research* and *practice* are different’ and they emphatically argue that any line-blurring between the two diminishes the practice-based doctorate (2018: 63–64). Here, I disagree. My thesis and its conclusions will demonstrate that a practice-based doctorate, which does blur these lines, is not diminished because of it. I ask the reader to withhold judgement until reaching the end of my dissertation book. Candy and Edmonds seem to eschew ‘practice as research’ and ‘research as practice’, primarily because there are issues of crediting and claims to new knowledge (2018: 64). I hope to dispel these concerns throughout my thesis. Doctorates that blur these lines between research and practice not only exist and have a history of their own, but are celebrated by scholartists.

Art historian and art critic, James Elkins, of the United States, outlines three models of the practice-based doctorate from his survey of awards. He says that in the first, relatively common model, ‘the dissertation is research that informs the arts practice’ (2005: 8). This first model shows research and practice as separate but connected, and in doing so, adheres to Candy’s and Edmonds’ view of practice-based doctoral work, as they insist that the ‘creative works cannot be expected to speak for themselves’ (2018: 65). In his second model, Elkins describes the dissertation as equal to the artwork: research and artwork comprise a new interdisciplinary field or the artwork and writing are wholly, separate projects (2005: 14–15). Here ‘the dissertation is implicated in the artwork, or even considered as the artwork’ (2005: 14). A third model, offers the dissertation as the artwork, and vice versa, with ‘the scholarly portion of the thesis inextricably fused with the creative portion, so that the artwork is scholarly and the scholarship is creative’ (2005: 16). Elkins also writes that within this third model, the dissertation can be read as art, or the art/design work may stand alone as the dissertation itself, without additional writing (2005: 16–17). He explains that these second and third models are more rare instances of the degree

17



(2 July 2019)

but to him are preferable, though they are not without their practical issues (2005: 8). This third model, with its blurred lines between practice and research or practice and reporting, would not satisfy Candy and Edmonds. Elkin's third model description reads to me, as one of scholartistry, without his having used the name. This does not mean that his first and second models might not have scholartists included under their umbrellas, but this third model description uses the same language of the scholartists and reads similarly to that of scholartistry.

The term 'scholartist' seems to have been introduced and taken up separately in the early 2000s by both a literary, academic, Canadian group and an American, academic, performance group. Knowles and Promislow credit Canadian Lorri Neilsen, mentioned at the start of this section, with coining the term 'scholartistry' in 2002 (2008: 1). In her article, 'Learning from the liminal: fiction as knowledge [Scholartistry]', Neilsen writes:

> Embrace what I call scholartistry emerging in our field... Scholartists bring to inquiry an understanding and sedimented knowing of schooling, education, and learning. They bring to inquiry the artistry of their imaginative powers in the literary and visual arts. (2002: 211)

William W. Lewis and Niki Tulk, Colorado-based editors of *PARtake: The Journal of Performance as Research*, echo Neilsen, writing that 'the twenty-first century worlds of artist and scholar have been increasingly morphing, colliding and colluding', and they identify 'scholartist' as a term developed by participants of the NYU program in Performance Studies in the mid-2000s (2016: 1, 6).

Knowles and Promislow expand on Neilsen's early thoughts to offer a more complete description of scholartistry in their introduction to the 2008 book *Creating Scholartistry: Imagining the Arts-informed Thesis or Dissertation*, a compilation of essays by thesis supervisors and doctoral graduates, who reflect on their own dissertation examples of scholartistry (2008). They concur with Lewis and Tulk that scholartistry exists beyond Neilsen's literary and visual arts to include the performing arts as well as new media (2008: 2). Scholartistry, they write, is work that 'nudges at the boundaries of research conventions, extending notions about process and representation, it creates space where new and wider audiences can access the articulation of new knowledge' (2008: 2). Knowles and Promislow state that for scholartists, 'process is informed not only by bringing to bear one's creativity given the art form but by knowing how artists work' (2008: 5). To illuminate their points and

18

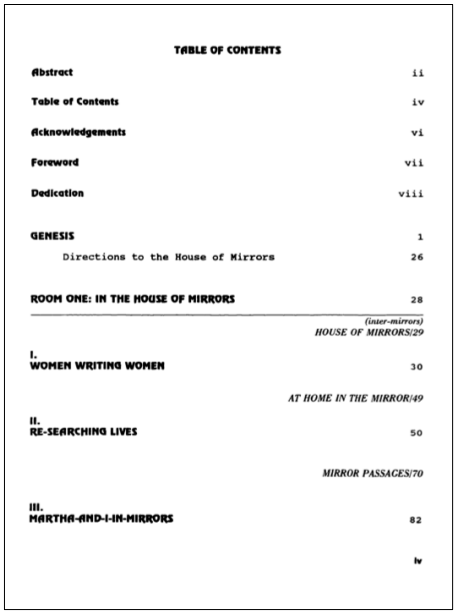


TABLE OF CONTENTS

Abstract ii

Table of Contents iv

Acknowledgements vi

Foreword vii

Dedication viii

GENESIS 1

Directions to the House of Mirrors 26

ROOM ONE: IN THE HOUSE OF MIRRORS 28

(inter-mirrors)
HOUSE OF MIRRORS/29

I.
WOMEN WRITING WOMEN 30

AT HOME IN THE MIRROR/49

II.
RE-SEARCHING LIVES 50

MIRROR PASSAGES/70

III.
MARTHA-AND-I-IN-MIRRORS 82

iv

(2 July 2019)

show the various ways art is 'colluding' with scholarship, I am including the next section to provide examples of scholartistry accepted in formal academic arenas.

4.3.2. Works of Scholartistry

While scholartistry does have a reach beyond the literary (with examples provided in upcoming pages), written resources provide numerous illustrations of this approach, because it is the tradition and expectation in academia to present and represent research in writing and publications. Works of scholartistry can be found within research anthologies such as *Bending Genre: Essays on Creative Nonfiction*, which offers various lyric writings, each an individualised approach to merging scholarship and creative writing (Singer and Walker 2013). Another multi-artist example, *Navigating the unknown,* which I mentioned in Chapter 2 (page 24), melds the investigation of process with its resulting book output that also simultaneously enables the research (Bannerman, C., Sofaer, J. and Watt, J. 2006). The participants used various forms of interconnected lyric writing to investigate creativity through a dialogue that develops among themselves and their texts (Bannerman, C., Sofaer, J. and Watt, J. 2006). Works of scholartisty can be found as academic journal articles, which include Rendle-Short's 'thinking-in-the-round' article 'How the How: The Question of Form in Writing Creative Scholarly Works' (2015), and Shanks' and Svabo's imaginary, scripted dialogue titled 'Scholartistry: Incorporating Scholarship and Art—Or: A polyphony of voices in conversation about a couple of images with reference to problem-based learning' (2018). Indeed, the same journal article, within which Neilsen coined the term 'scholartistry', is itself an example of scholartistry (2002). It appears in the traditional, peer-reviewed, and well-established *Alberta Journal of Educational Research,* 'devoted to the dissemination, criticism, interpretation, and encouragement of all forms of systematic inquiry into education and fields related to or associated with education' (University of Calgary 2014). Neilsen demonstrates her scholartistry through the writing form she uses for this article. Her subject is scholartistry, but specifically, fiction as knowledge and inquiry in academic research. She writes from the perspective of a travelling lecturer about to make an academic conference presentation. The reader experiences Neilsen's preparation and presentation from within her mind, privy to her ongoing thoughts about the debate and the conference, while she is readying herself to present and while she is talking to her audience. Neilsen includes academic citations throughout

Work the line of heat.[19]

(10 July 2019)

her article to support her statements and arguments, but the article reads as story, maybe fiction, contemplation, and sometimes as stream of consciousness. Through her storytelling, she offers the reader a sense of liminality, while discussing the term 'liminality', and being on the threshold of this new, boundary-pushing methodology. In her writing, there is a build-up and breakthrough when she takes the stage in the story, which helps express the concept of liminality. Like Zwicky, Neilsen imparts this knowledge and this sensibility to the reader by 'how' she writes the story. Neilsen's approach to the writing form is fundamental to what she wants to provide the reader.

Form is fundamental and significant to the scholartist because it helps merge the scholartist's art with the scholarship and convey meaning to the audience. Being a scholartist, writes Knowles and Promislow, 'implies a familiarity with an art form to the level that makes inherent sense for the project in question' (2008: 5). They also acknowledge that there are no templates or models for scholartists; research projects with a scholartistry approach are 'likely to be entirely idiosyncratic endeavours with regard to process, form, and representation' (2008: 6). Precedents have been set and are continuing to be established with each new project, and this in turn, has enabled an expanding collection of scholartistry in doctoral dissertations.

Doctoral dissertations which take the approach of fusing the art and scholarship can be found in a variety of disciplines and a multitude of media, and are often found on the edges of genres. In other words, the 'art' in 'scholartistry' is widely encompassing of all creative practice work. In her article introducing scholartistry, Neilsen points to Rishma Dunlop's dissertation submitted in 1999, as one of the earliest examples of the approach and the first to be accepted in a doctoral program in Canada (2002: 207). Dunlop's dissertation, entitled *Boundary Bay: A Novel as Educational Research*, is comprised of a 10,000-word, referenced introduction, followed by the novel itself (Dunlop 1999). A few months earlier, and in the same department as Dunlop's award (the Department of Language Education at the University of British Columbia), Renee Adelle Norman completed her degree with a dissertation created from hybridised, narrative text that contains autobiography, poetry, personal essays and stories, tied throughout by her use of mirror and reflection as metaphor (Norman 1999). There is perhaps, an earlier example of scholartistry from the United Kingdom. Katie Bunnell's 1998 PhD is considered one of the first practice-based, design dissertations: a thesis submitted as linked databases and a CD containing imagery and video (Gray and Malins 2004: 140). Though a design dissertation, it too, fits the scholartistry description, as she fuses her

It means trusting the inner fire,

(22 July 2019)

design process and use of digital tools in her ceramics practice with the way in which she presents her research: designed and held on a fully digital platform, where she discusses her subject of integrating new technology into a designer-maker's practice (Bunnell 1998, Gray and Malins 2004: 140). Scholartistry is not confined to North America or the United Kingdom. In Australia, Alexandra Cutcher's 2004 dissertation is another example of a hybrid narrative form using autobiography and her visual art practice to incorporate pages of story fully into the thesis (Cutcher 2004, Lasczik 2019). Figure 26 below shows a page from Cutcher's main thesis text appearing as diary-like. Following in 2005, also in Australia, designer Daria Loi submitted her thesis writing unified with the artefact she produced during her design research into playful triggers as keys to fostering collaborative practices and work spaces (Loi 2005, Loi 2004). Figure 27 shows an image of her suitcase container and her writing, designed to be part of its contents. Early, scholartistry PhDs like these (by no means an exhaustive list), set the groundwork for the next decade of student scholartists.

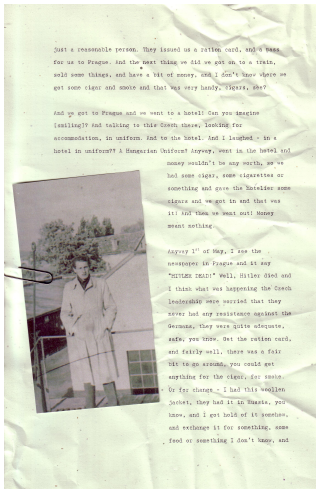


Figure 26. Cutcher's thesis, p. 100



Figure 27. Loi's PhD Suitcase with contents

The past ten years saw more examples of dissertations similar to Loi's, breaking out of the bound, paper book with new forms, standing on their own as the thesis, to convey knowledge in multiple artistic and designerly ways. Loi's unprecedented artefact-thesis enables the type of interaction and multi-sensory experience considered by her research and writing (Yee 2010: 9, 16). Loi writes that she wanted to be consistent in her work and mirror the concepts she promoted: 'I believe that in some instances a traditional PhD thesis format – the bound paper report – does not enable the expression of what one intends to share' (2004: 3). Ruth Vinz, a Columbia University professor and PhD advisor, appears to agree with this: in an interview she

Trusting the hands and their touch, what only they know

(22 July 2019)

gave to *InsideHigherEd*, she said that 'a dissertation should represent the way a particular person makes meaning and wants to spread knowledge with others' (Mulhere 2015). Vinz supervised Nick Sousanis as he developed and created his thesis entirely as a comic book entitled *Unflattening: a visual-verbal inquiry into learning in many dimensions* for his doctoral award at the Teachers College at Columbia University in the United States (Sousanis 2014). Vinz explains that his thesis as a comic book 'makes your brain work on two planes, almost bilingually', which mirrors the content of Sousanis's research into learning in many dimensions (Mulhere 2015). More recently, at Clemson University, A. D. Carson fused his scholarship and art in his rap album-thesis *Owning my Masters: The Rhetorics of Rhymes & Revolutions* (Carson 2017). His dissertation is a music CD with thirty-four tracks and a referenced insert that includes his lyrics and discussion of the Black voice in American history and current events. Figure 28 shows the album cover.

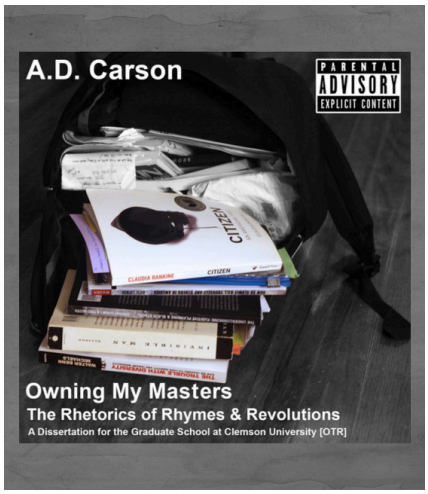


Figure 28. Carson's cd-thesis album cover

While not an exhaustive list, these selected dissertation examples over the past twenty years show a history and progression of PhD scholartistry. One additional thesis accepted at the University of Edinburgh in 2017 is worth discussing as well, because it appears to blur even more lines, taking a scholartist approach despite being submitted for a doctorate of Clinical Psychology in the School of Health in Social Science—not a traditional creative discipline (Andrew 2020, Murray 2017). Fiona Murray submitted her thesis *The Porn Factory: a feminist counsellor's encounter with the leaky world of online mainstream pornography* as a 'pseudo porn website', using the same format as her research subject to communicate her work (Andrew 2020, Murray 2017). Due to its nature, public access to it is restricted—Theo Andrew of the

Trusting the senses and what the body breathes in,

(22 July 2019)

Scholarly Communications Team recognises it as Edinburgh's 'only' thesis submitted in a 'non-standard' format (2020). All the dissertations examples in this section disrupt academic traditions and challenge the nature of the thesis discourse. Most challenge propositional language as the standard of thesis writing. Bunnell, Loi, Sousanis, Carson, and Murray also challenge bound text as the vehicle and form for conveying scholarly research. As works of scholartistry and creative, non-traditional dissertations, they set precedents in academic media and chart new territories. The next section discusses my own scholartistry in relation to theirs.

4.3.3. My Scholartistry

As a PhD student, I must contribute new knowledge to my field. I inquire about that which is not known yet; I seek to know it and then make it known in an original, authentic, and truthful manner. I seek to fill a gap. This is not unlike the artist's original inquiry. Philosophy professor Rachel Jones writes in 'On the Value of Not Knowing' that 'to work without knowing where one is going or might end up is a necessary condition of creation of the generation of differences rather than the reproduction of the same' (2013: 20). I read her article at the start of my PhD programme and as an intersectional, creative practitioner with ambitions of contributing academically, I held onto my thought of PhD inquiry as similar to this artistic inquiry. When I found scholartistry and its fusion of scholarship and art, it seemed as natural a fit to my work as lyric philosophy, especially as both widen access, perspectives, and audiences. Underlining this for me, is the assertion by Knowles and Promislow on scholartistry, that 'creativity is at the heart of the enterprise' (2008: 6). My topic is idea generation, part of the creative process, and I merge my scholarship and art by approaching my research creatively through my practice, aiming to make glass accessible to wider audiences.

The artist may use any media or processes for exploration and expression to generate and convey the new, but the PhD student, myself included, even as a practice-based researcher in art and design, must (almost always) write the thesis to complete the doctoral programme. In the previous section, I describe dissertations of scholartistry that break out of the bound, paper thesis format. When I accepted my place at the University, it was my intention for my doctorate to follow suit and do the same. I was first introduced to Loi's dissertation in 2013 during my first semester of MFA work at ECA's postgraduate lecture on the nature of the practice-based PhD (Martin 2013). I aspired to attend to my project in a similar manner, initially envisioning

To exhale it out and shape it anew.

(22 July 2019)

my physical glass work somehow incorporating my writing and standing as my thesis. Meetings with my supervisory committee during the first year of my PhD programme convinced me that the requirements were too rigid and the tradition of the bound thesis too strong at Edinburgh to challenge the entire dissertation format. I would have to submit the bound, paper thesis, but I was reassured by Sir Timothy O'Shea, then Principal of the University. In his welcome speech to my new class of PhD researchers, he told us that our 'research must be original, publishable, and make a contribution of new knowledge', but he also coupled that with 'I encourage you to make trouble... it's an Edinburgh tradition' (O'Shea 2015). Making trouble by disrupting traditions and challenging norms is also a part of scholartistry (Knowles and Promislow 2008: 7). So, while I would have to submit a bound, paper thesis and adhere to the rules and regulations overseeing that manuscript, I planned to attend to it in my unique way. For me to do this doctoral work, in this practice-based programme, on this topic of creative idea generation, it was imperative that I address the thesis in a creative manner, resonant with my project and practice. I realised from reflecting on my practice and previous art work (described in 4.1.1. and 4.1.2.) that my lyric language—the way in which I work with words and associations in my idea generation—and my use of glass concepts and book arts would be the keys to reconciling my need to produce a creative thesis and the University's requirement of a bound, paper dissertation. (Chapter 7 details how I developed the thesis form and wrote the text.)

My scholartistry melds my creative practice (a blend of conceptual art, lyrical word-working, and designing as described on pages 2–4) with my dissertation research on the creative process, specifically creative idea generation. As mentioned before, scholartists creatively fuse art and design approaches with how they research and represent that research. This is a basic tenet of scholartistry. In my case, because my subject itself is an aspect of creativity, I researched creativity, creatively through my creative process. Essentially, I adopted a meta-creative approach for the entire dissertation project, including this written thesis. Section 4.4. provides a very brief overview of meta-creativity with definitions for this thesis; it introduces the reader to my meta-creative approach, further explained in Chapter 5.

4.4. Meta-creativity

'Meta-creativity' or 'metacreativity' is a relatively recent term, first surfacing in

She came back to herself, the line of light dark now and the music swelling.

(22 July 2019)

psychology with Catherine Bruch's use of it in her 1988 article 'Metacreativity: Awareness of thoughts and feelings during creative experiences' (Bruch 1988, Runco 2015). In addition to the field of psychology, several other disciplines currently use the term, including creativity research (Runco 2015); and computer science uses it in relation to artificial intelligence and music composition for self-adaptive software design (Linkola, Kantosalo, Männistö, and Toivonen 2017). As 'creativity' has so many definitions or a lack of a clear definition (as discussed in Chapter 2), it would follow that 'meta-creativity' has similar issues. Each field uses the term in a way unique to it, stemming from Bruch's original explanation. She proposed 'metacreativity' as a field of inquiry to study internal observations of creative processing and personal characteristics—studying the self-awareness of the creative (1998: 112). She writes that in psychology, meta-creativity is linked to metacognition (thinking about/studying thinking), but differs in 'that thinking, emotional feelings, and physiological experiencing may all be involved in the metacreative process' (1988: 113). Computer scientists discuss meta-creativity as 'the capability to reflect on one's own creative processes and to adjust them' with 'self-adaptivity' also being key to building autonomous, creative systems (Linkola, Kantosalo, Männistö, and Toivonen 2017: 1). In creativity research, Runco writes that meta-creativity is being creative about creativity and creativity research, with less emphasis on self-awareness (2015: 295).

My meta-creativity approach to my research and this thesis adopts a combination of these definitions. I aimed to make the research process a creative process, while researching creative idea generation as part of the creative process (Chapter 1). I set out to be creative about my creativity research and this holds to Runco's definition. As I was working through a creative practice for the research and writing, self-awareness of my creative process and self-adaptivity were also important. Specifically, the new idea generation technique/tool I designed (described in Chapter 6) facilitates self-awareness and the capture of early ideation in the creative process. I researched through my creative practice, meta-creatively—with a heightened sense of self-awareness of my creative process, so that I could continue to take the meta-creative approach of Runco's definition. Runco writes that meta-creativity is 'using what [I] learned about creativity, from [my] creativity research, to be more creative' (2015: 295). I did this by incorporating the modes of association, which I describe in Chapter 2 as critical to creativity (pages 50–64), into my research methods and design process. Chapter 5 elaborates on the 'how' of my approach, describing my methods, processes, and self-awareness.

Chapter 4 Lyric Notes

[1] 'I am all of glass' is a line from the 1922 poem by Bauhaus designer Marianne Brandt; it is the theme of the competition in her memory (International Marianne Brandt Context 2019).

[2] Barbara Kruger's photograph *Untitled* or *Your gaze hits the side of my face*, from 1983, inspired part of my work *Your Gaze Hits*.

[3] This image shows a still of my *Your Gaze Hits* (2009) with kiln-cast glass (shackles), flame-worked glass (chain), and lipstick.

[4] This line references a key principle in both yoga and glassblowing. 'Keeping on center' in yoga means to stay balanced, to quiet the body, and to remain in the calm space of the mind. For glassblowers, 'keep on center' means to pay attention to gravity and turn the blowpipe or pontil so that the glass is balanced and holding its shape on the pipe.

[5] 'Toasted Times' refers to the *Financial Times* and the *New York Times* that are favourite newspapers in the studios where I have worked. Folded, wet newspaper held in the hand is a common shaping tool used to manipulate hot glass by glassblowers. 'Burnt blocks' refers to the wooden, spoon-like tools that are also regularly used in the hot glass shaping process.

[6] One of the most common sounds in a glass studio is that of just-used or discarded glass cooling and breaking in the metal bins and buckets around the workshops. The stress of cooler air on the hot glass out of the furnace can cause fractures, breaks, and small explosions.

[7] In this image, a lavalier microphone records the hotshop discarded glass during my *Makers Marks* project (2015).

[8] My colleague Carrie Fertig utilises breaking glass in her film *my sister's bones*, in 2019.

[9] This image shows my colleague Harry Morgan's glass and concrete sculpture *Blue Corner*, created in 2016.

[10] This is a common studio directive to beginning glassblowers, who rely on the sounds of their tools on the glass to indicate material heating/cooling levels as they learn. Listening to the glass is often orally taught, but sociologist and glassmaker Erin O'Connor indicates its importance in her writing (2007: 63, 71). Understanding sound becomes part of the makers' tacit knowledge as they listen to the glass to identify possible stressors while they work the material. 'Listen' is also less literal, with the directive also meaning 'know your material'.

[11] This is an image of Karen LaMonte's life-size, cast glass sculpture *Nocturne* from 2017.

[12] Colleague Jamie Gray's *Dancing Around the Truth* (2014) is a photo of her mirrored bison skull.

[13] This is an image of my *Self-Portrait in Glass, 2013* made from kiln-formed float glass.

[14] To complete my undergraduate studies in 1996, I wrote a thesis on photographer Robert Mapplethorpe, highlighting the ambiguity of artist intention throughout his body of work. This image shows his *Freesia, 1982*. Mapplethorpe was also a collector of design objects, including Venini glass from Murano, often using them within his photographs (Phillips 2016).

[15] In this line, 'turn' refers to both the circular, physical movement necessary to keep glass centred on the blowpipe and the academic term (Lycouris 2014) that indicates the lens or perspective or tendency through which the research is framed or approached.

[16] This is an image of Jessamy Kelly's *Torn II* from 2008, a practice-based output shown on page 121 of her PhD thesis, *The combination of Glass and Ceramics as a means of artistic expression in studio practice.*

[17] Keeryong Choi's *Korean Glass 16* (2013), is his practice-based output shown on page 131 of his PhD thesis, *Invented exoticism: The development of artistic forms and inlaid colouring technique to explore the aesthetics of the cultural uncanny in an individual's visual experience with glass.*

[18] This table of contents page from Renee Adelle Norman's thesis *House of Mirrors: Performing Autobiograph(icall)y in Language/Education* (1999) shows her metaphorically-labelled chapter titles.

[19] In glassblowing and flameworking, 'the line of heat' is the surface area of the glass that is hottest and most malleable from how it has just been heated by glory hole or torch. It is also the most unstable area of the glass in the moments after heating and it is the area that requires immediate attention.

'Interlude 4'

The first notes hung in the evening's gloaming, but there was light enough.

She wrote, "I am all of glass" and "Your gaze hits the side of my Face".

"Your gaze hits" And I am all of glass!

Deep breath...keep on center, she thought.
Breathe of toasted Times and burnt blocks
while crackling bits chatter of losing heat in the bins.

Shards of glass sound off,
the sound of forgiveness
blocked.

Listen to the glass.

Body of glass
remains
a portrait
of some clarity.

The turn is the key.

Surface textures
the vessel
interior.

Work the line of heat.

It means trusting the inner fire,
Trusting the hands and their touch, what only they know,
Trusting the senses and what the body breathes in,
To exhale it out and shape it anew.

She came back to herself, the line of light dark now and the music swelling.

Statement on 'Interlude 4'

'Interlude 4' is a musing on my struggle with self-doubt, which has surfaced in the past during my creative work and surfaced often during the making of this dissertation. This PhD required me to be open and welcoming of criticism and judgement despite my fears, and despite the heightened sense of vulnerability I felt during the months when my health seriously affected my ability to work. I am making the 'new' with my thesis writing and I deeply believe in my work and my convictions, but I felt off-balance in having to fight for it repeatedly during the process. Again and again, I had to find my way back to my foundations, to the core of the project, to find my balance and to steady my thoughts and my resolve, not unlike finding my center in my yoga practice and keeping my glass on center when working in the hotshop.

I believe that the turn is key though: how I approach my fears and anxieties and how I respond to the judgement will enable me or will create my obstacles: how I attend to the glass will show in the results of its shaping: how I approach the research and how I share that research will mediate meaning.

For me, more literally, 'Interlude 4' holds my memories and sensory experiences of my glassmaking. It opens, in its first line, with the re-igniting of my creative spirit while I was part of the Tanglewood Music Festival and when I first envisioned ideas for my glass and sound work. The next lines tell of when I struggled under a collective gaze of scrutiny by studio instructors and peers, both in the workshops and outside of them. I was very self-conscious about going against norms and lacked at times, a safe space for my creative outputs. I still found comfort in the glass workshops though, and they continue to draw me back and introduce me to new people and new ways of being. That inner voice of running thoughts is hard to quiet, but focusing on foundations and core principles is steadying. Ultimately, I must trust myself with what I know and how I know it, and give it back to the world as only I can.

5. Methods and Process: Method Acting

This chapter describes my lyric word-working and how I used it as a research method and an artistic inquiry to embed creativity into my PhD for a meta-creative approach to idea generation research. It sets out to tie the previous chapters together. In Chapter 2, I discuss various modes of association critical to theories of creativity. I also present various theories about words and their importance to ideas from my literature review. In Chapter 3, I explain glass concepts and how they, along with glass material, the word 'glass', and the glass workshops, might be good staging ground for creativity research. Chapter 4 describes my embrace of lyric philosophy (Zwicky 2014, 2013) and scholartistry (Knowles and Promislow 2008) and my awareness that my way of word-working and association-making is essential to my creative practice. Throughout my doctorate at every stage, I incorporated the modes of association (Chapter 2) by using my word-working (Chapter 4), which centres on glass concepts (Chapter 3), to facilitate idea generation and turn the research process into a creative process, thereby responding to my research questions (Chapter 1). This chapter aims to explain my process and untangle what I deliberately and systematically tangled during the four years of my PhD programme. It also sets out to explain how this purposeful tangling developed into a conceptual art project for the whole of my doctorate, fusing my art and scholarship.

5.1. Word-working as Method—Words as Material

The lyric, as described in Chapter 4, is an integral element of my creative process and my PhD is grounded in lyric inquiry, characterised by Neilsen, who writes:

> Lyric inquiry is informed by aesthetic and philosophical principles of writing; it is based on a conviction that using expressive and poetic functions of language creates the possibility of a resonant, ethical, and engaged relationship between the knower and the unknown (2008: 94).

Lyric inquiry, then, can be an artist's inquiry: there is discovery through the making of the writing and there is the learning and knowing of the unknown. She explains that 'lyric inquiry' is 'aesthetic writing', both in the process of inquiry and its output, and research impact 'can be achieved with resonance as much as with report' (2008: 94). Neilsen explains that this aesthetic writing is personal, sensory, specific, often musical, and includes such forms as letters, poems, fiction, anecdotes, stories, and other, newer, formats which cross genres (2008: 94–95). Neilsen echoes Zwicky's lyric

(articulated in Chapter 4) in her discussion of its characteristics, which include 'liminality, ineffability, metaphorical thinking, embodied understanding, and personal evocations' (2008: 94). Her 'metaphorical thinking' ties directly to the analogical mode of association in creativity (Chapter 2, page 62). Zwicky asserts this outright, stating 'metaphor is the linguistic expression of the results of focused analogical thinking' (2013: 19).

My lyric is a personally developed way of working with words. I use words poetically and associatively as puzzle pieces in my idea generation to recall memories, describe experiences, and articulate emotions and sensations. On paper or screen, I use them to observe my mind's holdings—raw materials—for my idea development. I usually start with phrases or short sentences that I then might develop or combine into poem-like collages of words. Chapter 4 provides an example of this in Appendix C with 'A Liminal Time' (pages C-5 to C-7). I have experimented with essay formats, the letter form, the imagined interview, short stories, and the aphorism. My favourite way of working with words and language as starting points for projects are my worded, collage expressions (which can include images). They are regular features of my practice and often contain similes and metaphors. This is my lyric and I used it within my research for nearly every aspect of my PhD.

From the literature review, to practice, reflection, analysis, and to thesis writing, I crafted an associative, lyric inquiry. I used my lyric for comprehending concepts, documenting, referencing, articulating insights, generating ideas, designing, dissertating, provoking, describing experiences, representing, and reporting. Capturing my process with it, I also used it as a tool for 'introspective' creativity observation (Hadamard 1954: 1–3). In turn, my lyric facilitated use of association modes throughout my doctoral work. These lyric works, including the poetic texts in this thesis, are practice outputs, just as my physical outputs are. The following two sections detail examples of my early PhD lyric (modelling my creative process and taking a meta-creative approach before I found the methodology itself), which helped set foundations and pathways for my research process.

5.1.1. Lyrically Modelling My Creative Process

I used my lyric word-working early in my doctoral research to understand my experience of my creative process in relation to the models and theories presented in the related literature. I reviewed design processes, research processes, and creative processes I found described in words or visual graphics, such as Bunnell's corkscrew

"You spin me right round, baby Right round," [1]

(1 August 2019)

(Gray and Malins 2004: 134), charts and diagrams like Strzalecki's (2000: 251), those by Huber, Leigh, and Tremblay (2012), and the Design Council's 'Double Diamond' (2020), among numerous others. I was seeking a model that highlighted the association modes in creativity (identified in Chapter 2), one that might describe and visualise my own associative process. I did not find one. James Webb Young's process, also described in Chapter 2 (pages 50, 52), seemed most like my working process and did reference relationships. Young, however, offers no visuals of his technique (2003). I wanted to express my own, associative, creative process succinctly and visually—I used Young's description as a starting point. I sketched on paper what I understood about Young's work, my creative practice, and association. My attempt at modelling Young's technique (Figure 29) looks like a rocket propelled with a blast, describing a mostly linear, one-directional process. Figure 30 shows my use of the rocket blast framework to superimpose my creative practice process onto Young's.

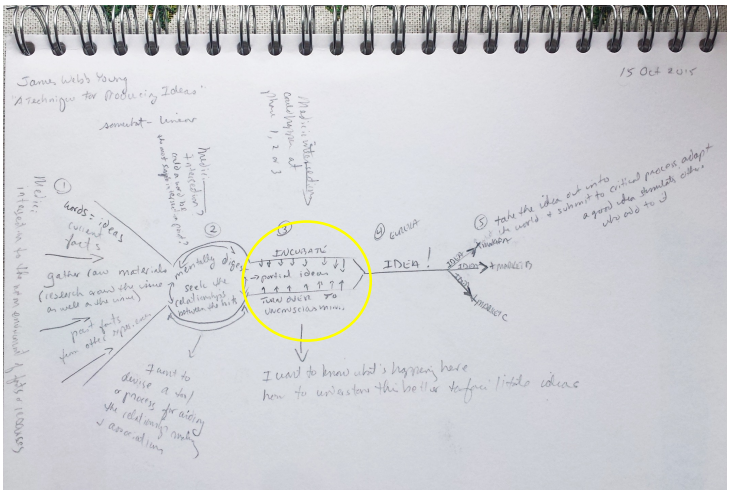


Figure 29. Sketchbook attempt to model Young's technique for producing ideas

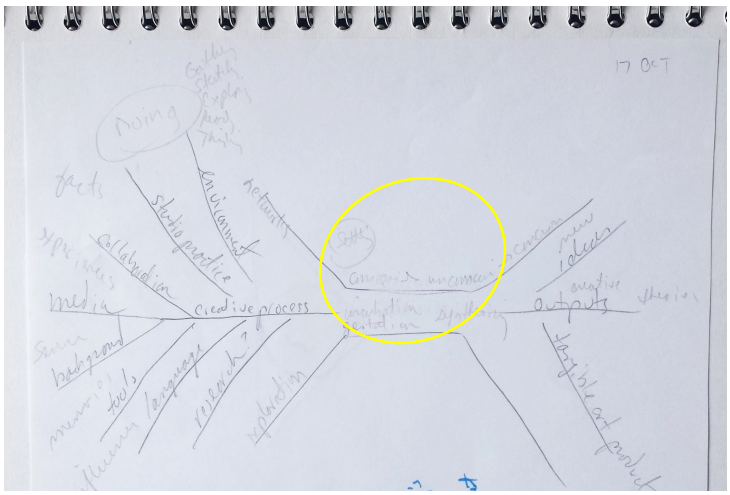
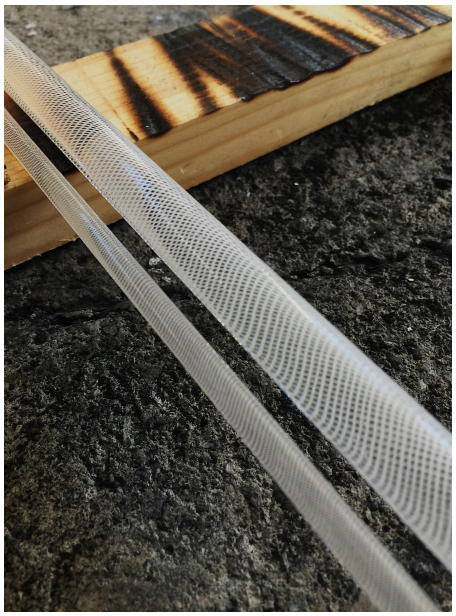


Figure 30. Sketchbook attempt to relate my work to the Young model

2



(1 August 2019)

I used these worded visual-sketches to identify where my primary interest was situated, that is, where in the process my doctoral research would be focused. The highlighted circle of Figure 30 (page 172) indicates my word-working and association-making (the conscious-unconscious working period of my process) corresponds to the relational concept work, partial ideas, and incubation period of Young's technique, highlighted in Figure 29 (page 172). While I decided that Figure 30 (and Young's model) did not fully represent my process and I needed to rework that visual, I moved on to try to comprehend theories of creativity that involved aspects of association.

Steven Johnson's theories on the patterns of good ideas include association features; so I examined his writing through my lyric (2010). In Figure 31 below, I used the lined paper to sketch out what I was reading from Johnson, by modelling it after the visuals of a chemistry experiment on coloured water droplets. In the figure's upper-left corner, I wrote that Johnson's patterns 'can be modelled by water droplets that react to one another'. On the right side of Figure 31, I pasted a copy of the chemistry news that prompted my association between Johnson's patterns and water droplets (Urquhart 2015). The article about droplets on a glass slide came from my concurrent research about glass material, its uses, and roles in innovation. The digital article's video of a water droplet network recalled for me Johnson's description of the intangible 'liquid network', an environmental state for innovation, where connections are made and kept easily (2010: 46–48). The moving water droplets visually displayed an adjacent possible, informing the blobby word sketch I developed to describe Johnson's patterns. My associative word-working—'yoga', 'the butterfly effect', 'energy', and similes with cells and molecules—is present in Figure 31's highlighted area. These words became my material for working toward a lyric model of my own process.

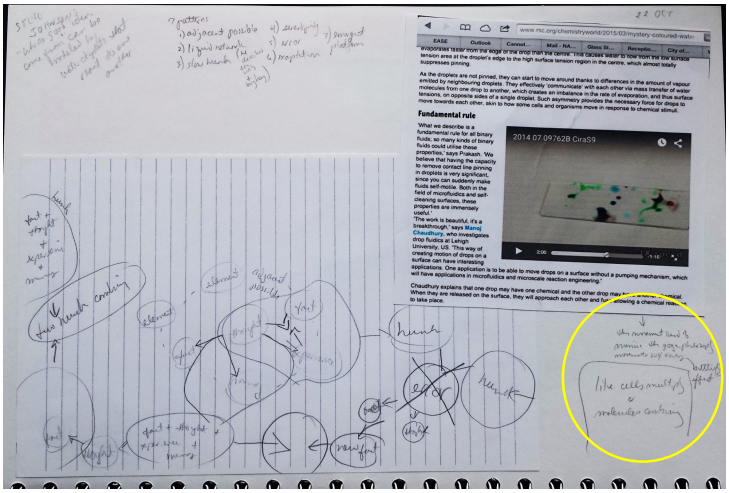


Figure 31. Sketchbook page modelling Johnson's adjacent possible as moving water droplets

3



(1 August 2019)

The sketchbook work of Figure 31 (page 174) provided new information with which to consider my process model in Figure 30 (page 172). With the water droplets and their movement in mind, I questioned the direction of my model and turned the page on its side, so that it too, 'flowed' similarly (Figure 32 below). This prompted three key insights that become foundational for my research: I realised that I was developing a metaphor; I was aware of my self-awareness; and I found a connection between Young's technique and Johnson's theory. First, with the rotated page, I relate my process to the flow of the water droplets, which essentially is the draft or prototype for the model I developed to describe my associative, creative process (Figures 33–34, pages 178, 180). I realised that I was making a metaphor and thinking analogically—I was practicing creativity theory (Chapter 2, page 62). Practicing metaphor-making and focusing on my self-awareness became part of my research method, detailed in the following section. In Figure 32, I write in blue ink that 'the "gathering" in Young's technique is a conscious expanding of the adjacent possible of Johnson'. I link the advertising executive Young, who published his technique in 1940, with Johnson, the popular scientist/media theorist, who published about idea patterns in 2010. Despite a seventy-year difference, they were connected. Johnson articulates the theory, but Young had practiced it in his creative industry. The theory and practice both seemed associative, providing me with a basis for building a case about modes of association in creativity.

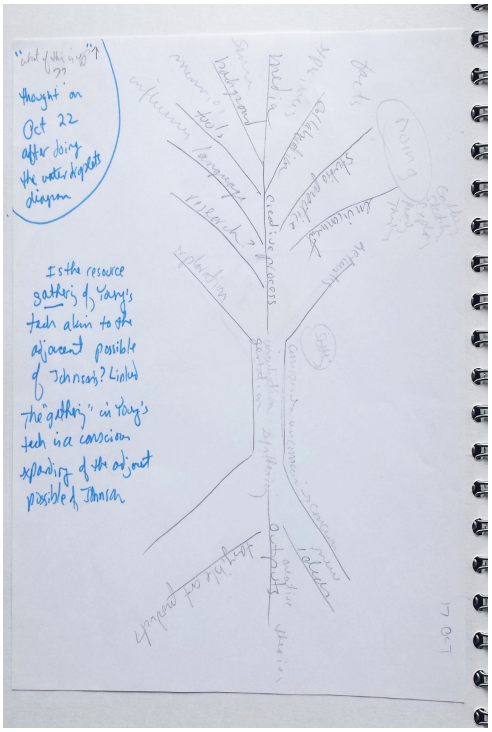


Figure 32. A vertical perspective of my sketchbook page from Figure 29

4



(1 August 2019)

While I was working, the textual material of Figure 31 (page 174) and the developing analogy in Figure 32 (page 176) mingled with my view of Edinburgh rain. Lyrically, I used these elements together to model my associative, creative process. Figure 33 below shows the sketchbook page where I solidified the analogy, pasting in an image of raindrops on windowpanes, to capture the idea on paper quickly as it formed.

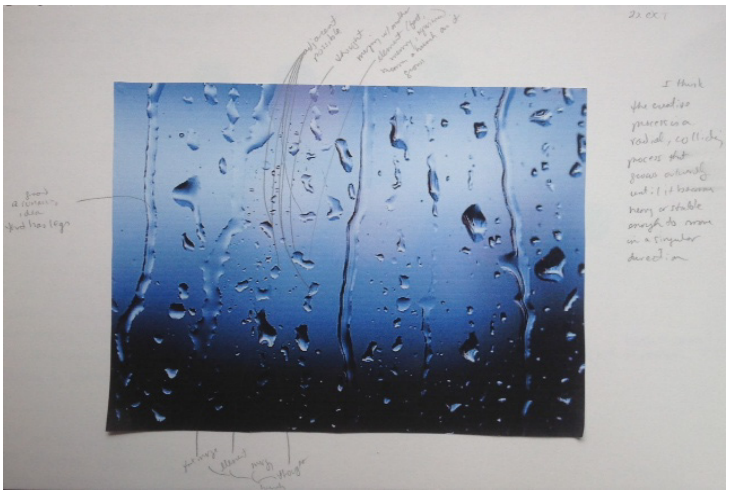


Figure 33. Sketchbook page developing the analogy of raindrops on windowpanes

I later wrote a formal lyric passage, a prose poem somewhat like an artist's statement, to describe my model. I incorporated the modes of association (the adjacent possible, bisociations, intersections, and analogy-making of Chapter 2) writing:

> I think the creative process works like raindrops on windowpanes. It is a radial, colliding process that grows outwardly until it becomes heavy or stable enough to move in a singular direction. The elements of ideas—facts, memories, experiences, thoughts—move into each other in the fluid space of the mind, in much the same way that droplets hit the pane and flow into each other through gravity, chance, and motility. These idea elements form hunches, which grow as they feed upon new, relatable bits of information. Momentum, collision, or intersection with another hunch moves the partial idea forward, just like when the droplets become so fully engorged with rainwater they begin to stream. The good idea has these same running legs. (Appendix D, page D-2)

My model is just one model of a creative process, and perhaps my own romantic or ideal version. It expresses associative modes of creativity and there is some of my process truth in it, but with its far-sighted perspective, it does not capture all that is a creative process in any detail, nor does it capture all creative processes. It is still a very important practice output within my PhD research because it contains

"like a record, baby Right round round" [5]

(1 August 2019)

my earliest thoughts on a theory of creativity around modes of association. Even more importantly, I recognised that it contained these early thoughts, and I was aware that I was demonstrating theory in practice, with my analogy. I presented this model formally as part of my first doctoral Annual Review (Figure 34 below). The significance of this practice piece to my research process is evident when it is set against the lyric of the following section, which is the lyric I wrote to describe my meta-creativity approach before I found the literature on the methodology.

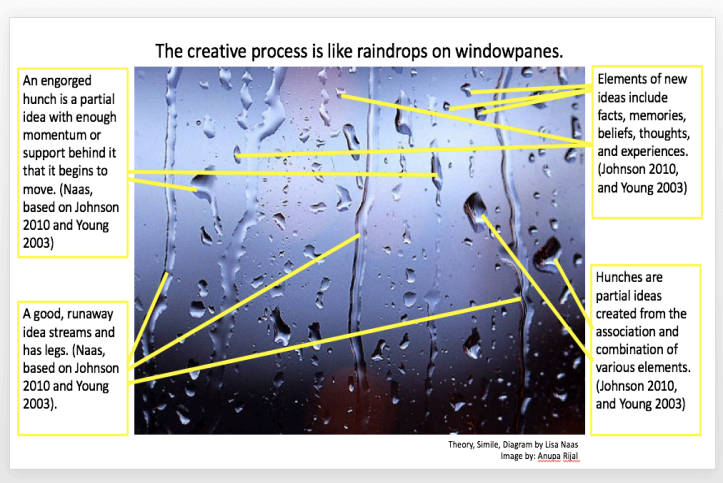


Figure 34. My analogy in a formal presentation slide for my first Annual Review

5.1.2. Lyrically Expressing a Meta-creativity Approach

In Chapter 4, I described how I reflected on my past art and design works to determine my research strategy of embracing lyric philosophy. In my research, I employed my lyric, focusing on it as soon as I decided that it was fitting for my doctorate (like in the examples of my literature review of Young and Johnson earlier in the chapter and my 'raindrops on windowpanes' modelling of the previous section). Choosing my lyric and embracing lyric philosophy, however, did not answer *how* I was going to use the approach, but my lyric helped me to arrive at a solution.

While I was reflecting on my creative practice work completed before my PhD (explained in Chapter 4), I remembered a collaborative project that I led for the Interdisciplinary Creative Practice course I took during my MFA studies. My group had chosen to study 'ritual', seeking to know and articulate the essence of 'ritual'. Daily, we participated in an online blog posting, where we each wrote about ritual and its various aspects, while also responding to each other's posts in a ritualistic fashion. Through this practice, we came to recognise and understand ritual. I wanted to take

6



(1 August 2019)

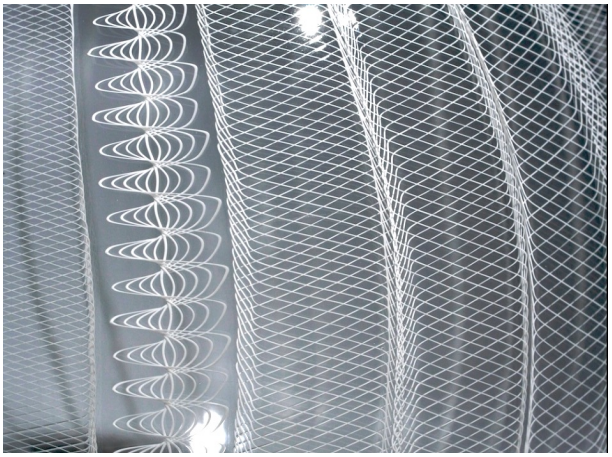
our group's essential approach to this project and place it onto my PhD work. I struggled to describe the approach, even to myself, despite it being my initial idea for the group. I did not want to make my work about ritual in any sense, but I did want to fold my subject of creative idea generation into every aspect of my PhD, in the way we folded ritual into the study of ritual. I turned to my lyric to try to express how I wanted to approach my subject. In my notes on 29 January 2016, I wrote: 'To understand the Thing, I will research the Thing through the Thing itself, trying to [embody] its Thingness and peering at the Thing through the lens of the Thing' (Appendix E, page E-1). My supervisor Geoff Mann and my informal advisor, Dr. Jane McKie, both noticed that my 'Thingness', reminded them of Martin Heidegger's theory. While I recognized the philosopher's name, I had not read his work at that point; this 'Thingness' is my writing. 'Creative idea generation' was too long a phrase for me to use lyrically and 'ritual' was no longer what I was studying, so I replaced the words with 'Thing' trying to describe a general approach to attend to an abstract concept. Heidegger's 'Thingness', as I understand it through Graham Harmon's 'Technology, objects and things in Heidegger', is centred on things having physicality and presence that can be experienced, while also having abstract attributes and realities that are invisible depending on the context (2009). My 'Thingness' focuses on abstract concepts like creativity, ritual, and process; I attempt to provide them with physicality and tangible attributes to give them presence, as a way to know the unknown.

On that same 29 January 2016 note page, I continued writing to explain to myself how I understood my 'Thingness' and how I might approach my PhD with it:

> Analogical thinking requires mental leaps and lyric writing utilizes associative leaps within its structures. If I am to study creative leaps through creative leaping, then I should adopt analogical thinking and lyric writing. (Appendix E, page E-1)

In other words, my research plan would be to study my topic of creative idea generation through my creative ideation. I would try to be creative about creative idea generation. In my PhD research process, I would incorporate analogical thinking (and the other modes of association fundamental to creativity) by using a lyric inquiry. My perspective would be from one who is a creative idea generator. I would look at all parts of my process creatively, to infuse new ideas into it to understand and articulate a creative ideation. For instance, I practiced adopting analogical thinking and the lyric in a hybrid writing fragment called 'Knowing the Unknown Through Metaphor', where I wrote about metaphor by using metaphorical voices (pages E-3 to E-8).

7



(11 September 2019)

During the first two years of my PhD, I lacked a name for what I was doing. In my 'First Year PhD Report', I juxtaposed my 'Thingness' lyric alongside my full description of my research method, and presented the two types of writing together as my best attempt to explain how I was researching (Appendix F, page F-12). I called my approach a type of 'method acting' because it was one where I was trying to take in and absorb all critical elements of creativity theory and *be* creative or *be* the creativity, while I was undertaking my PhD research. Coincidentally Studio Swine uses the same terminology of 'method acting'. In their closing provocation at the Research Through Design Conference in 2017 (two years after I had already been using my 'method acting' term), they spoke of their design approach and how they were 'method acting', that is, how they 'become empty like a vessel and load up on all the information of the place' in order to create their artefacts (Studio Swine 2017). For the PhD, I saw myself as a method actor of creativity, while Studio Swine designers are method actors of place. I also discussed my approach as 'embedding' or 'enfolding' aspects of creativity theory into both my traditional research (such as the literature review) and in my practice-based creative work. Engineer David Cropley uses similar language in his chapter 'Embedding Creativity in Engineering Education', where he describes applying strategies for guiding creativity in designing engineering programmes and curriculums (2015). Arguably, my approach was similar. I took the modes of creative association identified in Chapter 2 and through my lyric, used them as strategies to develop an ideation technique, an optical tool, and the design for this creatively-written PhD thesis. Differing from Cropley though, I used these associative modes or strategies many times over during the course of my research so that they were folded into themselves, tangled together, and interconnected.

Essentially, in that 'First Year PhD Report', I was describing the meta-creativity approach I wrote about in Chapter 4 (pages 160,162), without knowing that the approach already had a name. When I was searching literature during the early period of my PhD, Runco's 2015 article did not appear in the databases yet; the 2017 article 'Aspects of Self-awareness: An Anatomy of Metacreative Systems' had not yet been published; and Bruch's 1998 article, was not easily accessible. After my first annual review report, and once I identified 'meta-creativity', it became much easier to discuss my practice-based research. My lyric 'Thingness' facilitated my articulation of process and method, and it still holds as a concise line to describe my research process, which I detail with examples in the next section.

8



(11 September 2019)

5.2. Embedding Creativity as a Conceptual Art Process

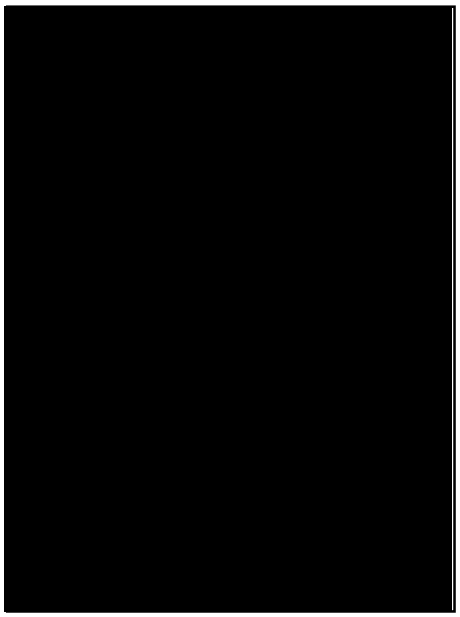
The previous section describes the two lyric moments, early in my doctorate, that helped solidify how I would undertake my research: I would be creative about my research into ideation by using my way of lyric word-working to embed the modes of creative association into all aspects of my research. In other words, throughout my research, I used my lyric (as in the 5.1. examples of 'Raindrops on Windowpanes' and 'Thingness') to aid me in putting theory of Chapter 2 into practice: to focus on the adjacent possible, to incorporate exaptation, intersections, and bisociations, to develop analogies, and to break patterns. In this way, I worked toward my aims of designing a tool/technique to facilitate idea generation, designing and writing a creative thesis, and turning the research process into a creative process (Chapter 1, pages 12, 14). The whole of my doctoral work became an overarching creative, conceptual art project: my lyric word-working and these modes of association were my tools for the art- making, and 'glass', glass concepts, the material, and the studios comprised my staging ground.

My process attended to every part of my doctoral studies. I looked at the standard practice at each point in the research and by employing the creative modes of association, I ultimately reshaped, altered, or broke tradition in some manner. I did not ignore the standard and I evidenced the standard throughout my work, but I approached each aspect of the research with my creative tools first. At each stage of the research, I would pause to consider the following questions:

- how can I focus on the adjacent possible here?
- how can I enact a Johansson intersection or Koestler bisociation here?
- how can I develop a metaphor or think analogically here?
- how can I make an exaptation here at this research stage?
- how can I break a pattern here and make a new association?

For instance, when I conducted my contextual review for my new ideation technique (described next in Chapter 6, addressing mind maps, ideation tools, and design tools), I first turned to my own adjacent possible and lyric associations with mind maps. Rather than immediately begin my research using 'mind maps', 'ideation tools', and 'design tools', I went outside of the design realm and recalled when and where I first encountered mind maps and my related experiences with them. This was in 2011 and it happened to be part of my yoga studies, therefore I looked closer at some yoga practices as part of my literature review. I also purposefully sought out intersections within fiction and creative nonfiction, that at first glance, might have seemed wholly

9



(11 September 2019)

unrelated to designing an ideation tool. Armed with this as my context, I began designing. After I had begun the design, but prior to finishing it, I undertook the standard literature review, using the expected search terms within the design field. I made design adjustments along the way based on the additional information and context, but I had broken the traditional patterns of a literature review. This enabled me to begin designing in an unfettered way. I had embedded an associative creativity into my contextual review and had worked in a non-linear fashion, following the threads of my personal adjacent possible and associations. I did not stop at the literature review. For the practical design of the tool, I asked the same questions while I was designing, in order to embed the associative creativity into the new tool. At every stage, I enfolded creativity into the process and it shows in my design outputs. Chapters 6–8 describe how I answered the questions and enfolded an associative creativity into the designs of my new ideation tool, glass works, and this dissertation. As an intersectional, creative practitioner and scholartist, I enfolded an associative creativity into the whole of my PhD, fusing my art, design, writing, and scholarship to create a conceptual art project by turning my research process into a creative one.

5.3. Self-awareness in Meta-creativity as a Research Variable

My awareness of my own creative process was an important variable during my research, because it enabled my lyric inquiry and use of creativity tools. In turn, as my lyric writing developed, my self-awareness did as well. Due to its key role in my research and in the writing of this thesis, my personal self-awareness requires some explanation and background. I attribute much of my skill in self-awareness to my ten-year yoga practice, which has centred not only on the physical, active, vinyasa yoga I exercise on the mat, but also on the traditional, eastern philosophies that involve meditations to still the mind, while remaining aware and present. Prior to my PhD studies, I regularly practiced at Back Bay Yoga studio in Boston (currently named YogaWorks Back Bay) and then at the Gathering Essence studio in Edinburgh. Over the years, through books, videos, audio CDs, and online streaming workshops, my most influential teachers have included Sean Corne (2019), Bo Forbes (2011), Rod Stryker (2011), and Deepak Chopra (2003). Stryker, who has been teaching in the ancient traditions of yoga and meditation for over forty years, writes that ‘meditation—the process of learning to still your mind—is a door to a completely different way of thinking and feeling... it moves your brain in the direction of rest and focus’ (2011: 94–95).

10



(11 September 2019)

This, he states, facilitates insight and increases capacity for problem-solving and other cognitive processes (2011: 95). Basic to all of their teachings is a practice of awareness and presence in the body in order to still the mind for peace, healing, restoration, personal growth, and connection.

To reach this point of stilling the mind, Stryker, Corne, Forbes, and Chopra teach the student practitioner to attend to the running stream of thoughts that occur in the mind, first by focusing attention and awareness on those thoughts and then by letting those thoughts go. For instance, Stryker has his students go through an exercise of sitting quietly with the eyes closed for two minutes, counting the number of thoughts that occur (2011: 92–93). He explains that the exercise reveals that the 'mind is constantly moving—darting from one thought, feeling, memory, sense perception to the next' (2011: 92–93). While the goal of stilling the mind is to make space for the 'new' in terms of peace, healing, restoration, growth, and connection, the aim is also to separate the Self from this onslaught of thoughts, feelings, and modes of perception. As a process, it is to question who or what is doing the thinking and producing of the thoughts. Through yoga and meditation in this way, I learned to watch my words, thoughts, and feelings. I learned to watch my mind think.

I brought these skills to my research and creative practice when I began my doctoral studies. I focused my awareness on my thoughts while I was involved in my creative research, an already focused activity. Rather than recognise the thoughts and let them go as yoga teaches, I actively worked to capture them. I did this through my word-working and lyric development, so that I could look at the thoughts from a different perspective, to see their relationships to my research, or to see the potential for relationships among the thoughts. This enabled me to take my meta-creativity approach and embed creativity and the modes of association into all aspects of my doctoral process.

I intentionally brought my yoga training in self-awareness into my designing process as well, when I developed 'Word Triangulation', my new technique for idea generation in studio practice. The following chapter describes this new technique and its use by myself and students in the workshops I led to test my prototypes. I also describe my design process and how I used my lyric word-working to embed the association modes into the design of 'Word Triangulation'.

"At the still point, there the dance is" [11]

(11 September 2019)

Chapter 5 Lyric Notes

[1] This is a line from the lyrics of a song that was popular during my 1980s childhood: 'You Spin Me Round' by Dead or Alive (deadoralivetv 2019).

[2] This image shows colleague Clare Wilson's glass cane pulling for later use in her glass vessels (Wilson n.d.).

[3] From Lino Tagliapietra's studio: this image of a bundle of glass cane shows the possible patterns for future murrini cutting (Tagliapietra 2020).

[4] This is an image of a glass 'roll-up', a technique in glassblowing where glass cane is picked up onto the hot glass for pattern making as part of a vessel or further cane-making (Patchen n.d.).

[5] This is the line following on from the lyrics in the first endnote (deadoralivetv 2019).

[6] This is an image of the 'Poesia' glass vessel by Italian Lino Tagliapietra; the title means 'poetry' in English (2019a).

[7] This is a close-up image of American David Patchen's glass and the patterns made from cane (Patchen n.d.).

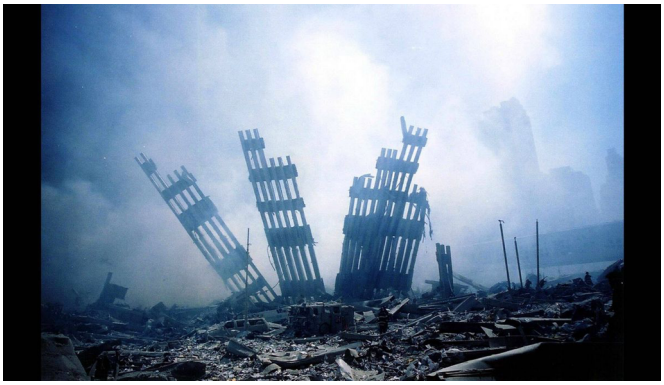
[8] This is an image showing patterns from cane use in Lino Tagliapietra's work (Tagliapietra 2019b).

[9] This lyric is a black rectangle shape from the Microsoft Word tools inserted into the thesis document.

[10] This is an image of Mark Rothko's *Black Blue Painting* created in 1968 (Phillips n.d.).

[11] This line is from T. S. Eliot's 'Burnt Norton', the first poem in his *Four Quartets* (1943).

'Interlude 5'



This is the point that makes the relationship.
Everything spins off this.
Everything's swirling
Except for the point
Where the link or the connection is.
I see the patterns and feel my head swirl
With the grief of the year,
Recovering and writing,
My American dream here
All glitz and shine amongst shatters and shards.

Statement on 'Interlude 5'

This 'Interlude' captures a pivotal moment for the creative process I embedded into the thesis through my lyric inquiry: I made an associative connection across chapters and time. While I was working on this manuscript, my chronic illness, medical emergencies, and the deaths of a friend and three family members overwhelmed me. I paused my writing for weeks on several occasions to attend to my health, my grief, my family, and my recovery. My own mortality and fragility were ever-present in my mind and those thoughts seeped into my lyric. They are especially apparent in this 'Interlude'. Time and the writing pauses were factors in its development as well. I wrote many of the Chapter 5 lyric lines on 11 September 2019, a day of remembrance in the United States as the anniversary of the 2001 terrorist attack. I did not finish this lyric or chapter, however, until a few months later in the new year. I returned to work on this chapter the day after writing the second verse of 'Interlude 3', in which I describe *The Gun Violence Memorial Project*. I brought the thoughts of the glass memorial houses, with their coldness and emptiness, into my reading of this chapter's lyric, which I developed for this 'Interlude'. The canework detail in Lino Tagliapietra's glass on page 185, recalled for me, the image that opens 'Interlude 5'. It is a photograph by Alex Fuchs of the twisted steel and skeletal remains of the World Trade Center towers after they fell (National Geographic 2017). It is an image that has always remained with me from that day, but when I looked at it this time, in the context of my lyric, I saw it in a new way—the lack of glass is quite striking. This absence of glass in the wounded structure resonated again with me, as I struggled with feelings of loss. There was an absence of physical glass in my daily practice as well, which also set the right environment for me to respond to Liza Lou's *Continuous Mile* the way I did in my outlier logbook entry '▷I'.

Contained within 'Interlude 5' is also my description of how I see the associative, creative relationship. The connection or meeting point is of primary importance. Perspectives are skewed and paths to the meeting point might not be completely clear, but it is key to have a strong, stable connecting point that offers a moment of clarity amid the surrounding messiness or chaos. How that connection point or joint moves, will shape the dialogue between the two ideas and help set the creative path in a direction. That I saw the absence of glass (the 9/11 image) in the detail of a glass form (Lino's canework) is paradoxical, but also exemplary of my glass concepts and my creative process.

6. ‘Word Triangulation’ for Idea Generation: Behind the Scenes

The purpose of my ‘Word Triangulation’ tool/technique is to facilitate idea generation during the creative process. (I use ‘tool’ and ‘technique’ interchangeably to describe my ‘Word Triangulation’—‘technique’ because it has an intangible process built into it, and ‘tool’ because once a user begins the process, it becomes a more tangible device.) I employed the association modes of exaptation and analogical thinking (specifically using metaphor) to develop its form, which encourages a wide, visual, adjacent possible. ‘Word Triangulation’ enables the user to focus and highlight ▽A relationships among concepts and to practice self-awareness. This in turn, aids the user in seeing and making intersections, bisociations, and new associations, all of which are key to creativity and the formation of new ideas, as discussed in Chapter 2. The current tool design uses paper, pen, words, and sticky notes as its base materials, with other materials as options. As a technique, it draws on yoga and mindfulness principles. Chapter 6.1. describes the development of the design form while also detailing the technique to use it. The rest of the chapter is devoted to the prototype tests and studies of its use in creative practice. While ‘Word Triangulation’ is a designed output of my PhD research, it is also my response to the mind map, a common visual-word tool used for ideation that I describe in the following pages. ‘Word Triangulation’ is a redesign of this mapping structure from my creative practice perspective, and it is a new ideation technique for generating project drivers.

6.1. ‘Word Triangulation’ Development

6.1.1. Context: Ideation Tools

Tools and methods to jumpstart creative projects with new ideas are so common that a product market exists to meet the demand. One need only search Amazon online with key words such as ‘writer’s block’, ‘creativity tools’, or ‘create ideas’ to find dozens of self-help items, such as books with exercises and prompts, flashcards, magnetic poetry kits, journals, story dice, and even hypnosis CDs to help spark ideas or unblock a creator’s block (Amazon 2020). All intend to aid idea generation and are used in creative fields and company settings to problem-solve, streamline projects, and spark creativity and ideas. So many exist for mainstream consumption and niche application that it is beyond the scope of this dissertation to discuss all available. Of the physical tools, flashcards and mind maps seem to be most common, and this section will focus on them for their accessibility and use of words.

As words are so essential to my creative process and to my design, I looked most closely at those ideation tools which rely on or use words, to ensure that my 'Word Triangulation' would be different than those available. When I was first beginning my design and before I knew what it would be, I had individual words related to my research cut out on paper strips, colour-coded based on subject (Figure 35a). I would move them around on my desk, tape them to other surfaces, and fold them into shapes to look at their associative contexts (Figure 35b). Working with the words in this fashion is similar to using a Magnetic Poetry Kit (Figure 35c) and this tool seemed an appropriate place to begin a contextual review.



Figure 35a. My word-working

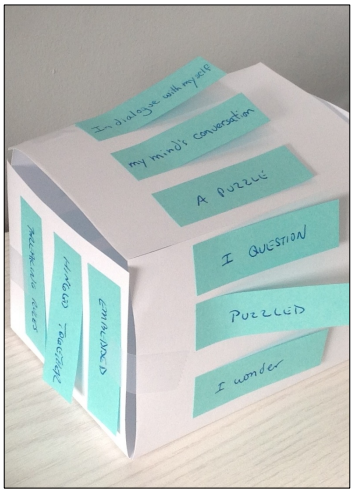


Figure 35b. Shaping words

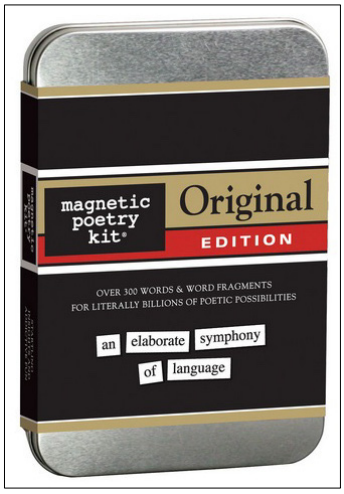


Figure 35c. Magnetic Poetry kit

Magnetic Poetry was originally developed in 1993 as a creative tool to break a writer's block for songwriter Dave Kappel, based Minneapolis, United States (Magnetic Poetry 2020, Walker Art Center 2020). He glued words onto magnetic strips so that he could move them around and create drafts of lyrics to consider, but when friends visited, they noticed the word magnets and enjoyed shifting them for fun (Magnetic Poetry 2020, Walker Art Center 2020). Kappel recognised the appeal and developed a first production of kits for sale, selling out within days (Magnetic Poetry 2020). Later, he founded a company based on the product and has had worldwide success with a multitude of mainstream kits aimed at the general population for bolstering creativity, storytelling, children's education, language learning, and adult novelty fun (Magnetic Poetry 2020). I studied for my Bachelor's degree between 1992–1996, near his early sales points in Minneapolis. These magnetic poetry kits were part of daily life—magnetic words covered dormitory refrigerators. Cleary, they influenced me.

Across seas, see glass is glace,

(8 October 2018, edited 10 October 2018, 8 April 2020, 5 May 2020)

For the aspiring and practicing designer, there are a few industry and discipline-backed organisations, techniques, and products that appear to dominate this niche corner of creative ideation. The Interaction Design Foundation describes technique categories that are becoming mainstream and popularised by phase-based design thinking, ‘a non-linear, iterative process, which seeks to understand users, challenge assumptions, redefine problems and create innovative solutions to prototype and test’ (Dam and Teo 2019). The authors of the list acknowledge that there are hundreds of ideation approaches, but note that top methods include sketching, prototyping, storyboarding, as well as those that involve words and writing, such as brainstorming, mind mapping, analogy-making, and provocation (Dam and Teo 2019). Techniques and tools facilitating these ideation options have been developed as products for practical use. IDEO, the design company which created the mouse for Steve Jobs’ ‘Lisa’ computer in 1980, has become a leader in the development of these kinds of creativity tools embraced by design thinking (IDEO 2020a, Naiman 2019). For instance, its IDEO Method Cards (Figure 36a), encourage users to shift perspective on a project or spark a new idea for one by trialling different design methods as exercises, many of which use writing (IDEO 2003). IDEO.org, the company’s non-profit arm, completed a Kickstarter campaign for its Design Kit Travel Pack (Figure 36b), a similar flashcard-based product, marketed as ‘bite-sized tools to spark creativity and collaboration’ (IDEO.org 2018, Wyatt 2017).



Figure 36a. IDEO Method Cards exercises



Figure 36b. IDEO.org travel pack card prototype

Designers are not the only ones using these kinds of tools though. In 1975, years before design thinking became mainstream and before the IDEO cards and

shining still,

(5 May 2020)

kits, Brian Eno, a popular musician in the United Kingdom, developed and produced a set of 100 ‘Oblique Strategies’ cards with painter Peter Schmidt and made them available to the public (Eno n.d., Popova 2014). The original cards used by the pair (shown in Figure 37 below), and the instructions, prompts, and aphorisms printed on them, were intended to remind Eno and Schmidt of their productive, tangential working strategies when they were under pressure in the studio (Amirkhanian and Eno 1980: 32:26–35:18). ‘Oblique Strategies’, now in its 5th print edition, has been used as a practical tool over the decades by artists and musicians alike, to generate ideas and break creative blocks (Eno n.d., Popova 2014).



Figure 37. Original handwritten Eno/Schmidt cards used during their collaborative sessions

The flashcard prompt tool appears to be quite common, then, across disciplines. Swedish-based MethodKit offers one of the newer card products, released in 2012. ‘MethodKit’ is a set of ‘analogue tools’, designed ‘to help you create and come up with new concepts’ (MethodKit n.d.). Founder Ola Möller explains that the kits ‘help people collaborate by having a shared language and building blocks for different types of projects...the cards help them to see all the pieces’ (Ralley 2019). The themed kits contain card-based prompts that provide both a framework for project development and a library of information related to the specific subject, enabling directed conversation and a type of visual ‘mind mapping’ (MethodKit n.d.).

This ‘mind mapping’ with mind maps, along with the related ‘concept maps’, are the other prominent techniques/tools which use words for idea generation. The map itself and the process of creating the map rely on words and their associations. These are visualisation methods available in paper or digital form through software

movement free.

(5 May 2020)

like Ayoa (Ayoa n.d.). They enable users to show and explore relationships between subjects and ideas. Based in words and association, my 'Word Triangulation' is a type of prompting tool like the flashcards and in format could be classed as a kind of mind map, however, as a technique, it is new. Relying solely on the user's own concepts and knowledge (unlike MethodKit), it differs from mind maps in several critical areas: design, user process, and intention. These are discussed after a mind map overview.

The original inventor of the 'Mind Map', Tony Buzan, a popular psychologist and business consultant, researched how the brain thinks to develop his trademarked 'Mind Map' (1994). His 'Mind Map' is a diagramming template and a process that he describes as 'a thinking tool that reflects externally what goes on inside your head' (iMindMap 2014). He intended it originally to assist students with information organising, notetaking, memory recall, and creative thinking (1994: 11–13). Buzan developed a set of 'laws' around the mapping process and a hierarchical system directing how a user places words and images (1994: 17). Primary to the maps are central nodes which hold the main topics; associations radiate out from them (Figure 38 below). He explains that the form mirrors the neuron cell and neuron firings of the brain (1994: 56). While the maps can grow as relationships yield new relationships, the design itself keeps the words and images relatively fixed and static in practice, even though Buzan suggests moving words to aid creativity (1994: 156–160). For facilitating creativity, he advises multiple maps and revisions and urges the user to practice and repeat the form to learn the pattern (1994: 156–160). 'Mind Maps' are primarily used and marketed as ways to organise information, to take notes, or to see close relationships, and they are used commonly in presentations (Hutchinson 2015).

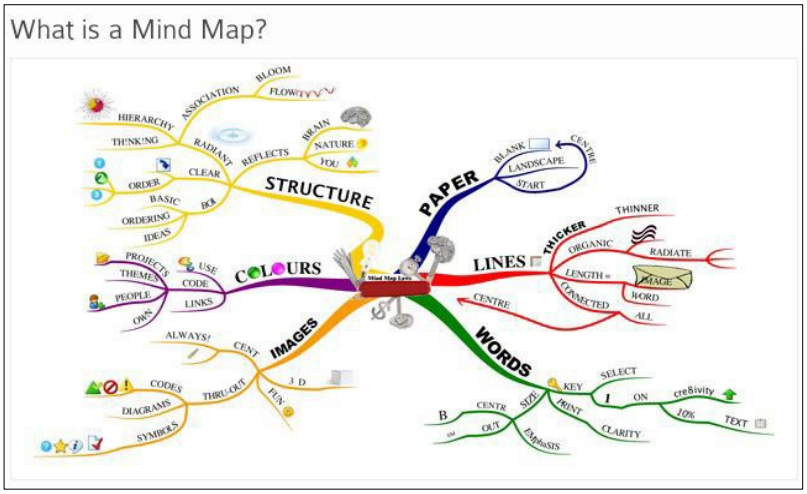


Figure 38. A user's Buzan 'Mind Map', describing Buzan Mind Maps on Buzan's website, 2015

Not so these radial waves all static and stricture.

(10 October 2018, edited 5 May 2020)

Related ‘concept maps’ are more flowchart-like with no set design like the ‘Mind Map’ neuron form, but they often take a top-down approach, where large encompassing subjects are listed at the top and information trickles down the page (Novak and Cañas, 2006 and 2008). These concept maps (like that in Figure 39), as well as various similar diagrams and lowercase ‘mind maps’ (which adopt the basic Buzan structure but do not follow all his rules), are offered as tools for streamlining information and enhancing learning and creativity. For instance, Ayoa, the digital platform for Buzan ‘Mind Mapping’, markets to businesses, institutes of higher education, and individuals to boost productivity, creativity, and memory (Ayoa n.d.).

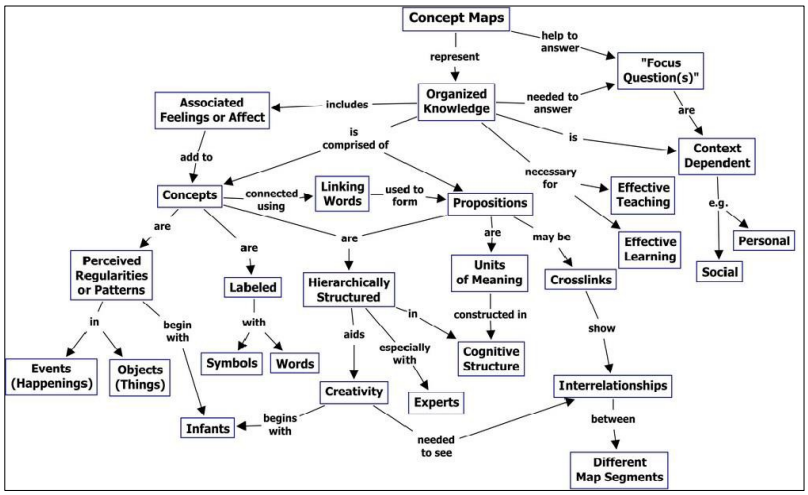


Figure 39. ‘Concept Map’ of concept maps from Institute for Human and Machine Cognition

These map and chart tools can be found in student programmes. For example, the University of Edinburgh regularly ran a course through its Institute for Academic Development called ‘Mapping your Mind’, which I attended in 2015 and which promoted modified mind maps (like that in Figure 40, page 208) based on Buzan’s original structure (Hutchinson 2015). The University’s Information Services also offers a version of mind mapping to its entire community with its MindGenius software license (2019a). At the discipline level, mapping is encouraged for developing research questions and being creative at the beginning of projects for art and design students (Gray and Malins 2004: 68). The first time I experienced them in a formal educational setting was during my MFA Glass Programme at Edinburgh College of Art, where my supervisors introduced a modified mind map and encouraged it for design research ideation. Figure 41 (page 208) shows a page of the miniature mind maps I created after that introduction, while I was seeking a project idea.

Spokes speak in crystal tongues, fixed and fissured,

(10 October 2018, edited 5 May 2020)

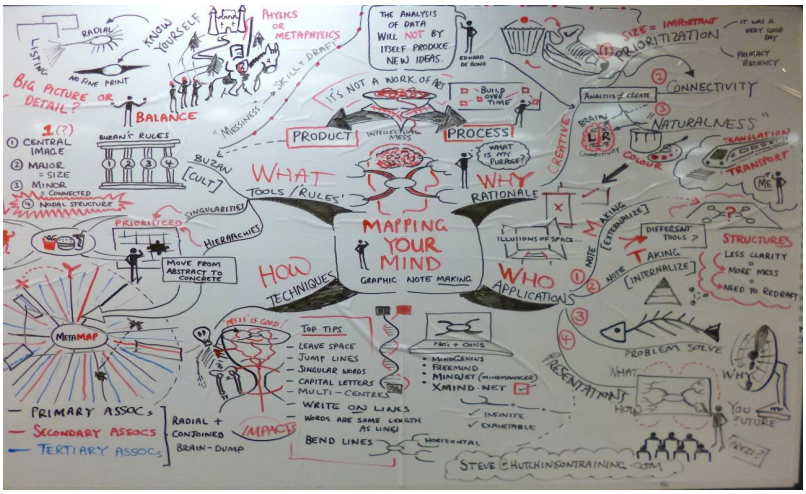


Figure 40. Map developed by the class and instructor during 'Mapping your Mind' workshop

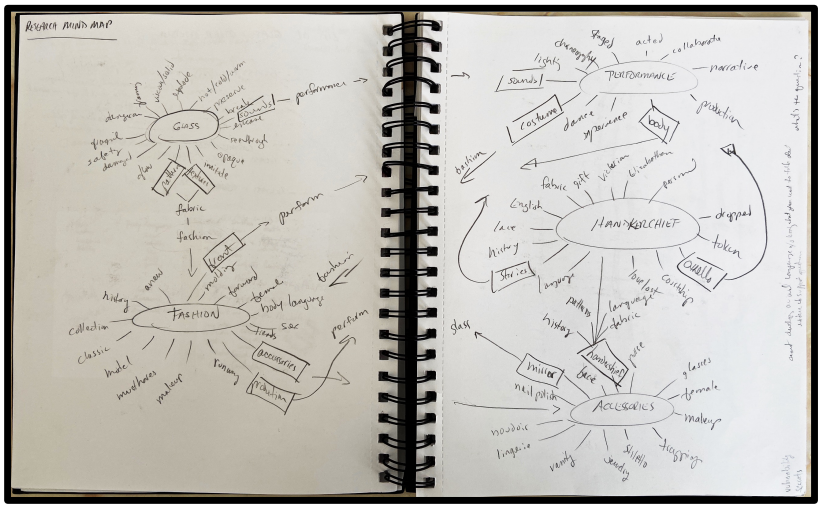


Figure 41. A page of linked mind maps from my 2013 sketchbook

All these maps maintain hierarchical and static structures that hold words and idea fragments in place. As a creativity researcher and practitioner, I see the hierarchy and set constructions countering various creativity theories. The mapping structures of the 'Mind Map', 'concepts maps', and mind maps place value systems on the words and idea fragments and visually represent those systems within the diagrams. The adjacent possible for each word or concept remains relatively set. A word root or part of a phrase that could be a key to the creative puzzle or the spark to the creative process may stay hidden due to its lesser role on the map or because the user might never add it to the map, curating it out. Additionally, with the paper or analogue versions, the configurations fix the words and elements in place, making movement difficult among them. The map environment, therefore, is not conducive to the modes

Frozen through the mapmakers' lenses.

(10 October 2018, edited 5 May 2020)

of association like Johansson's intersections (pages 62, 64) or Koestler's bisociation (pages 58, 60). These map designs make it difficult for words and concepts to cross: subjects and topics stay stationary on their lines. Additionally, there is little space in these forms for remote associates or fringe thoughts to be influential in idea generation, despite creativity theories identifying them as important factors (pages 50, 56, 58).

Clearly there is a benefit to the maps in regard to creativity and their wide appeal. They emphasise words and show associations and relationships. Based on the research discussed in Chapter 2, seeing associations is fundamental to creative ideation. Mind maps are also one of the primary, word-based, ideation tools used in higher education, however, the foundational 'Mind Map' that inspired so many similar, modified, relational maps, was designed by a psychologist and adopted by creatives in studio practice. I have highlighted how the maps themselves have design elements that may counter creativity. Given this, there is space, then, to reconsider these map designs and offer a new tool or technique designed from a creative practitioner's viewpoint, through a creative practice, to facilitate idea generation for students in creative practice.

6.1.2. Design Form and Technique

Associations are key elements of the creative process (pages 46–64) and words are essential to the capturing of concepts (pages 50, 52, 54, and 65), while being crucial to my own art and design starting points (described throughout the thesis). Relationship awareness is critical to idea formation (pages 52, 56, 58, and 62). Given this, I made words, associations, and relationship awareness the areas of focus within my design of 'Word Triangulation'. I also wanted to create an idea-space of the kind that Richard Ogle, educator, consultant, and entrepreneur, discusses in *Smart World,* his book about breakthrough creativity and the extended spaces and environments that we build and use to enable creativity (2007). He writes that an idea-space 'is a domain or world viewed from the perspective of the intelligence embedded in it, intelligence that we can use...to make creative leaps' (2007: 13). Ogle explains that idea-spaces help us think and can take many forms, offering business models, the Arabic number system, established scientific disciplines, and art movements as examples (2007: 13–17). In my new technique/tool, I intended to embed the modes of association from creativity theories into its design form and user process, to create an idea-space that facilitated creative ideation.

Rather, view with shifting array—

(2 August 2017, edited 10 October 2018, 8 April 2020, 5 May 2020)

While mind maps can be made on paper, chalkboards, whiteboards, and with computer software, I used paper and pen to start as an accessible and economical way to experiment and prototype a new design. The 'map' characteristic is an element I maintained and incorporated into my own design because its aim is to help the user locate, find, or discover idea fragments or partial ideas to develop into project drivers. While I was reviewing ideation tools, I was also seeking intersections by concurrently reading Turchi's *Maps of the Imagination: the Writer as Cartographer*, which I discussed in Chapter 4, introducing his associative leap (page 136). Turchi examines writing as a way of mapmaking, holding the writer responsible for assisting the reader with directions (2004). He reminds his reader that maps do more than chart territory; they are 'Way Finders' for their users (2004: 73). As I wanted to assist my users in finding their way to ideas, a mapping tool seemed well-suited as one solution.

Turchi's explanation and use of the 'associative leap', a poetic tool borrowed by fiction writers to lead the reader to a more powerful understanding of the writing, became critical to my research and to my design. He urges his reader-writers to pay attention to the spaces and blanks in their mapmaking and their writing. I followed suit by using my lyric word-working to understand the associative leap and by building it into my design. My studio mandala (like those I describe in Chapter 4) on 'Attention to Association' holds many of my early thoughts for my design and includes an excerpt of Turchi's book, in which he describes the associative leap (Appendix G, page G-2). Importantly, I experienced an associative leap while I was working with three small mind maps on a page, prior to determining my design form (see Figure 42).



Figure 42. 'Charting an Idea-Space' in Appendix G: *Attention to Association*, page G-1

Score and cut, so fractal moments △A coordinate movements[1]

(17 July 2017, edited 27 July 2017, 10 October 2018)

In Appendix G, my writings on 27–29 October 2015 articulate what happened in the making of that sketch on 19 October 2015. While I was working with the words on the separate mind maps, placing associative words near their centre focus words, I made an association that jumped off the maps and it appears as the green note attached to the yellow cluster in Figure 42 (page 212). I recognised that the word 'collide' belonged with the group of other green notes about 'combinatorial thinking', but also knew that I made the association because I had a phonetic response to the first two syllables of my misspelled word 'kaleidescope'. The associative leap or unspoken thought between the words was that kaleidoscopes have fractal colour patterns which appear to mix, slip, or 'collide' into one another. Recognising the associative leap and watching it happen, as I physically crossed the page to put down the new note, was one of the most important moments in my practice-based research. I worked with the page of words by drawing triangles to make additional connections among the three groups. While studying the triangles, I thought about Turchi, cartographer tools, and my yoga 'triangle pose', and found my solution for my design structure—triangulation—through lyric association. In Appendix G on 28 October 2015, I wrote:

> Triangulation-Bermuda Triangle-What is lost in the middle of the triangles?-Hypotenuses- Is there a formula here?
>
> (page G-2)

The 'Triangulation' in my word-working refers to geometry/trigonometry math problems from navigation, for which one solves for the position of an unknown ship point by using two known, observational points like in Figure 43 below.

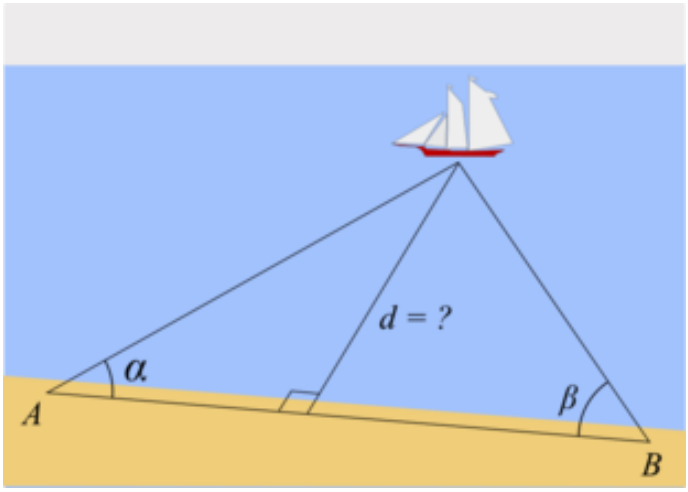


Figure 43. An example of triangulation to find the position of the ship from the shoreline

present now and present then, present future $\triangledown_B$ forward? [2]

(25 July 2017)

‘Triangulation’ is a common term used in numerous disciplines for considering standpoints or perspectives and working toward a solution, middle ground, or meeting point. For instance, academic researchers often use what is called a ‘triangulation’ of methods to examine the same data-set or study from varying perspectives to cross-check their material or hypothesis (Gray and Malins 2004: 137). User experience designers discuss triangulation in terms of ‘people’, ‘problem’, and ‘business’, with the good design solution at their centre (Gupta 2019). Interaction designers model their discipline as a triangle to account for its three perspectives of ‘design practice’, ‘design studies’, and ‘design exploration’ (Fallman 2008). In U.S. politics, it describes a strategy of the Clinton era to present views above and between the Left and Right (Goddard Media, Inc. 2020). These are just a few examples, but they do not describe how I use triangulation, although my tool does make use of varying perspectives and is intended to aid in finding meeting points, which I explain further in the chapter.

To design its form, I looked to its geo-surveying context: where triangulation is based on the relationships between the sides of a right triangle; and uses two points or coordinates to find a third point through the Pythagorean theorem and measurement of angles (Math Planet n.d). ‘Word Triangulation’ users select three ‘coordinates’ based on their creative practice brief or interests. These become the anchor points for a very personalised and customisable map. I encourage the user to choose two familiar concept words and one less familiar word or visual to be anchors on the page, standing in for the shore points and the unknown ship point. This three-point gateway of words, images, or elements is separated by space on a page, following Turchi to allow for associations to bridge the blanks (see Figure 44 for example).

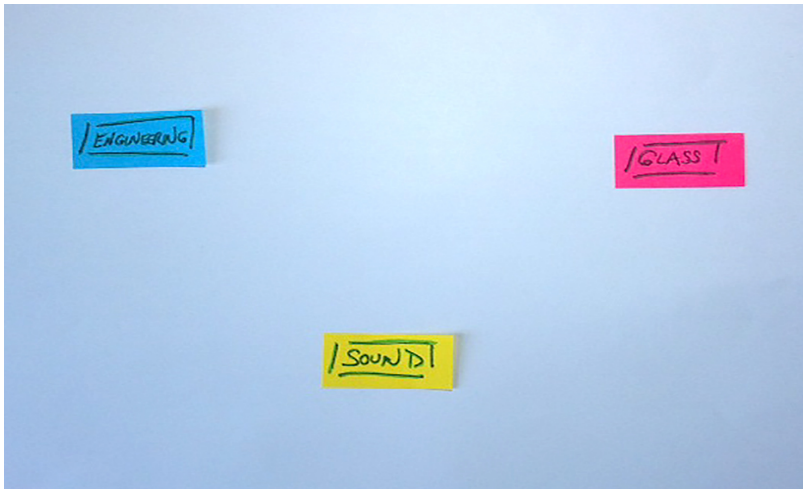


Figure 44. The start of a ‘Word Triangulation’ with anchors ‘engineering’, ‘glass’, and ‘sound’

Malleable memory folds away tension[3]

(2 August 2017, edited 11 October 2018, 8 April 2020, 7 May 2020)

▷A

Putting theory by Johnson (page 64) into practice, I used exaptation twice in the design of my tool and its technique. In this first instance of my exaptation, I took the concept of triangulation from its ship-to-shore, mathematical domain and transposed it onto the map sketching page, putting it to work as my design form. My mapping tool is predicated on the user seeking to understand how three elements might be bridged, related, or associated. I reasoned that finding relationships or associations between two concepts would lead to associations with the lesser-known, third concept and allow the user to locate concepts to connect them altogether. I hypothesised that in turn, this would enable starting points for a creative project to understand an unknown. The map and its associative contexts would facilitate intersections and seeing relationships for analogy-making and idea generation.

Once the overarching triangulation foundation was set, I turned to designing how the user would interact with the anchor words to locate idea bits. When I was word-working with my cut-up words (Figure 35a, page 198), I had a partial idea form: the highlighted circle of words reads ‘silence/mindfulness/ritual collide with studio practice [as] incubation tools’ (page 198). With exaptation and ‘listening for silences’ (page G-2) in mind, I examined various types of meditation, to bring aspects of mindfulness and yoga into my design for heightening awareness of relationships among the words. Author and Buddhist meditation teacher, B. Alan Wallace explains that mindfulness is a gentle meditation and lifestyle practice centred around breathing, which aims to calm and focus the practitioner’s awareness on the present moment, sensations, experiences, and breathing (2006). Other meditation practices use ritual or focusing tools such as the mandala. I looked at the Sri Yantra mandala because it is laden with triangles and mathematics, which provided an inherent relationship to the navigational triangulation. A Sri Yantra mandala is ‘an interlocking matrix of geometric figures, circles, triangles and floral patterns that form fractal patterns’ and is used to create ‘a balancing and calming influence’ (Chopra Center 2015). The mandala shapes are symbols for the meditator and my understanding is that using the mandala is like using a map to find a calming centre. The meditator focuses their attention on one symbol at a time before moving on in a designated pattern to give attention to the next one (Chopra Center 2015).

I exapted this ritual-centric method of focusing attention and applied it to my ‘Word Triangulation’ tool. My suggestion for using the anchor words is to begin with one word first, placing all awareness and attention there to make associations with that concept, before moving to the second anchor word for more associations. I suggest

shifting to material.

(8 April 2020, 5 May 2020, 8 May 2020)

that users ‘watch’ their thoughts like meditators are taught to do, however, rather than release the thoughts as in meditation, I advise users to capture all thoughts on the page, encouraging them to use sticky notes. In line with meditation guidance, I also tell users not to judge the thoughts and not to curate any out of the map, but to note them all. Also, at the start of many practices, the meditator creates an intention as a point of reference (Chopra 2019, Corne 2020, Stryker 2011). I designed a ‘Word Triangulation’ session to be similar; I encourage the user to write an intention, question, or statement for the page and regularly refer to it throughout the ‘map-sketching’ process, in the same way that a meditation or mindfulness practitioner continually returns attention to the breath. (‘Map-sketching’ is working with the words and a ‘map-sketch’ is the resulting visualisation that is created on the page during the session.) To maximise relationship potential among the anchor words and to expand Johnson’s ‘adjacent possible’ (page 64), I suggest that users visually locate all associations as they come to mind, by putting words, images, memories, etc. on sticky notes and locating them on the page where they developed. As users place associations, the map-sketch develops into a visual ‘adjacent possible’ for the creative practice issue at hand. It is not the only ‘adjacent possible’ available, but it is a focused, personalised library of concepts, specific to the user at the time and place of the map-sketching.

Mind maps and concept maps use rather rigid mapping structures and hierarchical forms. I aimed to eliminate these and sought the opposite: a tool that enabled movement to facilitate the modes of association. For ‘Word Triangulation’, then, I used the sticky note as a design element for this purpose, breaking again with mind maps that keep words in their places. I suggest that anchor words, association words or graphics, and all thoughts be written/drawn on sticky notes because the adhesive is impermanent. Colours and shapes can be organising aspects for the users if they choose, but the key point is that words and the associative elements on sticky notes can be picked up, moved around, and replaced if the user chooses. This facilitates intersections and combinations with words or word parts or with graphics. No single word has dominance or priority and this allows remote associates and fringe thoughts (pages 50, 56, 58) to have weight and a role in the map-sketch direction.

After testing ‘Word Triangulation’ in my practice (Chapter 6.2., 6.4.) and trialling it with students (Chapter 6.3., 6.5.), I wrote out technique suggestions for future use. Figure 45 quotes them fully (page 222). Appendix H has this document and sequential example images of a session. The next sections describe testing the technique in my practice and with students in 2016.

Broken words lost in silence[4]

(6 May 2020)

1. **Begin with a large blank sheet of paper**

2. **Set an exploratory statement** for the map-sketch and write it at the top of the page. This could be a question, a design problem, or simply a brief statement of intention for the exercise. Regardless of how you write your statement, this will become the focus of the exercise.

3. **Choose three elements** to act as anchors for the map-sketch (at least two should be words but images or drawings will work as well). These three words or elements should be pivotal to the exploration of your exploratory statement. Two should be words with which you are quite familiar and the third can be a lesser known or a lesser understood word or concept. Put these words down on the paper in some way to indicate that they are the anchors to the map-sketch, to show that they are the focal points. Choose a colour for each of the anchor words.

4. **Focus on just one of the anchor words** to begin your map-sketch. Use sticky notes or other removable bits of paper that are the same colour chosen for the anchor word. **Write your associations on the sticky notes** and put them down on the anchor word of focus. Try to put down all of the associations, connotations, and responses you have to this anchor word. Put down all words that come to mind, even if they seem irrelevant to the project or to the word itself. Or if the association stems from an association word already attached to the anchor word, place the sticky-note on the paper closest to where the word developed in your mind. Put all thoughts down on the paper, try not to stop your map-sketching by judging them. Even if you have a phonetic response or some other thought that seems to make no sense, write it on a sticky note and attach it to the word already on the paper from where it directly developed. If a sound or image or memory comes to mind, try to relay it in words or a doodle drawing.

5. When associations seem to have stopped coming to mind for the first anchor word, **move on to the next anchor word** and change sticky-note colours according to the new anchor word. Continue making associations. Remember to look back at your exploratory statement occasionally to keep it in mind.

6. At this point or at a point very soon, with so many words and concepts mingling, it is likely that you might have an association or thought that is not directly linked to any one word already on the page. Perhaps a memory or an experience or an idea will come to mind from the relationship between or among some of the words on the page. Try to capture this in words or drawings and place this in a different colour nearby to where you think it developed, based on the location of words on your map-sketch. Draw lines to connect ideas if you think this might be helpful.

7. **Continue on to focusing and making associations with the third word** after associations have stopped for the second. Remember to capture all the thoughts no matter how indirect or seemingly unrelated.

8. If associations have stopped for the third word and you still feel you have not fully explored your statement or have a direction for your project, then **take a break.** Either take a break that means you walk away from or put away your map-sketch and shift your focus, or take a break from the map-sketch but focus on a tangible idea from the sketching. For instance, if you were working with "glass" as an anchor word, you might consider going into the hotshop or taking a look online at some glass pieces or feeling the textures of different glass material that you might have available to you in your studio.

9. After your break, **return to the map-sketch and look at it as a whole, as a fully-formed sketch**. All of the associative words and many of the drawings will be moveable, so play with them if you'd like. Move them around if it makes sense to you. Respond to the work as a whole and get the responses down on the map.

10. Now, try to respond to your initial exploratory statement or question.

Figure 45. Guidelines for 'Word Triangulation', written for workshop teaching to students in 2017

seek connections.

(6 May 2020)

6.2. Using ‘Word Triangulation’ Individually in My Creative Practice

For generating creative project ideas within my own practice, I nearly always start my process by working with words in some form: capturing thoughts, observations, and key quotes opposite a few images in my sketchbook, writing auto-ethnographic, reflective prose, experimenting with lyric lines of poetry, and/or keeping a digital form of a commonplace book, specific to my subject (Chapter 4.1.). Mind mapping initially appealed to me because of its word usage, but I struggled with the set structures and personally never found them helpful for idea-making. ‘Word Triangulation’ was not a tool or technique that I had ever used in my own practice, until undertaking my doctoral studies and purposefully setting out to design for idea generation. Before I could offer my ‘Word Triangulation’ to others, however, I needed to try it within my own practice. This I did, occasionally posing different challenges and using ‘Word Triangulation’ to try to respond with ideas. For myself, however, I felt that the tool would not be truly tested until I used it at a critical moment in my practice, when I was under pressure with a live brief and deadline.

The first opportunity to test ‘Word Triangulation’ in my practice came during a pivotal time while I was leading a research team for the ‘Glass Whispers’ project, funded by the Royal Academy of Engineering through the Ingenious Grant scheme in 2015–2016 (Naas 2020). I was working with a team of artists, designers, composers, and engineers. After nine months of work, our collaborative project to engage the public with engineering, through works in glass and sound, had stalled. The team and I had just completed recording the sounds of the glassworking process in the workshops. Our sound engineers had cleaned the files and our composers had been manipulating and making new sounds from the source audio. We had all this data—all this ‘material’ in the form of the audio—but we did not have an idea for what to do with it or what to make from it, to fulfil our grant contract by its deadline and engage the public with the engineering we used. We were stuck in the process of responding to our brief for the Ingenious scheme. After several conversations with the team members discussing how to proceed, I understood from them that they were wanting to follow my lead, given that we had won the grant with my application. I was adamant though, that our process continue to be a collaborative one. This led me to try my ‘Word Triangulation’ because I knew that I was seeking only a starting point for us. I did not want to determine the end results or the process for the whole team.

My ‘Word Triangulation’ session was an individual one, undertaken at my writing desk in my quiet working space, alone on 9 February 2016. To fulfil our grant

While we listen for the silences in thought gaps

(6 May 2020)

I needed to determine ‘how we could combine the elements of glass, sound, and engineering to develop interactive art works which engaged the public with engineering’. This became my question for the ‘Word Triangulation’ session. Figure 44 (page 216) shows the start of my session with the anchor words placed on my page. ‘Glass’, ‘sound’, and ‘engineering’ comprised the three-point gateway to the map because they were the central subjects of our grant project. ‘Glass’ and ‘sound’ were familiar concepts to me but ‘engineering’ was a bit foreign. In Appendix H, (through the sequential photos on pages H-3 to H-5), the reader can see me working on associations related to one anchor word before moving on to the next. I move from ‘glass’ to ‘sound’ to ‘engineering’. Before I completed associations with ‘engineering’, I had a memory surface of learning about *Sound Garden*, an outdoor Seattle garden with sculptures that emit sound. This surprised me because I had not thought about these sculptures in twenty years. I captured this memory on the green sticky notes at the top of the image in Figure 46 below. I placed them unattached to any other associations, because I recognised that the memory had to do with the mingling in my mind of the ‘sound’ associations and the ‘engineering’ associations.



Figure 46. Completed map-sketch from ‘Glass Whispers Word Triangulation’

I returned to my association-making with ‘engineering’ but still had the memory very clearly in mind. During my session, the interplay between the gateway elements and their associations was not intentional, but I could not keep the mixing of associations from happening, which generated additional thoughts. I captured those errant fragments in the green notes off the map space (bottom of Figure 46). In quick succession, more thoughts came from the mingling of my association-making with ‘engineering’ and my *Sound Garden* memory. I wrote them down as they developed.

Let us wander,

(6 May 2020)

The words on the green sticky notes at the bottom of Figure 46 (shown close-up below in Figure 47) read from left to right as I placed them: 'Emits—Sound Garden emits sound—what if the Gardens were reversed? A construct that takes the sound + transfers it to the Glass—What does the Sound look like captured in Glass?' Reflecting on the process, I recognise these errant thoughts, these outliers written off to the side and notated differently, as evidence of my idea events: they capture the moments when I was aware that I was synthesising the material in front of me on the map-sketch with a view toward answering my 'Word Triangulation' question.

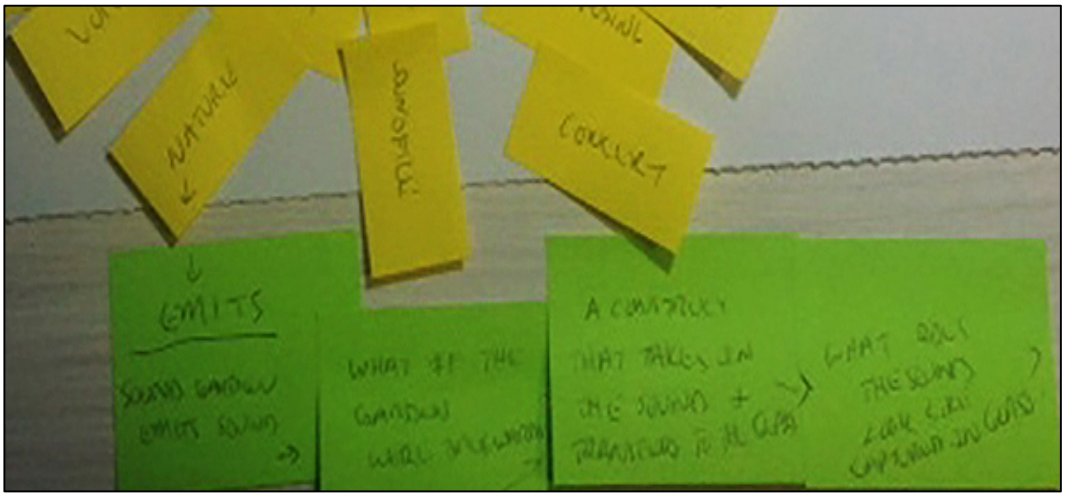


Figure 47. Close-up view of captured association mingling and idea event

This specific 'Word Triangulation' led to a memory which raised related questions. I ended the triangulation on this stream of thought, because the green sticky notes contained the partial idea I was seeking: essentially, they described 'a reverse engineering'. This phrase became the spur for generating ideas for our team's studio work. I took the thought of 'a reverse engineering' and applied it to our project with a new question to the team: 'How can we embed our recorded glass sounds back into the glass itself'? This became our formal project driver and our material research question. Our team collaboratively dealt with the question from three different perspectives: we answered it metaphorically, literally, and abstractly. Our practice outputs consisted of three primary corresponding subprojects: 'Glass in Translation', 'Sounding Glass', and 'Feedback Loops'.

'Glass in Translation' explores the metaphorical language of the visual in the aural. As the specific lead on this subproject, I continued to put creativity theory into practice by purposefully using the metaphorical language I saw in the composers'

through the looking,

(6 May 2020)

writing for my designing. The composers manipulated our recorded glass sounds to create new sounds and then they described these in writing. I translated what I was hearing and reading into sketches for glass. In other words, I employed analogy-making using metaphors (pages 62, 170) to develop these glass object designs. Later, I worked with a glassblowing team to realise them as physical pieces. Appendix I is the full 2017 Research Through Design conference paper I wrote, specific to this study of metaphor (Naas 2017b). It offers context, details, and images of the making process for 'Glass in Translation', shown below in Figure 48.

While I directed, designed, and co-created 'Glass in Translation', I also joined in the collaborative efforts on our other two subprojects. 'Sounding Glass', our literal response to the research question, is an interactive, glass object that explores the sounds of its own making through human touch, to offer a unique, playable, musical experience for the user. We embedded the sounds of glassmaking into the object to be played back by users when they touch the glass. 'Feedback Loops' is a series of kiln cast, glass objects that uses a visual form to describe the abstract, recursive, creative processes we used as a team. The three subprojects cohesively form a large body of work entitled *Makers Marks*, which we exhibited to engage the public with our engineering and successfully fulfil our grant contract. Figure 49 shows the work in exhibition. I wrote extensively on the entire *Makers Marks* project in a journal article, which is reprinted in full as Appendix J (Naas and Faleris, 2019). All this work—the glass objects, exhibitions, public engagement, grant contract completion, conference paper, and journal article—stemmed from my 'Word Triangulation' session and its idea fragment of 'reverse engineering'.





Figure 48. (left) 'Glass in Translation' collection of blown glass objects shown in studio at ECA
Figure 49. (right) *Makers Marks* exhibited as part of a Summerhall event in Edinburgh

wondering among the menagerie.[5]

(6 May 2020)

6.3. Student Workshops: Individual Use of 'Word Triangulation'

6.3.1. Workshop Overview

To test 'Word Triangulation' outside of my practice, I developed the workshop 'Play with Fire: Glass Concepts' and ran it twice, on 16 and 17 February 2016 as part of Innovative Learning Week, which focused on the theme 'Ideas in Play' (Naas 2016b). The Innovative Learning Week Committee, which funded the workshop, accepted my proposal as an official event for the University of Edinburgh and marketed it to the entire University community as part of the Week's voluntary course offerings. Appendix K includes my proposal, the committee's acceptance/funding letter, and the poster to promote the events (pages K-1 to K-7). All students (undergraduate and postgraduate, from every discipline) were eligible for the workshops as long as they had not yet had experience working with glass material as a creative medium. With glass as an unknown, I could design the workshop to provide the students with an intersectional experience, like Johansson suggests (pages 62, 64). I staged all of the events in the ECA Glass Department and its studio spaces.

I ran the workshop days similarly, but each had a different cohort of students, who all signed my consent form acknowledging that they understood that the workshop would be included in this dissertation and their participation was voluntary (Appendix K, pages K-8 to K-43). The brief was the same for both days; I instructed the students to view glass through the lens of their disciplines to develop an idea for a project with glass. Each day had five sessions, four of which were hands-on: 'Overview Presentation', 'Word Triangulation Introduction', 'Glass Skills', 'Idea Sketch-up', and 'Idea Realisation'. The students went through them in groups, starting in the morning with a brief PowerPoint presentation about glass and its history, along with examples from my practice of glass in combination with other disciplines (pages K-44 to K-59). Slide 16 posed the question 'How can we combine glass with other disciplines?' and thereby introduced the brief (page K-59). Each workshop included a 'Word Triangulation' session in a seminar room, which was relatively free of distraction, with a large table in the middle, chairs around it, and glass objects in a glass cabinet along the wall. During the 'Word Triangulation' session, I gave verbal guidelines only and showed examples of my own practice with the tool (pages K-63 to K-69). I brought paper, sticky notes, pens, pencils, scissors, coloured pencils, markers, pastels, charcoal, and clay, encouraging the students to use any of the items or their own materials to work on their map-sketches. I introduced 'Word Triangulation' by explaining that it was my tool in development based on creativity research on

6



(7 May 2020)

association and combination, but gave no details. Specific to these workshops, I encouraged the students to use ‘glass’ as an anchor word, at least one word related to their discipline, and one word that related to a project interest. These map-sketching sessions were quiet with very little talking, and the students were quite focused on the triangulations. The ‘Glass Skills’ instruction took place in the hotshop, where the glass technician taught the students about the material, how it moves, how it can be manipulated, and how the various studio equipment relates to glass. She also demonstrated vessel-making and the students had various opportunities to work the glass with wooden and metal tools. Afterward, the students had time to develop any ideas in response to the brief in the ‘Idea Sketch-up’ session in the seminar room. I encouraged the students to revisit their ‘Word Triangulation’ map-sketches for idea generation, but did not require that they do so. For those ideas that were feasible as objects which could be realised that day in the hotshop, the students then had the opportunity to collaborate with the glass technician to make the physical glass pieces. I documented the sessions and their outputs in photos (Appendix K, pages K-69 to K-73). I also surveyed the students in writing about their overall experience afterward and talked with a few of them about their work. (The surveys can be found as on pages K-74 to K-91.) The next session discusses the workshop outputs along with my findings from the surveys and examination of the students’ ‘Word Triangulation' map-sketches, a realised idea, and conversations with the students.

6.3.2. Workshop Results

Eighteen students participated between both days and all but two joined in the ‘Word Triangulation’ sessions. Of the sixteen who tried ‘Word Triangulation’, all attempted it individually. In their surveys, eleven indicated that the triangulation method helped them develop ideas; ten students said that they would use it again (Appendix K, pages K-74 to K-91). They cited various reasons for potential future use, including early idea production, brainstorming, and early design sketching. One student wrote that ‘Word Triangulation’ ‘links the idea together as a whole’ (page K-91); and another answered that in their discipline of Advanced Sustainable Design, they might use the tool to ‘combine different fields to design a more creative building’ (page K-86). On the following pages, I have included a few of the student map-sketches from the ‘Word Triangulation’ sessions as examples from those who addressed the workshop’s brief and utilised ‘Word Triangulation’ in different ways to

7



(4 May 2020)

do so (see Figures 50a–c, 51a/b, 52a–c). I also have included documentation of one project that shows progression through the sessions to realise a final idea in the hotshop (Figure 51c, page 240). Figures 50a–c below display different stages of the 'Word Triangulation' map-sketch created by a postgraduate student studying Landscape Architecture. She began her Triangulation with 'glass', 'landscape', and 'body' as anchor words, and mapped by clustering word associations. The image in Figure 50a shows how she left her work before she went into the 'Glass Skills' session. After the hotshop instruction, she returned to working on her map-sketch for the 'Idea Sketch-Up' session. She integrated the word clusters, weaving some of them together (Figure 50b). As she was making connections, she moved the word pieces to indicate those new relationships. She explained that the small clay models (Figure 50c) depicted cove-like shelters that she would want to see made from glass and installed in a seaside landscape. Describing ideas derived from the Triangulation, she wrote:

> I began to think about glass as a medium for furniture or shelter in a coastal setting. Natural erosion became an interesting trail when thought of in conjunction with "sea-glass". (Appendix K, page K-83)

In this case, the word association led to a combination of elements; she put the glass and the physical sea together in her discipline of landscape architecture after arriving at 'sea glass' or 'sea shard' as she originally wrote. She identified a relationship and from that, envisioned a design in glass through her discipline landscape architecture. As the project was too complicated for a day's work, we did not attempt to realise it.

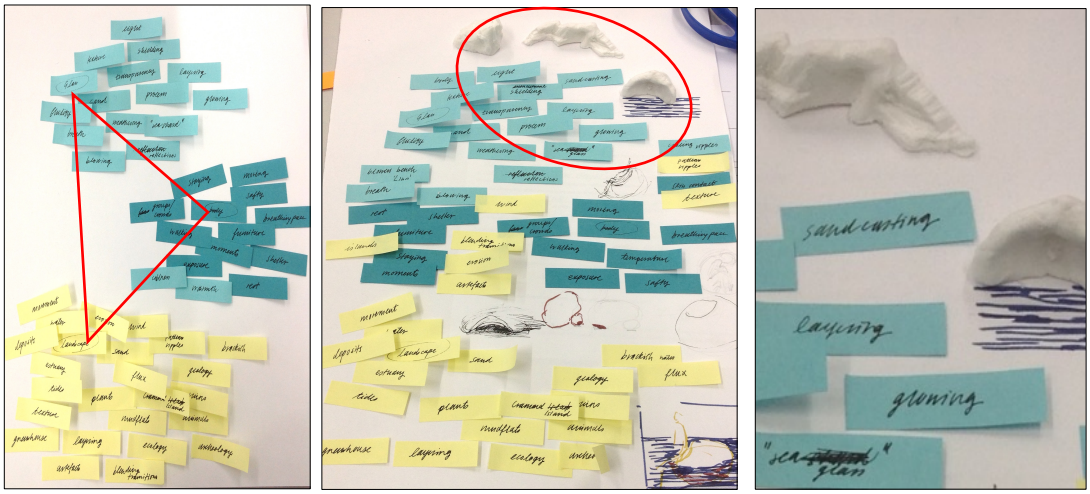


Figure 50a. (left) Map-sketch start by Landscape Architecture student with anchor elements highlighted in red; Figure 50b. (center) The developed map-sketch after Glass Skills introduction; Figure 50c. (right) Detail of red highlighted area in 50b. showing clay constructions and 'sea-glass'

8



(4 May 2020)

In the next example, an undergraduate studying Biomedical Sciences and Management used ‘glass,’ ‘daily life,’ and ‘creatives’ to anchor her map (Figure 51a). From her word association, she thought of ‘science’ and ‘organic’ as connecting the three anchors, which she said led her to the little sketch and her glass design idea in the highlighted circle (detailed in Figure 51b). The student described her sketch idea as having a neuron-like, organic form that moves or flows like glass. The neuron form was there in her map early, when she arrived at the word ‘biology’ (directly above ‘daily life’) where she doodled beside it. This might be an example of where her new experience of glass reinforced and brought to the map surface a form in which she was already interested. Later in the workshop, she made the physical object of her design, successfully completing the day’s brief and relying heavily on ‘Word Triangulation’ for her idea. Figure 51c shows us making her object (page 240).

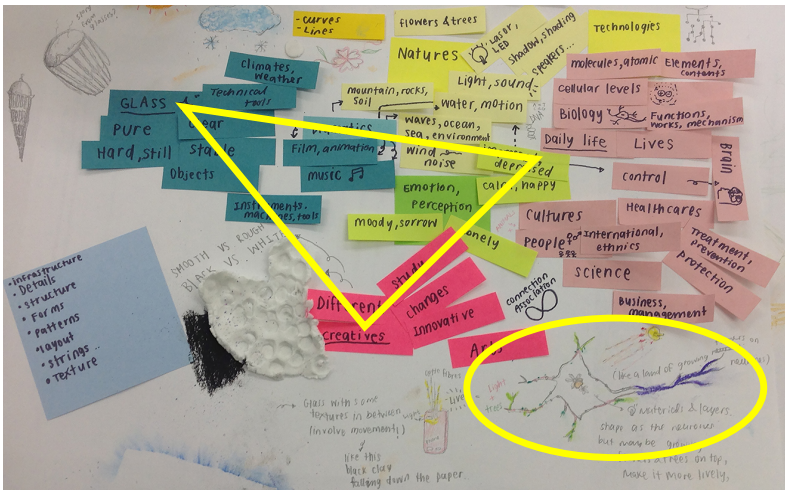


Figure 51a. Biomedical/Management student’s ‘Word Triangulation’ map-sketch

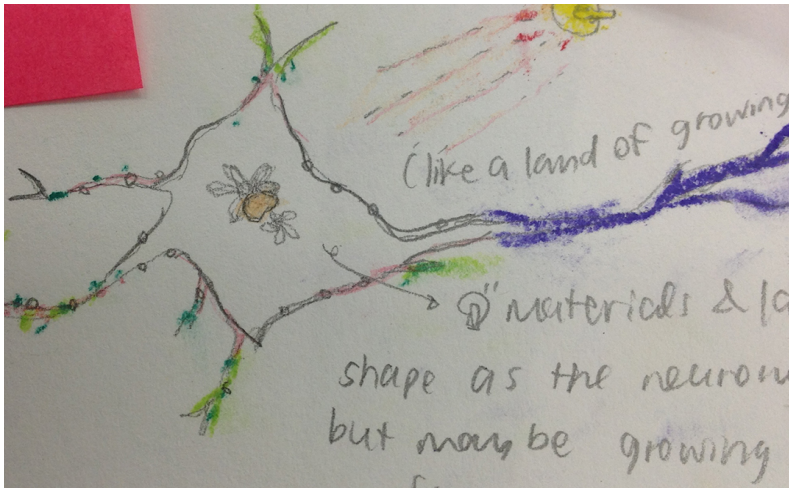


Figure 51b. Detail of the sketch idea highlighted in the yellow circle in Figure 51a.

9



(4 May 2020)



Figure 51c. Biomedical student (center) realising her glass neuron form in the hotshop with other workshop participants assisting

The third 'Word Triangulation' example of individual student use is from a doctoral student in Education whose thesis was on intercultural learning and the Sail Training programs. This student's Triangulation began with 'glass', 'intercultural learning', and 'sail training'. Figure 52a shows her work before her glass skills session in the hotshop.

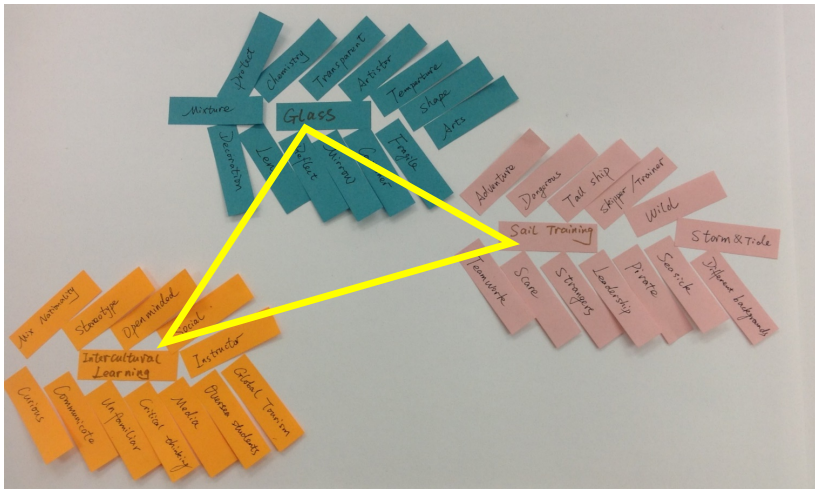
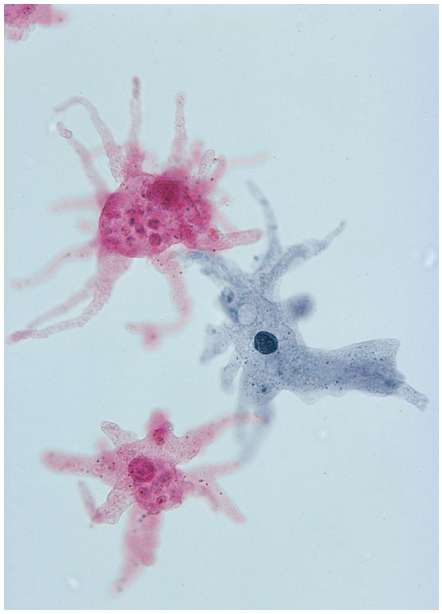


Figure 52a. Beginning of 'Word Triangulation' by PhD Student in Education

After the hotshop work, she returned to her map-sketch for the 'Idea Sketch-Up' session and re-addressed her 'Word Triangulation'. She followed the advice I gave all the students and added additional, indirect thoughts to the map, outside the initial word associations, but near to where the thoughts developed for her as she re-engaged with the 'Word Triangulation' map-sketch (Figure 52b, page 242). As she

10



(6 May 2020)

worked, she asked me questions about how to form glass in kilns and the conversation turned to states of glass and firing programs (we talked about 'full fuse' versus 'tack fuse' etc.). She then related working the glass in the kilns and fusing to different temperature degrees to the nature of people and their environments. She wrote in her survey that glass is 'reshapable and people are also changing themselves while encounter[ing] different situations' (Appendix K, page K-62). Her green note on her final map-sketch appears to show her working through this idea of similar glass, chemical make-ups taking different shapes in different environments (Figure 52c). When we spoke in person, she drew comparisons between Sail Training programmes that shape young people by placing them in new environments and glass working. While no new idea is apparent from her map, her analogy-making between the two systems is evident and potential for a new idea is present.

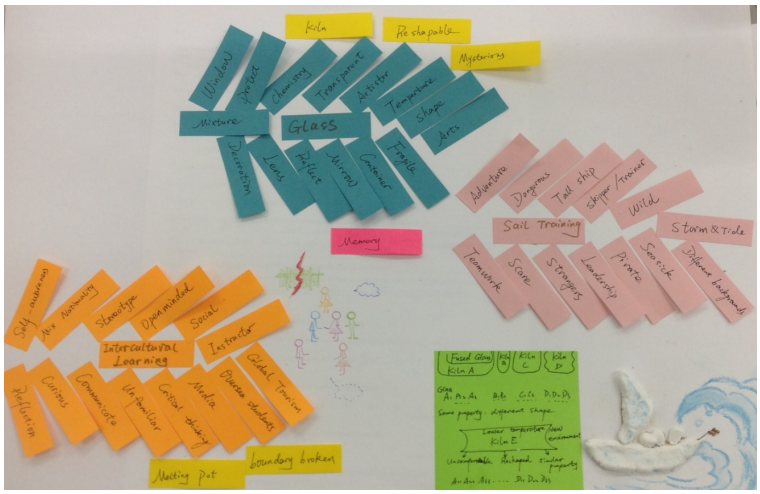


Figure 52b. Final 'Word Triangulation' map-sketch by PhD Student in Education

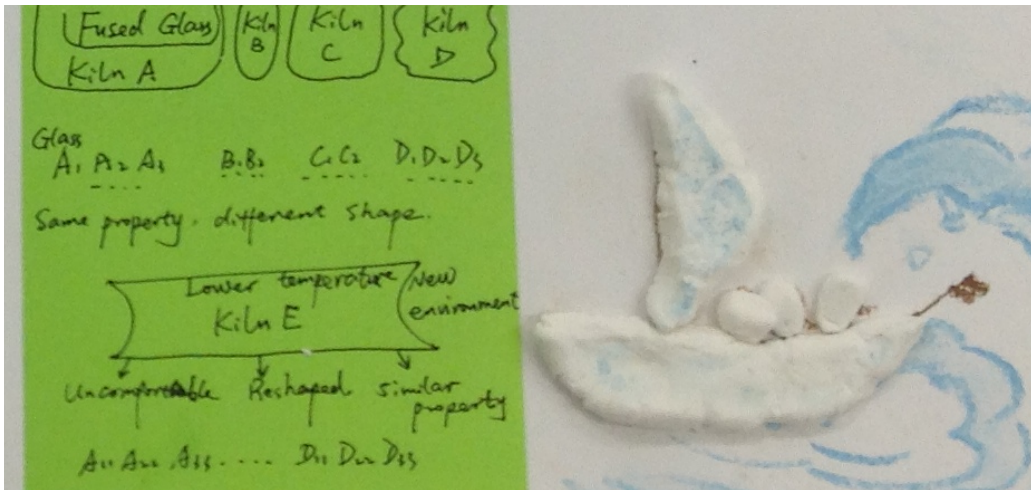


Figure 52c. Detail with 'same property', 'different shape' and 'new environment'

11



(6 May 2020)

While these three map-sketches offer good visual examples of the workshop results, they were not the only ideas that developed from the 'Word Triangulations'. Other students documented those through the survey I distributed. For instance, in response to my request for a sentence or two on ideas that were derived from the triangulation session, the Advanced Sustainable Design student (cited on page 234), wrote 'Daylighting: Glasses on the façade of a building can provide daylighting for humans and save energy' (Appendix K, page K-86). An exchange student in the College of Humanities and Social Sciences, who used 'glass', 'advertising', and 'both' as her anchor words, wrote in the survey that she 'concluded that advertising is a manipulative medium and glass is more manipulated/manipu[la]table, but each ha[s] a unique set of restrictions' (page K-75). An Economics student wrote 'At first I thought it would be very difficult to find and link [economics and glass] but discovered that the idea of reflection is shared by both—glass obviously reflects but economics is a reflection of events in society' (page K-76). These three student responses are partial ideas that have the potential to be developed as project drivers.

The results from these 'Word Triangulation' trials indicate the tool's success in facilitating idea generation for individual, voluntary users. Feedback from workshop participants was positive and I observed idea generation in the map-sketches and language of the students. My experiences using 'Word Triangulation' in my practice were very positive as well. The tool has even produced project drivers that have pushed work from concept to completion. This information was clear during the trials and afterward in results, but I was still a bit uncertain as to what was happening within the map-sketches. Ideas were being generated, but I wondered what I was seeing on the maps themselves. I turned to my lyric writing again to explore.

6.4. Lyrically Articulating Word Triangulation

In my studio mandala document on 'Attention to Association' (Appendix G), I first wrote about developing the 'Word Triangulation' tool, as I discussed earlier in this chapter on pages 212–214. From those notes, my experiences and observations, and the student feedback from the Innovative Learning Workshops, I developed another studio document I called 'From working notes to lyric assimilation' (Appendix D). I first mentioned this document in Chapter 5 (page 178), because it is where I fully developed my creative process 'raindrops on windowpanes' model. This document served several purposes for me: I was trying to understand and articulate my creative

12



(18 May 2020)

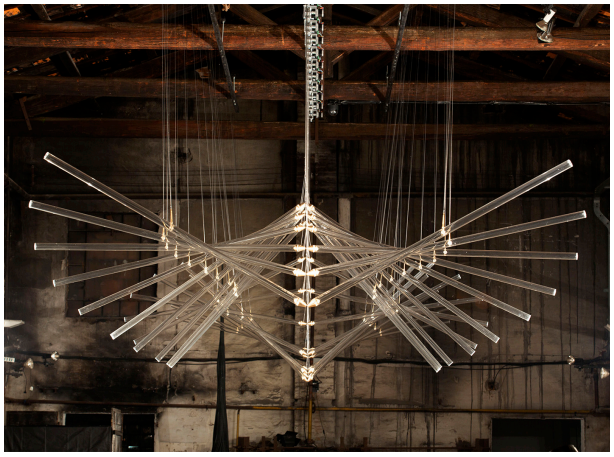
process, especially in 'Word Triangulation' and its resulting map-sketches, while I was also seeking a creative form for my thesis. The first entry on 4 April 2016 (page D-1) collates my notes on the tool's creation and the day's second entry lyrically describes my experience working with it, while also incorporating my observations of other map-sketches. My slightly edited version is reprinted here from the original on page D-2:

> Through a sea of coloured words, floating as buoys on the page, I drew lines to anchor us at three points. The bubbling waters had given rise to a new species, half-formed. It swam near me, among the words, feeding from them and growing. It brushed against our vessel, but I couldn't quite see it…the waters were murky and the fog had grown dense with too many thoughts, obscuring my view.
>
> I worried I would be lost in a Bermuda triangle of my own making. It was then that I remembered my geometry classes … Pythagorean theory … Hypotenuses … Triangulation … Old-fashioned methods for ship to shore geolocation.
>
> As the air cleared, we were able to develop the map. Land masses of words replaced the buoys while the anchor lines still defined the related territories. Dotting the periphery were lush islands of memories, sketches of our views, phonetic scribbles, and a net's worth of partial creatures. We noted the birth of a volcano in one outlying area. It generated a flow critical to the environment and therefore it seems worthy of further investigation… perhaps it is a key to this unknown place?

In this lyric writing, I developed an extended metaphor, relating my experience of using 'Word Triangulation' to a ship's captain navigating uncharted waters. In the description, the phrase 'a new species, half-formed' stands in for Wallas' 'Intimation' of an idea, discussed in Chapter 2 (page 46). I recognised that I was in the process of developing a partial idea. Importantly, I also noted the outliers on the maps as being critical—the memories, sketches, phonetic bits. The lyric's 'volcano' refers specifically to the clay pieces students had used on the maps, as well as any of the errant thoughts on the map edges. For instance, in the Landscape Architecture student map, the 'volcano' was the clay model representing cove-like shelters that aided the user in reaching her sea-glass, furniture idea (page 236). In my map, the 'volcano' was the *Sound Garden* memory that spurred a flow of word phrases, resulting in my project driver (page 226). My lyric writing ends with a question about volcanos, providing the perspective I needed to be more aware of the map periphery in the context of creativity theory with remote associates and fringe thoughts (pages 50, 56, 58).

The trials on previous pages focused on individual 'Word Triangulation' use. In the next sections, I report on collaborative attempts using it to generate ideas for studio projects in glass. I introduced the tool to students responding to a live exhibition brief.

13



(18 May 2020)

6.5. Student Workshops: Collaborative Use of 'Word Triangulation'

6.5.1. Live Brief and Workshop Overview

In Spring 2016, Dr. Jessamy Kelly asked if I wanted to facilitate a year-long project between the Edinburgh College of Art Glass Department (ECA) and The Royal Botanic Gardens Edinburgh (RBGE), as a response to the latter's competition call for art and design works under its theme *after the storm.* I agreed, and together, we wrote the proposal *Regeneration,* to develop collaborative student projects from concept to exhibition through a series of workshops held in the glass studios (Appendix L, pages L-1 to L-3). Our brief for the students asked that they consider glass, its life cycle during the making process, and its material properties, in their art and design work that responded to the theme of regeneration after a storm. Our proposal was accepted by the joint committee (comprised of ECA staff and RBGE staff and field experts) and scheduled to begin with the term opening in Fall 2016. Kelly and I promoted our workshops throughout the College and invited all students to participate, regardless of glass skill level (pages L-4 to L-6). This was a voluntary opportunity and commitment that would run in conjunction with other coursework. Our overarching *Regeneration* project was scheduled through the Fall semester, culminating in an exhibition at the College in Winter, at which time RBGE would select work to be installed in their larger exhibition on garden grounds in late Spring 2017. By committing to the project, the students agreed to work collaboratively, submit a written response to the brief for project development, and attend a series of workshops and group tutorial sessions, while also working on their own time in teams.

I presented the introduction to the project on 28 September 2016 and led the early concept development with 'Word Triangulation' during the first workshop (Appendix L, pages L-7 to L-45). I informed all students that I would be incorporating observations and outputs from the year's work into my PhD dissertation and gathered relevant consent from them (pages L-46 to L-65). At least twenty-seven students listened to the introduction, but afterward, only twenty students actually participated in using 'Word Triangulation' for concept generation. They represented numerous ECA disciplines and were a mix of undergraduate and postgraduate students. I taught the tool as I did in the Innovative Learning Workshops—in the same seminar room, giving a brief history of glass and verbal guidance for the technique, with example images of map-sketch work. 'Glass' was an anchor word for all the 'Word Triangulations' (page L-66). There were three major differences between this session and those of Innovative Learning Week: the students formed groups to collaborate during the 'Word

14



(18 May 2020)

Triangulation' sessions as opposed to working individually; all groups conversed while making associations as opposed to silently working; and each group set its own intention statement or question for the exercise instead of using one that I created. Students new to glass received a shortened glass skills introduction in the workshops on the same day as the 'Word Triangulation', and all students were invited to the Botanic Gardens as an intersectional experience for their projects at a later date.

6.5.2. Workshop Results

Sixteen students, of the twenty who opted to use 'Word Triangulation', provided survey feedback (Appendix L, pages L-67 to L-82). I distributed and collected the surveys during my next meeting date with the students, rather than on the day of the workshop, as I had done for the Innovative Learning sessions. In these, all sixteen (including the five Glass students) indicated that the 'Word Triangulation' method helped them develop ideas; fifteen students said that they would use it in the future; and a Painting student wrote that she had already used it again 'to make connections between areas of personal interest to focus some ideas in my painting practice/research' (page L-72). The students all indicated ideas that arose from trialling 'Word Triangulation'. Some stated very specific project plans, while others wrote that they used their map-sketches to support their written responses, and others described how the technique helped their groups tie concepts together. For instance, a Sculpture student wrote: 'we thought about linking different concepts together which we would not consider before' (page L-67). They, like the Innovative Learning students, cited various reasons for potential future use, including early idea production, brainstorming, linking ideas, and solving creative blocks. The same Sculpture student wrote that she might use 'Word Triangulation' 'to link the technical aspects of [her] work with the more conceptual side', while a Product Design student said 'it can help us create more interesting ideas', and an Intermedia student stated that it might assist in making 'life decisions' (pages L-67, L-79, L-71 respectively).

From the twenty students who used 'Word Triangulation' and submitted written responses to the brief, seven groups formed, and one student joined them after. Four of these referenced their map-sketches and included images in the written documents, which proposed their project developments and use of the glass studios (pages L-83 to L-96). One group of Glass students wrote: 'As a starting point we will begin to collect small materials and observe how the garden is used by people, how

15



(18 May 2020)

they create their own trails around the gardens' (page L-92). They included their map-sketch, which is shown below in Figure 53a. The map-sketching in the highlighted area (Figure 53b) connects to the project description I quoted above.



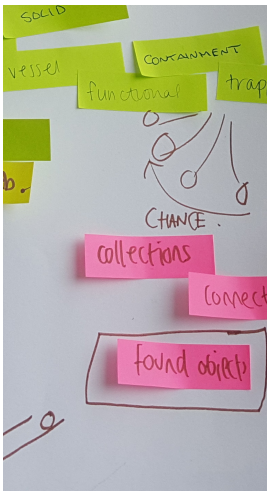


Figure 53a. (left) Glass students' collaborative map-sketch, indicating early ideas for the brief
Figure 53b. (right) 'Found objects' and sketches of 'trails' connect to their project description

6.5.3. Final Projects and Feedback

Several groups completed their projects to display them at the College, and two of these were selected by RBGE to take part in the larger exhibition held on its garden grounds 28 April through 28 May 2017 (Appendix L, page L-97). I asked these participants to comment on using 'Word Triangulation' and the role their resulting map-sketches played in project development and final exhibition pieces, since they could reflect upon completed work. One participant, who showed work at ECA but not at the RBGE exhibition, responded that the 'Word Triangulation' acted as an 'ice-breaker with the blank page, since we are always a bit scared to firstly write something down' and that having three initial starting points with the anchor words 'felt more playful' with 'connections occurring between those sections lead[ing] us to interesting cognitive paths' (page L-99). Another group, which initially used 'sound', 'nature', and 'glass' to begin their 'Word Triangulation', also responded, with one member writing that these words still very much tied to their final exhibition pieces (page L-101). She said that 'despite not having directly referred to the map since the initial exercise, it definitely helped us realize our key interests that shaped the way the rest of the project developed' and that the activity was very helpful in the collaborative situation to link individual ideas (page L-101). This group showed their work at ECA and the final RBGE

16



(18 May 2020)

exhibition. The group named itself ‘The Underground Network’ and produced glass casts of tree roots and a network board of reclaimed wood linked to a sound piece. Figure 54 shows the group’s original map-sketch and highlights an area in the map that seems to have been central to the project development and final artworks installed at the gardens, which can be seen in Figures 55a/b.



Figure 54. ‘Underground Network’ map-sketch highlighting ‘roots’, ‘cells’, ‘trees talking’, ‘network’





Figure 55a. (left) Glass casts of tree roots in exhibition at Royal Botanic Garden Edinburgh
Figure 55b. (right) Site-specific installation of reclaimed wood from storm

The results from the ‘Word Triangulation’ trial in *after the storm* indicate its usefulness in collaborative, student situations, showing positive experiences and success facilitating idea generation for groups attending to glass briefs. Observing the students collaborating through the tool intrigued me. I decided to experience it myself. The next section details my collaborative experience with the tool.

17



(18 May 2020)

6.6. Using 'Word Triangulation' Collaboratively in My Creative Practice

Since 2014, part of my creative practice has been collaborative in nature; the 'Glass Whispers Project' with *Makers Marks* was the most prominent in this regard (Chapter 6.2.). I enjoyed the work very much and hoped to use the momentum and network from *Makers Marks* to continue working collaboratively, across disciplines. After our final *Makers Marks* exhibition in late 2016, David Faleris, lead, professional composer on that project and my long-time collaborator, introduced me to professional choreographer/dancer Subash Gorania, with whom he had recently worked. Dance has been of interest for many years, and therefore, I welcomed the opportunity to explore possible avenues for collaboration among us. We met as a group initially through a Skype video call in January 2017 and after introductions and musings about possibilities, we decided to meet in person to consider ideas and learn more about each other as creative practitioners (Naas, Faleris, Gorania 2017). We met the next month at the choreographer's home in Leicester, UK with plans to attempt a collaborative 'Word Triangulation' for early idea generation (Naas 2017a).

Glassworking and glass as a creative medium were not familiar subjects for the choreographer, so I approached our meeting similarly to my Innovative Learning Workshops. I tried to provide an intersectional experience with glass for the choreographer by showing some of my glass pieces as physical examples of how glass might be different than that in everyday use. I presented the same PowerPoint slideshow with a brief history of glass as a material that has shaped society through innovation. I then introduced my 'Word Triangulation' tool using my own 'glass', 'sound', and 'engineering' map-sketch as one of several examples. We spent a bit of time looking at the *Makers Marks* project on my *In Concert With Glass* website, so that the choreographer could see the collaborative work that the composer and I have successfully produced (Naas 2020). We provided more background on Faleris, myself, our shared personal histories, my PhD work, and our interest in dance and working with him. The choreographer was very inviting, enthusiastic, and keen to continue exploring together. He settled us on the floor around a large coffee table in a corner of the room, which he used to practice dance, yoga, and meditation. It was empty except for a statue of Vishnu, and it was comfortable, quiet, and lit with candles.

Our intention for the exercise was to answer the question: 'How might we combine the elements of dance, music, and glass?' and so we chose 'glass', 'music', and 'dance' as our anchor words to begin the 'Word Triangulation'. We decided to undertake the map-sketch in silence and respond only to the written words, drawings,

18



(12 May 2020)

and whatever else occurred on the page. I asked how we wanted to approach association-making and the composer and choreographer responded that they preferred a free-form exploration. We used our respective subject words to begin and proceeded silently: ‘glass’ for me, ‘music’ for the composer, and ‘dance’ for the choreographer (Figure 56).

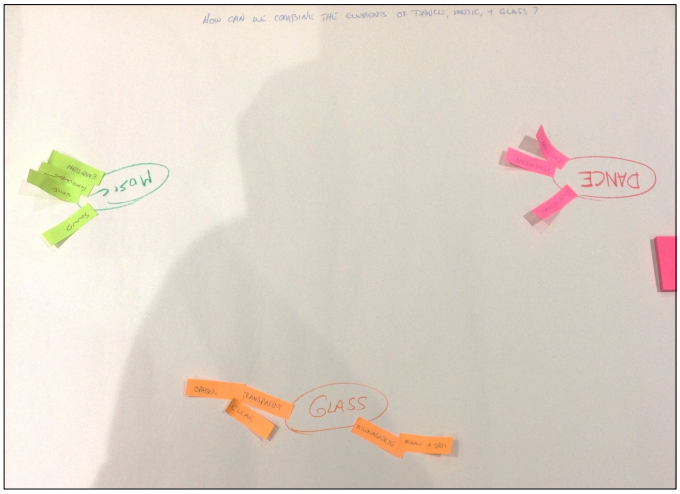


Figure 56. Collaborative ‘Word Triangulation’ beginning with ‘glass’, ‘music’, and ‘dance’

The first few minutes of the session went as expected: each of us quietly attended to our respective anchor words and made associations. Before too long though, it became clear that this session had challenges that individual use did not. First, the table was too small to fit all of us on one side and that meant that at least part of the gateway triangle was upside down for each of us; my perspective is shown in Figure 56. When I wanted to address the other anchor words, I rose from my kneeling position to move around the table to change perspective on the map. In this way, I was able to make associations with all anchor words and the other words that the composer and choreographer were placing. I was the only one of us to move around the table. The composer and choreographer made associations to my ‘glass’ words from their upside-down positions. I personally found it very difficult to focus because of the free-form nature, where any one of us would make an association with any word on the page. I could not see all the words being placed and it became too much information for me to take in all at once. It was a bit overwhelming. I also felt like my lead was being followed, in that no one sketched or varied their method of association-making, even though I brought along drawing/constructing utensils. It was not until after I drew lines and placed sticky notes off the map, that they started doing

19



(12 May 2020)

the same. Lastly, the paper turned out to be challenging. I used different paper for the large map as we needed such a large sheet and for some reason, the sticky notes curled up in response to the paper. I found it very distracting as it made it difficult to see the words being placed. Regardless, the process was very interesting and we completed a full map, shown in Figure 57a below.



Figure 57a. Completed collaborative 'Word Triangulation' map-sketch using anchor words 'glass', 'music' and 'dance'

When all three of us had stopped writing and had paused from working, I suggested a break and that we talk about the 'Word Triangulation' technique and the map-sketch. I asked the composer and choreographer how they found the exercise and if they had any interesting or notable experiences during the process. As we talked, we all continued to explore and flesh out the thoughts on the map-sketch and I added our new ideas outside the association words. The composer explained that he found that 'music' and 'dance' were very similar and that many of the words he attached to one could have been associated with the other. He suggested that for him, both music and dance share similarities in storytelling, which he surmised may have been the reason for the cross-over. In the collaborative aspect, he said that he was surprised by some of his own responses. He cited for example, the choreographer's 'emotion' word, which led to my 'emoji', prompting his 'Imogen' [Imogen Heap], which fed into me attaching 'hand gestures'. The choreographer did not talk at length about specific experiences during the process, but he mentioned themes that kept surfacing for him. Most predominantly, he talked of ideas 'to carry the souls' and an interest in portraying human fragility. These we noted at the bottom-

20



(12 May 2020)

left of the map in pink and Figure 57b below shows them in detail. I explained that I had a connection moment during our process, which came as a series of questions. After I put down 'vessel' connected to 'bottle' on 'glass', I also wrote 'vessel/emotion', which is how I had been looking at glass in my personal practice at that time. From the interplay with music and dance, I realised that the other disciplines had 'vessel' in common as well. For example, musical instruments are vessels of emotion and sound. I asked questions about the vessel and emotion in dance and wrote these on pink notes in the bottom right, shown close in Figure 57c.

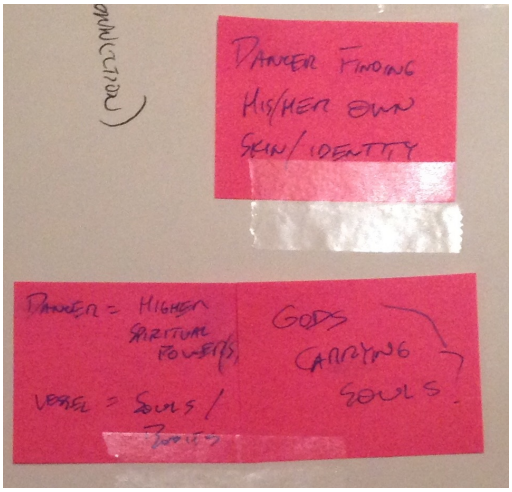


Figure 57b. 'Gods carrying souls' map-sketch notes

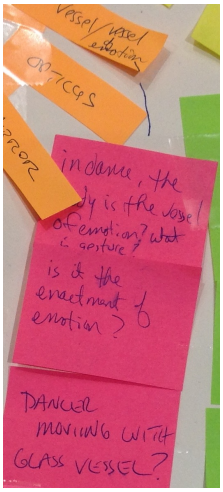


Figure 57c. My connection moment

The composer then explained his own connection moment that occurred after I had talked about the 'body as the vessel of emotion'. The word 'offerings' surfaced for him and he wrote in his survey about this point in our conversation:

> I think I had an image in my head of traditional Catholic offering of the gifts during Mass. You had that on one hand and on the other hand, we had been talking about the fragility of glass, that's where I thought of the dancer as being immortal (god or demi-god) with the glass symbolizing or serving as the vessels of mortals. I think of the glass vessel as the body or the vessel carrying the soul with the soul being further depicted by the emission of music or light.
>
> (Appendix M, page M-2)

I also had running thoughts about 'three' and spirituality that were based off the choreographer's 'souls' and the composer's 'demi-gods'. (Perhaps 'three' was also connected to the three of us.) While we were discussing the composer's story of 'demi-gods' and the choreographer's 'souls', alongside my 'vessels', I was aware that

21



(12 May 2020)

‘celestial bodies’ and a visual (Figure 58 below) developed in my mind as a response. We agreed that we had potential, partial project drivers or themes for a collaborative work held within the words: ‘celestial bodies’, ‘gods carrying souls’, and ‘vessels of emotion’. We concluded the session and decided that I would sketch my visual and send it to the group with our notes. After the session, I realised that we did not state the obvious, though we implied it: ‘bodies are also vessels for souls’.

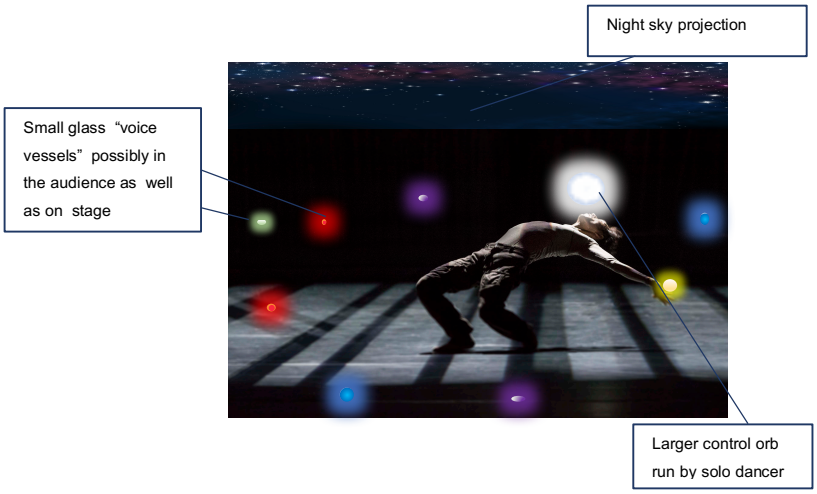
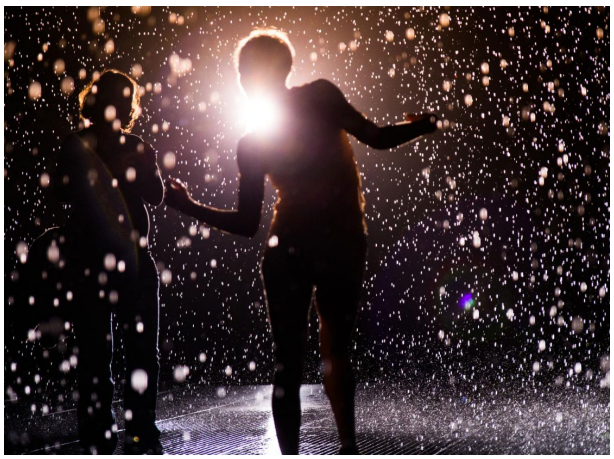


Figure 58. My sketch of ‘celestial bodies’ and ‘gods carrying souls’ with glass ‘voice vessels’

Clearly, the ‘Word Triangulation’ session was successful as a collaborative effort in idea generation for us. I sent my sketch (Figure 58) to the composer and choreographer and linked it to our discussion (Appendix M, pages M-4 to M-7). They both received it well and we hoped to move forward with development and production. (Though timing did not allow for it then, ‘Celestial Bodies’ remains a potential future project.) While collaborating was certainly different for me than using ‘Word Triangulation’ individually, it was very fruitful. Possibly the environment might have been a factor in the experience and idea outputs. There was a stark difference between my writing desk and the choreographer’s meditation room, with its religious icons. I have wondered if the foreign environment for both the composer and me acted as an intersectional experience for us, embedding spiritual overtones to the session, which surfaced in our idea fragments. Both composer and choreographer also found ‘Word Triangulation’ useful, relaying in their surveys that they would use it again in their practices (pages M-2 to M-3). The choreographer even stated he had already used it again, while teaching his student choreographer (page M-3). Session results show that the tool might be beneficial for both professional and student practice. Considering all four trials, I can draw early conclusions about ‘Word Triangulation’.

22



(12 May 2020)

6.7. Preliminary Conclusions about 'Word Triangulation'

When Buzan created his original Mind Map, he designed the form after the brain neuron cell and synapses to reference the flow of information as he understood it: a stimulated neuron fires information, which radiates out down particular pathways—one thought begets another (Buzan and Buzan 1994, 2010). Recent neuroscience, however, suggests that we still do not know all there is to know about the flow of thoughts. Lisa Feldman Barrett writes that one of neuroscience's great discoveries of the past decade are 'intrinsic networks', or 'collections of neurons that consistently fire together' (as opposed to one after the other) and this 'intrinsic brain activity is the origin of dreams, daydreams, imagination, mind wandering, and reverie' (2017: 58). Through form and technique, 'Word Triangulation' helps capture the undercurrent of thoughts, feelings, memories, and information jumps, that occur in parallel to purposeful thinking about the subject or brief at hand. As such, 'Word Triangulation' is a new, alternative contribution to the genre of mapping tools to facilitate idea generation.

Feedback from the sessions and workshops was positive for individual and collaborative use, from undergraduates to postgraduates to professionals involved, with twenty-eight of thirty-four total respondents (82%) confirming both that a) 'Word Triangulation' helped them with their ideation process and that b) they would use the tool again. The positive results suggest the tool could be useful for early response-making to briefs using glass as a creative medium. With these study results, I propose that 'Word Triangulation' can exist alongside drawing, the traditional means of developing studio glass ideas, as famously exemplified by Dale Chihuly (Sims Reed Gallery 2020). The map-sketch uses words as well as early sketching and modelling.

Based on evidence from the map-sketches, 'Word Triangulation' aids the user in seeing intersections and new associations, all of which are key elements to creativity and new ideas. It also assists users in tapping into personal stores of glass concepts to access the medium from multiple angles. Importantly, visual analysis of the map-sketches indicates that the 'volcanos' on the map periphery—outlier thoughts, memories, sounds, experiences derived from the interplay of associations—were critical to idea development. This evidence from my map-sketches, student map-sketches, survey comments, and my lyric writing supports the theories by Wallas, Ghiselin, and Mednick (pages 50, 56, 58) that fringe thoughts and remote associates are key to the creative process. For all of this, 'Word Triangulation' deserves closer inspection, but from a different perspective. The next chapter describes how I used the tool in my thesis design and writing and what I learned.

Chapter 6 Lyric Notes

[1] The original line reads: 'The glass voice scores and cuts fractal moments △A, coordinated movements', written on 17 July 2017. It describes the infinite reflections that can be captured in glass mirrors.

[2] 'Score' is a glass term used for cutting flat glass. Reflections caught in glass (work like that of Josiah McElheny shown on page 45) bring together the past, present, and future in one instance. ▷C

[3] From first-hand experience working with glass and from knowledge passed down from teachers during hotshop sessions, I have found and understand that the material has a type of 'memory'. While it can be reshaped and reheated multiple times, glass often retains the marks of any stress it experiences during the manipulating process.

[4] This line and the following two lines were originally written in my lyric notes document titled *listen for the silences.* I wrote them in April 2016 when I was trying to understand how yoga and meditation principles were working within my 'Word Triangulation'.

[5] The word 'menagerie' for me always conjures up my high school memory of reading *The Glass Menagerie* by Tennessee Williams along with images of how I interpreted scenes in the play.

[6] This image shows yet another use for glass: artificial glass eyes. These are from the London Wellcome Collection (Wellcome Collection n.d.).

[7] Several of the students in my workshops noted that making and playing with 'Prince Rupert's Drops' was an exercise they really enjoyed in the 'Glass Skills' session. 'Prince Rupert's Drops' are made by dropping molten glass from the furnace into a bucket of water. The rounded ends are very strong and can withstand high impacts, but if the tail is scratched or broken, the entire piece shatters into glass dust because of the stress and tension held within the glass. (Corning Museum 2002d)

[8] This is an image of sea glass in the sand by photographer Celia Pearson (Pearson 2003). I've enjoyed finding pieces over the years at the various beaches I've visited on travels.

[9] In 2008, I took my first glassblowing class in Boston and we took a field trip to the Harvard Museum of Natural History to see the Blaschka collection of glass flowers and sea creatures. This is an image of the glass model for Devonshire cup coral by father/son team Leonard and Rudolf Blaschka, who created the models in the mid-1800s (Spring n.d.).

[10] This is a photograph of an Amoeba Proteus on a glass slide, from the perspective of viewing it through a microscope (Blades Biological 2017).

[11] Amber Cowan's *Blue Feelings* uses recycled, reconstructed, and manipulated glass like her collage work (Cowan 2012).

[12] The *Abyss Table* by Duffy London uses layers of glass and wood to create ocean-like topographies (Tucker 2016). One of my student groups from *after the storm* project highlighted the designs in their proposal.

[13] I have been following Studio Drift for several years now and am quite taken by their kinetic installations. This image shows the glass sculpture *In 20 Steps*, a piece about flight (Studio Drift 2015).

[14] Dale Chihuly often uses botanical gardens, conservatories, and outdoor spaces for his glass sculptures, as in this image of *Ethereal White Persian Pond* at the Kew Gardens in London (Chihuly 2020). I visited his installation at other gardens in the United States in earlier years.

[15] Louis Comfort Tiffany took floral inspiration for many of his Art Nouveau designs such as this *Wisteria Table Lamp* with a lampshade of glass from around 1905 (Christie's 2019).

[16] Millefiori is a style of murrine glass cane patterned to look like flowers—this image shows the millefiori resembling a garland in a glass paperweight (1840–1870) by Cristallerie de Clichy (Bergstrom-Mahler Museum of Glass 2020).

[17] This is an image of *Field of Light* by Studio Bruce Munro, which creates outdoor installations of glass and light in gardens, city parks, and other green spaces (Studio Bruce Munro 2020). I experienced the installation in St. Andrews Square in Edinburgh during my MFA studies in 2014.

[18] This is a photograph of Céleste Boursier-Mougenot's *clinamen v.2* of ceramic bowls in water installed at the San Franscisco Museum of Modern Art (SFMOMA 2017). The work in this image, along with that in the following four lyric images, were installation/performance pieces that I came across during my MFA studies. I found them particularly captivating then, and still do today, though I never experienced any of them in person.

[19] Olafur Eliasson's *Your lost outside* reflects the viewer in from a different perspective in each of its 24 'partially silvered crystal' spheres (Eliasson 2014).

[20] This image is a film still of Lisa Park's *Eunoia (Version 2)*, which is 'an interactive performance and installation that attempts to display invisible human emotion and physiological changes' using a brainwave sensor, 48 speakers, and aluminium dishes containing water, 'to visualize and musicalize biological signals as art' (Park 2014).

[21] Antony Gormley's *Blind Light* in this image upends the traditional purposes of architecture to protect from such elements as weather and darkness... instead his installation architecture (made of low iron glass) holds an exterior atmosphere as its interior (Gormley 2007).

[22] This image is a photograph of a dance by Studio Wayne McGregor inside Random International's *Rain Room*, installed at the Barbican in 2012 as a 100-metre square space of falling water that reacted through sensors to visitor movements (Barbican 2012, Studio Wayne McGregor 2012).

‘Interlude 6’

Across seas, see glass is glace,
shining still,
movement free.
Not so these radial waves all static and stricture.
Spokes speak in crystal tongues, fixed and fissured,
frozen through mapmakers’ lenses.

Rather, view with shifting array—
Score and cut, so fractal moments coordinate movements
present now and present then, present future forward?
Malleable memory folds away tension,
shifting to material.

Broken words lost in silence
seek connections.
While we listen for the silences in thought gaps
let us wander
through the looking,
wondering among the menagerie.

Statement on ‘Interlude 6’

This ‘Interlude’ discusses themes of movement and memory and how they relate to the creative process. The first verse uses glass-related words to critique the traditional mind map design, which keeps words and ideas from moving toward or combining with other words and ideas. The second verse suggests shifting from linear constructions to new perspectives which consider time in moments or snapshots from various angles. This is information or knowledge that can be quite personal, as the experience or memory of a moment is different for each of us. Similarly, glass as a material has its own memory. While it can be manipulated in its various states and reheated and shaped, it retains the memory of those manipulations and the finished piece often suggests what stressors the material endured or which processes were used to make it. There is tension in memory then and we recollect moments in different ways as well, with time shaping the memories and reshaping the moments. Through the two verses, I suggest that by allowing the moments, memories, and words that articulate our experiences and knowledge, to slip into one another, we will prime the environment for creativity. The third verse discusses this movement of ideas—words and word parts that can join freely with others—and the possibilities that are open to them. This includes a clarity of thought. Their movement can re-organise our thinking to enable a clarity through our awareness.

7. This Thesis: A ‘Word Triangulation’ Production

Throughout my doctoral studies, my ambition has been to challenge the boundaries and possibilities of thesis writing, while adding an original contribution to the research on creativity. From the outset of the project, I aspired to design and write a thesis that is creative (pages 12–14), while embracing lyric philosophy and attending to it as a scholartist (pages 122–160). The writing of this thesis and its design are part of my meta-creativity endeavour to be creative about creativity (pages 160, 162). As such, they follow suit with the other components of the project, attempting to turn the doctoral research process itself into a creative act or a creative process. I approached the thesis writing and my search for a design form in the same manner as the previous research stages: I sought to incorporate the association modes of my creativity research into my thesis, by focusing on the adjacent possible, seeking intersections, developing metaphors, making exaptations, and breaking patterns (page 186). From the definitions in Chapter 2, a necessary characteristic of creativity is its ‘generative’ quality (pages 26, 28). This set a condition I had to meet: for my thesis to be creative, it must be generative in nature. To facilitate my work, I turned to my newly developed ‘Word Triangulation’ tool, which has shown success in idea generation. Rather than undertake a ‘Word Triangulation’ session to develop an idea for my writing, I used the tool itself as the foundation for my thesis. I exapted the principles of my technique and transposed them onto the thesis design and my writing process to generate ideas for a creative practice challenge while I wrote my thesis. In doing so, I performed a ‘Word Triangulation’ through my writing. This thesis is essentially my completed map-sketch, housed in an artist’s book. Chapter 7 explains this statement, the thesis design and writing, the creative practice challenge, and the outputs it generated.

7.1. Seeking a Project Driver Amid Intersections

To design the dissertation manuscript, I needed to settle on a project driver, like I did with ‘ship-to-shore navigation’ for ‘Word Triangulation’ (pages 210–216) and ‘reverse engineering’ for ‘Glass Whispers’ (Chapter 6.2.). The lyric features so prominently in my creative process and throughout my research that from the start, I was certain I wanted to incorporate lyric writing in my thesis. To put lyric philosophy into practice, I needed to choose a form that would convey my research, therefore, my page planning and overall book design were important choices to make. How I would write the thesis was also critical to me, to be true to my practice and follow scholartistry.

Seeds of the final thesis form and design concept can be seen in my first-year writings as early as May 2016 within my ‘Voicing Perspective: A Dialogue in Creativity’ (Appendix N), as well as within my August 2016 ‘First Year PhD Report’ (Appendix F). ‘Voicing Perspective: A Dialogue in Creativity’ is an auto-ethnographic piece that reflects on my own creative process, comparing it to a personal dialogue of several perspectives. I wrote the piece in a fictional manner, as if my creative process had three characters of myself in conversation together: the byline lists three authors ‘Written by: Lyrilis (Lisa Naas) with contributions from Analis (also Lisa Naas) and Lisa Naas’ (Appendix N, page N-1). Represented in the writing are three perspectives: the lyric, the academic, and the stream of consciousness. I also use an extended metaphor, comparing the creative process to a conversation or dialogue of perspectives. In my later ‘First Year PhD Report’, a formal submission to fulfil requirements of my doctoral progression, I only offer two perspectives with the academic writing and lyric text, but the piece is visually more structured: each page is divided in half with black text boxes of lyric writing juxtaposed against explanatory, academic text (Figure 59).

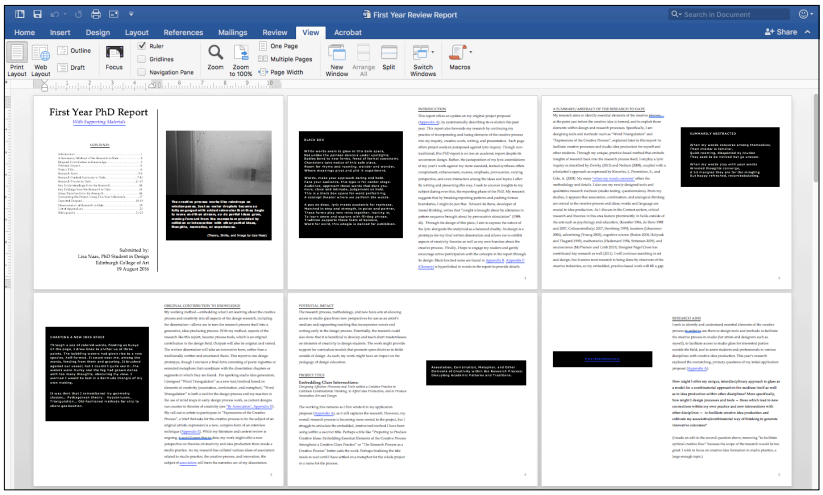


Figure 59. Screenshot of multiple pages from my ‘First Year PhD Report’ in 2016

There is a metaphor at work in the design with these ‘black boxes’ of text, which reference black box experimental theatre. I explain the reference through the poem ‘Black Box’, which opens the report opposite the academic ‘Introduction’ on page F-1 of Appendix F. (This same poem opens this thesis.) The black boxes of text allowed me to experiment freely with associations in a lyric form to complement the facing academic text and content. In the report, my short poems and prose are almost entirely held in check though, through the confines of the black text boxes. In this way,

Glass Writing[1]

(1 February 2017)

they are marked as separate and permissible within the required, traditional report. Without close reading, they appear to be tangential sidebars, rather than what they are: integral thoughts that comprise the writing and discuss my research. The black box visual metaphor and lyric bits provoked a good conversation and debate in my first Annual Review meeting, with the supervisory group questioning the final lyric writing form and internal examiner Dr. Juliette MacDonald suggesting that I return my overall project to my 'glass practice' (MacDonald 2016). I left that meeting focusing on concepts of 'three' $_{\triangle B}$,'perspective', 'dialogue', 'metaphor', 'black box performance' and 'glass'. I put the writing aside for some months and concentrated on finishing and exhibiting *Makers Marks* in Fall 2016 (page 230).

Midway through my second year of PhD studies, in 2017, I had three, formal, academic opportunities that I recognised (while participating in them) as having potential to aid in my thesis design and lyric incorporation. I saw these experiences as intersections of the type Johansson asserts is necessary for innovation (page 62, 64). They took me out of routine surroundings, introduced me to new ideas, and expanded my adjacent possible. To shape my thesis design, I purposefully drew upon these key experiences: a visit to London's British Library, participation in a Glasgow writing-performance workshop, and an Edinburgh course on producing a thesis in Microsoft Word.

On 15 January 2017, I visited *Treasures of the British Library*, the British Library's permanent collection on display in London. Much of the exhibit showcases hand-bound, rare books, and writings spanning two thousand years of human history, creativity, and ingenuity. Examples range from the political, with the Magna Carta, to the arts, with Shakespeare's poetic drafts, to religion, with Johann Gutenberg's Bible (British Library 2017). Specifically, one section of the exhibit focuses on 'The Art of the Book' and includes both artisan-crafted, intricately designed covers alongside illuminated and painted pages, as well as artists' books that are sculptural in effect and objects of art (British Library 2017). It reminded me of the importance of artists' books to my practice (pages 112, 114, 116). I left with 'artists' books' and 'Leonardo da Vinci' in mind, after examining da Vinci's sketchbook pages. These showed how he used mirror writing to disguise his notes and ideas, some of which evidenced his interest in glass material and lenses. The Library visit enabled me to meet the work of this historical artist and innovator who used a glass concept in his writing and sketching about his inventions, which included glass material. This served as a reminder for me to return to 'glass' and my own glass concepts to determine my thesis writing and design.

Pen to paper. Place the words. Define the structure.[2]

(1 February 2017)

I returned to Edinburgh from my British Library visit and three days later, began exploring with lyric inquiry and analogies. I started with the word ‘intersection’, which I took from Johannson’s theory, my Library experience, and my original PhD proposal title ‘Embedding Glass Intersections’ (Appendix F, page F-5). I focused on the word to develop and play with various associations and combinations in a lyric text (Figure 60a). I also rewrote my basic thesis outline horizontally (Figure 60b) to see its intersections as a ‘roadmap’ (a word that surfaced from the lyric in Figure 60a and recalled my work with mapping tools). The horizontal outline looked like a timeline to me and allowed me to continue associating on various levels, building a repertoire of words around my thesis design issue. The timeline perspective, coupled with my original title of ‘Embedding Glass Intersections’, brought my thoughts back to glass material and its role in historical innovation. With this, I thought I had my project driver and would focus on intersections between images and writings, concentrating on glass history and innovations that have shaped society. I later realised it was only a partial idea and not a driver, because I could not succinctly articulate it in a few words.

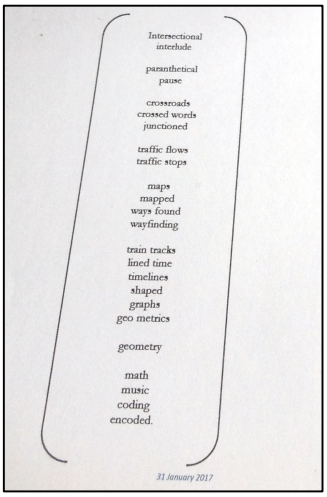


Figure 60a. ‘Intersections’ lyric

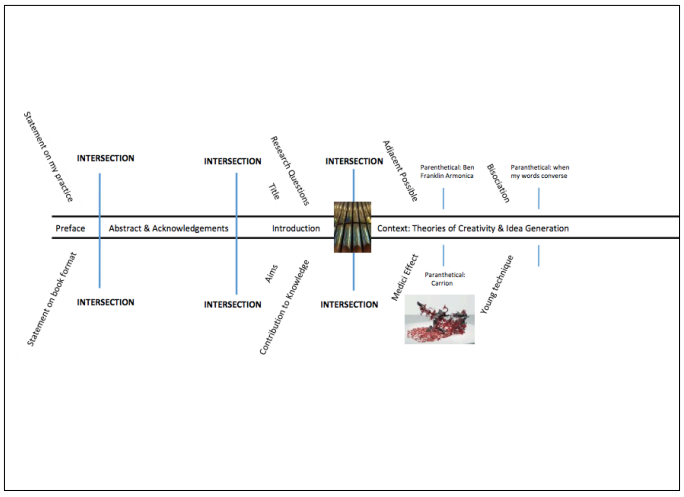


Figure 60b. Thesis outline as an ‘intersectional roadmap’

I moved forward though and prototyping seemed the next step to convey the intersection idea to my supervisory group. I worked first on the computer in Microsoft Word and developed ‘Lyric and Innovation Mock-Ups’ (Appendix O, pages O-1 to O-7). This initial design set the first page of my academic text facing an historical note on a glass innovation. The following two pages juxtaposed my academic text against my own photo of glass reflection, while the next pages set my poem ‘When my words converse’ against an image of another artist’s glass. I liked the sets of facing pages,

Subject verb object.[3]

(1 February 2017)

but not the overall design; it was not dynamic and seemed to be missing a concept to tie the pages and content together. This first mock-up/writing fragment is dated 18 January 2017. Three days later, I experienced a second intersectional event.

I participated in 'Creative and Critical Voices', a Glasgow workshop which centred on writing for voice performance, where my instructor, poet Rachel McCrum, focused her teaching on improvisation (McCrum 2017). Performing was not a familiar activity: I was quite anxious about being on stage, in front of audiences. My brief was to complete a written piece and perform it for the other doctoral participants. I wrote 'The Day After' (*Broken words*, page 29) and McCrum coached me on its performance. She pushed against my desire to plan my performance and encouraged me not to structure my writing completely or to mark off all performance timings. She also strongly encouraged that I perform it in four, different, consecutive ways: as a lone voice off-stage, then in tandem with two other actors while linked arm in arm moving across the stage, once as an address to another actor, and finally unaccompanied while addressing the audience. I realised through the experience that the improvisation allowed for variance and a freshness for the work each time I performed it: it left gaps and space for me to react with my voice and gestures to the audience and the other actors. This improvisation, movement, and variance, reminded me of how I had enabled the same within my design of 'Word Triangulation'. Shortly after, I made my first notes connecting my thesis design to 'Word Triangulation' (Figure 61 below).

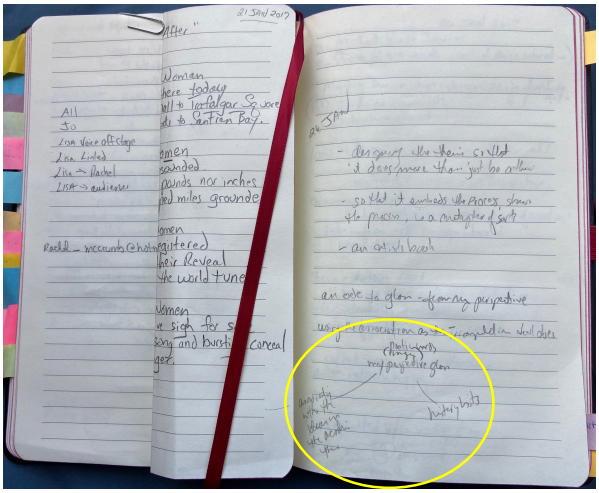


Figure 61. Sketchbook pages following 'Creative and Critical Voices' workshop

On 26 January 2017, I wrote about designing the thesis so that it 'shows the process, is a metaphor of sorts' and is 'more than just a thesis' (Figure 61). I drew a

Inflate them. Preposition and postposition.[4]

(1 February 2017)

triangle shape in my notebook to reference ‘Word Triangulation’ and connected ‘my poetic words/perspective glass’ with ‘history bits’ and ‘academic text’ (shown highlighted in Figure 61, page 280). In my thesis, I wanted to allow space for my own responses to my writing, as I left room for responses and movement in the workshop performances. I needed to design the thesis with space for improvisation and generative acts. I also decided that I wanted my thesis book to be an experience for readers and personal to each reader, dependent upon the level of engagement.

Shortly after, on 31 January 2017, I attended ‘Producing a Thesis Using Microsoft Word 2013’, my third intersectional experience (Information Services 2017). The class focused on Word and its capabilities around the creation of large publications. While the software is very familiar to me, the class shifted my perspective when the instructors discussed various ways text could be ‘linked’ (in my mind, I heard ‘associated’). I started to consider the writing and its Word platform from the perspective of my creative practice: there were raw materials in the characters, words, symbols, type, graphics, styles, and other formatting elements that I could use and exploit to enable combinations for various meanings.

After these intersections, I continued prototyping with small, paper books (Figures 62a/b). The University required a physical thesis book, therefore, I worked with physical materials to create a designed object and artefact research output. I used my series of ‘Lyric and Innovation Mock-ups’ writing to consider ways of juxtaposing my academic text and lyric writing/images about glass (Appendix O). I intentionally placed each lyric opposite academic text for associative purposes.

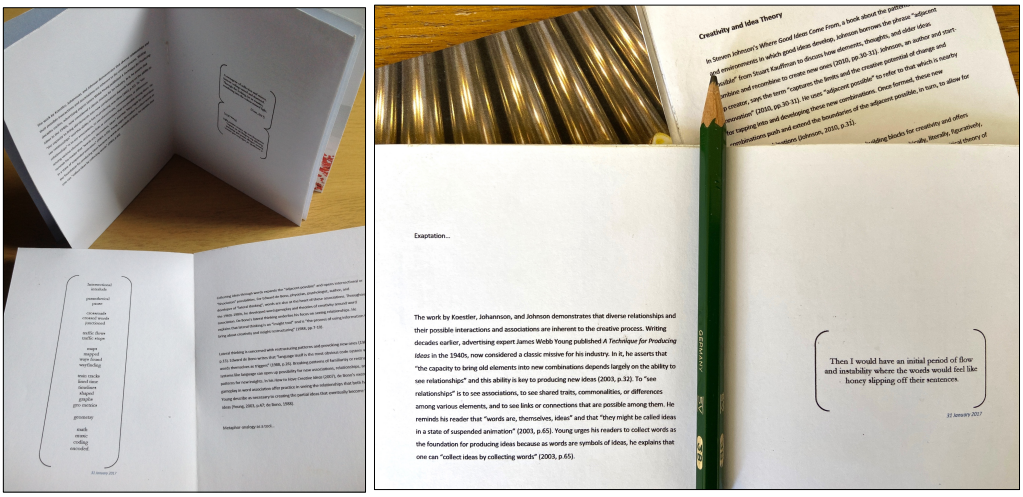


Figure 62a. (left) Mock-ups: mirrored text and ‘intersections’ lyric

Figure 62b. (right) Mock-ups: images and writing ‘as if I were making glass’

Build the paragraph. Draft and shape.[5]

(1 February 2017)

Alongside this prototyping, I wrote a reflection piece on my experiences and their relationship to my thesis writing (Appendix P). Idea fragments for creating a project driver for the thesis design and writing process are present within it. Specifically, on the second page (page P-3), I posed a question to myself: 'How can I write as if I were making glass'? This spurred various lyric text bits that appear in my last prototype version. For example, I responded to the question by writing 'I would have an initial period of flow and instability where the words would feel like honey slipping off their sentences' (bottom-right of Figure 62b, page 282). An idea fragment in the reflection is also 'Ode to Glass', which describes my lyric work developing as a poem about glass, but written in response to the academic text (page P-4). Another line suggests that I incorporate my 'full perspective on glass: the material properties, the intangible associated qualities, as well as the innovation and historical implications of glass in society' (page P-4). Twice I mention a poem that can be read in different ways by the reader. I also allude to performance and creative acts when I write that 'a book requires the reader…and if the reader picks up any of the signs that I embed and acts upon them, turning the book, etc., then the book will be performed by the reader and essentially become another kind of creative act' (page P-4).

I continued playing with metaphors trying to articulate how I wanted to work with the academic text and the lyric. In April 2017, I used my studio mandala document 'From working notes to lyric assimilation' to experiment (Appendix D). While two of the pages focus on a Möbius strip metaphor, I ultimately dismissed this as not quite the right fit (Appendix D, pages D-3 to D-4). I took some key thoughts from my 11 April entry: that the 'PhD dissertation book could be structured to read analytically one way and lyrically another…two voices in harmony that developed simultaneously, describing the same thing, arising from the same research' (page D-4). This was certainly not a new thought as it had been present all along, but it was the overriding, consistent, persistent idea that I could not ignore.

During those months of actively seeking a thesis project driver and a form for my lyric amid intersections, I immersed myself in the world of F. Scott Fitzgerald for leisure. I was not only reading his novels, but fiction and non-fiction written about him, Zelda Fitzgerald, their life together, and their interactions with other artists. I believe this became an informal, intersectional experience for me. Specifically, author Adam Gopnik's statement critiquing Fitzgerald in a *New Yorker* article struck me as essential to my thesis work: 'He flourishes in fragments, in confessional bursts, in fable-minded stories, and in beautiful, isolated pages that pack in as much of the American scene

Subject verb object.[6]

(1 February 2017)

as haiku do of the Japanese one' (2014). In reading this, I knew how I would write my lyric. I think my mind reorganised a few of his words ('fragments', 'confessional bursts', 'beautiful', 'isolated', 'pages', 'pack in the scene') leaving me with a plan for my lyric writing: I would attempt to write a single, beautiful line about glass/of glass/for glass/in glass/through glass for each academic page of text. The line would be isolated on the page, holding its own, but packing a lot into it. The lines might be full sentences or fragmented phrases, but they would ultimately tell of the scene—the glass scene. These would not be confessional per se, but they would be personal and tell of my glass story. I would write the lines in conjunction with the academic text they faced so that they were associated, arising together from the same research, environment, and timeframe. I would write my thesis in an associative way— 'I would write my thesis as a "Word Triangulation"' which settled the overall project driver in a lyric manner, holding metaphor within it.

7.2. The Writing Process

7.2.1. Developing Parameters and Setting Initial Design Elements

To write my thesis as a 'Word Triangulation', I exapted the basic tool design and its technique, placing the guiding principles onto my writing process. 'Word Triangulation' uses three gateway elements for associative purposes during the map-sketching process (page 216), therefore I chose three voices for my writing to assume these anchor positions. This was an easy choice because there have been three distinct voices throughout the research process for me: the formal, structured academic voice to fulfil expectations and academic regulations; the lyric voice that wanders in exploration and shifts perspective to aid understanding and articulation; and, the ever-present stream of consciousness voice that sometimes relates to the research but constantly chatters of the mundane and unique experiences of my forty-six years of life. As with other 'Word Triangulations', this one also needed a focusing intention. For it, I developed the question: 'how might I rethink the physicality of my research and explode the dissertation book form for exhibition purposes'? In this way, I took up a challenge posed by my supervisors to consider how I might show my research in a public exhibition.

My reasons for writing my thesis as a 'Word Triangulation' were many-fold. First, to maintain the spirit of my project by being creative about creativity, I wanted to include these three voices that were in dialogue during the whole of my research—

Inflate them more. Adverbs and adjectives add in bits.[7]

(1 February 2017)

associating, dissertating, and responding to one another about the thesis topics of ideation, the creative process, and glass. Writing only the traditional academic report in an explanatory manner would not capture or convey the whole of my research. I needed a new, creative form to aid in conveying meaning to my readers. By bringing the voices into association through my writing and the 'Word Triangulation' principles, I was embedding creativity theory into the work itself. Secondly, I wanted to create an artist's book that fused my scholarship and art in a way consistent with my lyric practice and scholartistry (Chapter 4). I hypothesised that writing my thesis as a 'Word Triangulation' would generate ideas in response to my question. I began this writing process thinking that these three voices might associate and mingle like the words and concepts on the map-sketch pages in 'Word Triangulation' trials (Chapter 6). If they did, then there was a good chance, based on evidence from the trials and creativity research, that over the course of the writing, I would develop many starting points, partial ideas, and perhaps project drivers, which I could then develop for exhibition. Finally, I wanted to enjoy the thesis writing process—challenging myself with this approach satisfied that want. While I had an outline for the academic text, I did not know what the lyric would contain, nor did I know what it would become. I did not know if the voices and concepts would associate and mingle enough to aid in idea generation, but I wanted to explore and discover if they did. I was writing through unknown territory. This was a new approach to thesis writing to enable a new form, establishing parameters of a conceptual art project to carry through to my submission.

With the basics in place, I then determined how to use and design the voices. The University requires the formal academic voice, therefore, I decided to focus on it first, following a traditional format, using British English with highly structured sentences, and nouns and verbs in placement common to the language. I wrote to conform to doctoral expectations and to the University of Edinburgh's 'Standards for the Format and Binding of a Thesis', published and updated each year on its webpage titled *Doctoral Thesis Submission* (2020). I used the Harvard referencing system and chose this sans-serif, Arial font for the main body of the academic text, as the document suggested (2019b: 2). No regulation, however, required that I begin writing my thesis with the first chapter; and I questioned whether beginning at that point was expectation or simply habit. Instead, to break this pattern, I chose to write first on what is now Chapter 6 of this thesis. Its content was very familiar to me, which I felt would facilitate implementing my 'Word Triangulation' writing approach. After a page of academic text was in place, I wrote my associated lyric line, which centered on my

Offer meaning. Reframe and rework.[8]

(1 February 2017)

glass concepts. I wrote lyric lines like those in my practice: often poetic in nature, but sometimes disregarding language conventions in structure. I wrote so that the lyric lines responded and associated in some manner to the content of the academic page it faced. I chose the Palatino, serif font for my lyric text, because the font design references the calligraphy and lettering art form of the Italian Renaissance, when the mingling of culture, art, ideas, and disciplines was at a high point (Johansson 2004, Wikipedia 2020). I used chapter endnotes to provide additional clarification to the lines.

When I worked on my thesis text during my third year of PhD study (from July 2017 to August 2018), I wrote a lyric line for every page of academic text that began on a left-facing side. I always developed the lyric line after I drafted the academic text. I used the lyric to explore the content of the academic: to understand it, respond to it, and even to reflect it. Often, I waited until two or three pages into an academic section (but usually not more than three), before attending to the lyric. To write the individual lyric line, I considered the overall facing page of academic text and the primary points of that academic section in relation to my personal glass concepts and experiences, the history of glass, and glass innovation. I took key words or concepts from the academic page and considered them briefly for associations. I did not perform a formal map-sketch 'Word Triangulation' for any of them, but adhered to my general triangulation guideline of using immediate associations. I turned them over in my mind and moved the words around on paper to see what developed, but did not linger or labour over them. For instance, in the first chapter, page 12 of the academic text is comprised of my research questions. When I was working on the lyric for the facing page, I focused on the word 'question' and 'questioning' in relation to 'glass'. My immediate association was the well-known adaptation from the Brothers Grimm fairy tale and Disney's *Snow White and the Seven Dwarfs*: 'Mirror, mirror on the wall, who is the fairest of them all'? The question is, arguably, the most common question asked of glass. My lyric line on page 13, 'Mirror, mirror on the wall…daily questions, and a material call' is a nod to this well-known phrase as I explain in my lyric note on page 18. By using this familiar construction as the opening line, I hoped to invite the reader to engage with the new and unusual elements of this thesis, the poetic bits that face the academic text. In this way, I created a pattern of writing: first an academic page and then a lyric line in dialogue with the academic (though final pages of chapters vary). The writing time differed for each academic page, but I was usually able to complete a lyric line in one sitting, so I dated each lyric line to provide a timestamp to the section and added another timestamp if I made any edits to the line.

Edit. Edit again.[9]

(1 February 2017)

While these two voices are visible to the reader throughout the thesis, the third voice, my stream of consciousness, remains relatively intangible and largely undocumented. I did capture some of it though, whenever that voice was loud enough to distract my attention or when I purposefully placed attention upon it. I captured it when I had idea events like the ones I described in my practice while using 'Word Triangulation' (pages 226, 228)—when my stream of consciousness interacted with the academic and lyric texts to form responses to my 'Triangulation' challenge about exhibiting my research. For associations and various idea fragments that formed in this voice during my thesis writing, I dated and logged them, as they occurred, in *Working Titles: A Book of Ideas.* This small book appears digitally following my concluding thesis chapter; in physical form, the reader can find this logbook attached to the inside of the box cover for the artist's book-thesis (Figure 63 below). I used the American Typewriter font for this voice, indicating my nationality and suggesting through the font's appearance, that this stream of consciousness voice is one I recorded without edits. I wrote as I thought in the moment and left spelling and grammar mistakes untouched.

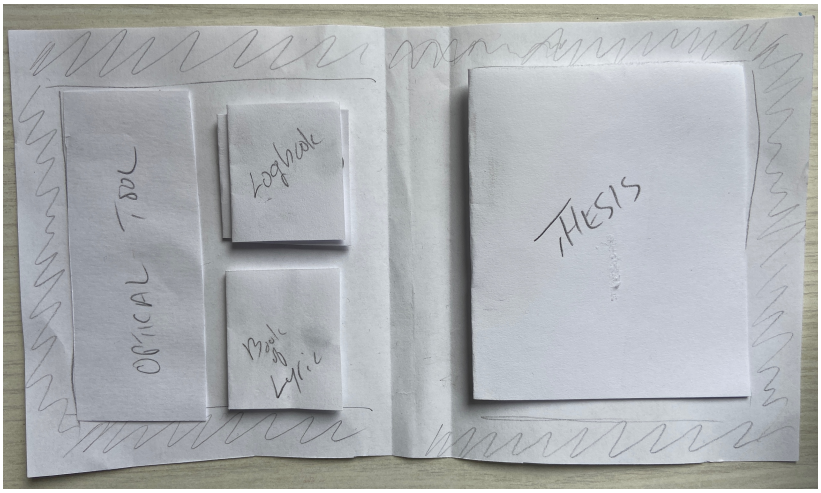


Figure 63. Artist's book-thesis mock-up: the inside box cover is the left side of the image. *Working Titles* is the 'logbook' between the *Spectacles* 'optical tool' and the main thesis pages.

In the main body of the thesis, I noted where and how these moments of fragmented idea production occurred. I developed my own notation system to do this, utilising a triangle symbol, reserving Harvard referencing for the academic voice and chapter endnotes for the lyric voice. The triangle refers to my 'Word Triangulation' but also has meanings in disciplines like math and theology, which relate to my tool and appealed to me. It also resembles 'delta' in the Greek alphabet. I first explained the system in my Reader's Guide (page 8), but a review might be helpful for the reader

Make it stronger. Temper the tone.[10]

(1 February 2017)

in the context of this chapter. If idea events occurred while I was writing lines of new text, I marked the place in the text by subscripting the symbol '△' beside the triggering, associative word or lines. For instance, I had an idea occur early in my thesis writing, in the lyric line of Chapter 6 on page 213. It was directly connected to the lyric phrase 'score and cut, so fractal moments', so I subscripted '△A' after the word 'moments'. $_{\triangle D}$ I logged my associated thoughts as the first entry in my idea book, which I called my 'delta log' at the time (*Working Titles*). The next idea event, however, occurred differently; even though it happened in the same chapter on page 197. Rather than writing new lines, I was re-reading and editing academic text that I had previously written days before. I needed a way to indicate that this second idea entry occurred during this revisiting of the text. I decided that for those partial ideas, which occurred when I returned to the writing to reflect or edit or re-engage with text already written, I would invert the symbol, subscripting it as '▽' and also using letters to denote the order of ideas. My notation system evolved one final time after that, when I had a first idea connected to thesis content I had recently been reviewing, but during a time when I was not writing. This also happened while I was working on Chapter 6, and therefore, I made the new notation near the bottom of page 217, which corresponds to the entry '▷A' in *Working Titles*. For ideas like this one, which occurred outside of my writing or on a break from writing, or for those that appeared unconnected to any single word or dissertation line, I recorded them by date and notated them as '▷'. I called them 'outliers'. I did not subscript these because they did not occur within the text writing, but outside of it. During my thesis writing, my log of ideas grew. It developed as an output of my practice and served as departure points for continued practice work, both of which I explain more in section 7.3. The logbook has also become an integral part of the thesis as the third voice of the 'Word Triangulation'.

7.2.2. Thesis Writing as an Evolving Creative Process

The design elements and parameters discussed in the previous section served me well initially. I approached the academic writing in a mostly non-linear manner, moving chapter to chapter as necessary to keep myself interested and the writing flowing, with the lyric following in the same manner. Once I settled into the writing and had a few thousand words, I started keeping a chart of my writing work to follow the flow (Appendix Q). In the chart, I indicated which thesis sections I wrote

Transcribe in Word.[11]

(1 February 2017)

and made daily notes about the words, my mood, and any idea events that occurred. I thought that if I charted long enough over the course of writing, perhaps patterns might emerge to indicate the best conditions for idea events or for writing the lyric.

After parts of Chapters 6, 1, and 2 were written in both the academic and lyric, I looked closer at the lyric content and noticed some similarities. For instance, the lyric in both Chapters 1 and 2 contain references to famous stories that use glass as a central component (*Snow White* and *Through the Looking Glass, And What Alice Found There* respectively). I knew that I made a conscious effort to link each lyric line to the one preceding it and the one following it, but I also saw that I included the occasional rhyme. At this point of reflection, I had written roughly twelve lines of lyric and several thousand words of academic text. I paused to consider the potential form of the overall lyric, as I had not pre-determined this when I set the parameters. I considered following various poetic forms (such as the sestina or prose poetry) and I thought about pre-determining content (perhaps every chapter had to incorporate glass in popular culture) or a theme (create a new epic fairy tale story) or a way in which I wanted the lines to read (with rhythm or no rhythm). Ultimately, I decided that there should be no fixed content, theme, or form, and no additional rules to follow for my lyric, outside the parameters I had already determined—one line using my glass concepts. I wanted to keep this lyric writing set well apart from the academic text, which is rule-laden in content and grammar requirements. I decided to continue writing with the lyric wholly unknown.

In Summer 2018, approaching the end of my third year of study and the start of my formal write-up period, several sequential events caused me to re-evaluate my writing parameters and design elements to allow the writing process to evolve. The first was a personal hardship that forced me to take extended time off from working on my PhD. I was diagnosed with melanoma and underwent surgery for it, which resulted in debilitating complications. My writing chart actually begins to note my ill health before the chart abruptly ends (Appendix Q, pages Q-3 to Q-4). (I switched from charting my writing to charting my symptoms and this became integrated with a writing process output, described in the next section.) Shortly after my surgery and my Third Year Review, my husband and I returned to the United States to say good-bye to a friend with brain cancer and to visit family. This extended my time away from thesis writing. While I was in the States, not writing or actively working on my PhD, I would occasionally find myself thinking about my research at odd times within my stream of consciousness, inner monologue. On one critical occasion, I was about

12



(11 June 2020)

to fall asleep in a New York hotel on 8 September 2018. I used the hotel notepad to capture the thought and to articulate succinctly (for the first time), one of the two central arguments of my thesis: that 'using a lyric inquiry through modes of ass[ociation] will aid in the generation of ideas for studio'. Figure 64 shows the line I wrote on the hotel paper, which I kept throughout my travels in the States. Later that same month, still on a break from writing, I used the paper again when I had an idea event occur for a glass reading aid. I drew a small doodle and wrote a few words of description; these are highlighted in Figure 64 below. This was not a new idea, but rather a reworking or a clarification of an idea I had already logged the year prior as '**▽C. 15.09.17**' in *Working Titles.* My initial idea of '▽C' occurred when I was writing a very rough, first draft of my abstract (included as Appendix R because I have since rewritten the abstract and removed the whole paragraph that triggered the idea.) This resurfacing of the glass reading aid occurred while I was thinking about my Annual Review, the examiner's struggle with the rough draft of my writing form, and my new articulation of my thesis argument, specifically the phrase 'modes of association'.

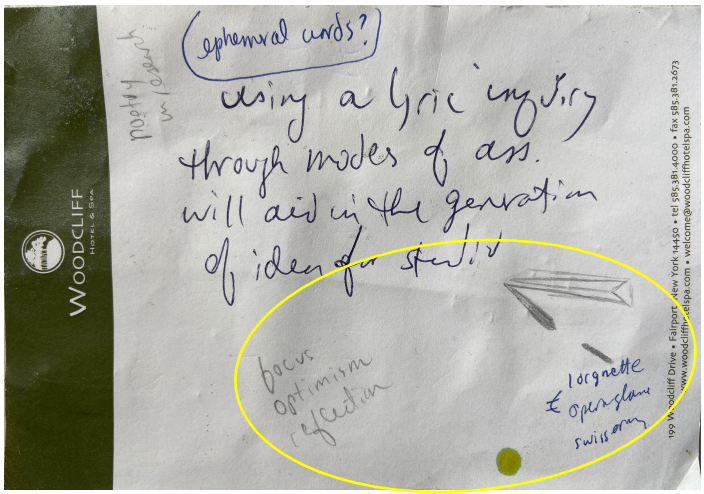
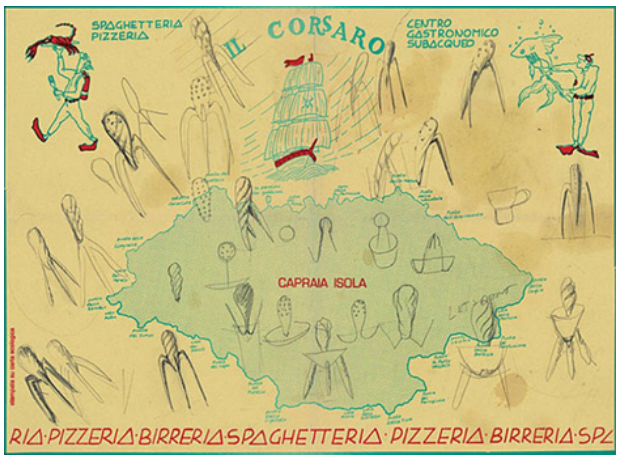


Figure 64. New York hotel paper with my thesis argument and glass reading aid doodle

When I returned to Glasgow in late September, I fleshed out the idea in more words under the same idea entry of '▽C' and dated it '23.09.18'. I was very certain that this idea—this conceptual design object—satisfied my 'Word Triangulation' question about how to exhibit my research. This idea would put my research into a new medium as a designed object for exhibition. Coupling it with my experimental writing form would also broaden the idea I had for my thesis-artist's book. I committed to realising this idea in physical form. This decision, my ill health, and the PhD break, all affected

13



(23 June 2020)

my writing. I had completed the ‘Word Triangulation’, and did not feel the same need to hold to my original parameters. My priorities were not only different in this aspect, but I had to attend to my declining physical health above my thesis. To ease my stress burden, I expanded my parameters to allow associating images and quotes into the lyric voice and to relax the time constraints for writing the lyric. Additionally, I decided Chapter 7 would use lyric text I had already written. These decisions relieved pressure to write a single, loaded line of glass concepts for each academic page. I remained committed, however, to the experimental ‘Word Triangulation’ form: I would continue it as a conceptual art project, but I would perform it without undue pressure to ideate. I was certain I had a small, but meaningful response in my glass reading aid. Ultimately, my thesis writing process generated diverse but related outputs that include this physical glass reading aid, a collection of lyric works, a log of partial ideas, a reclaimed glass project, and my physical artist’s book-thesis. The next section details these outputs, explaining how they relate to my creativity research.

7.3. Outputs of the Thesis Writing Process

7.3.1. *Spectacles for the Black Box Dissertation*

My glass reading aid idea was fully formed and captured (for myself) in that doodle on the hotel notepad (page 298) and in *Working Titles* (‘▽**C. 15.09.17**’). I did not have the skills to make it myself, however, and therefore, I needed to articulate the design and communicate it to a technician, whom I had yet to identify. I created a simple sketch, depicting the most important elements of the design (Figure 65).

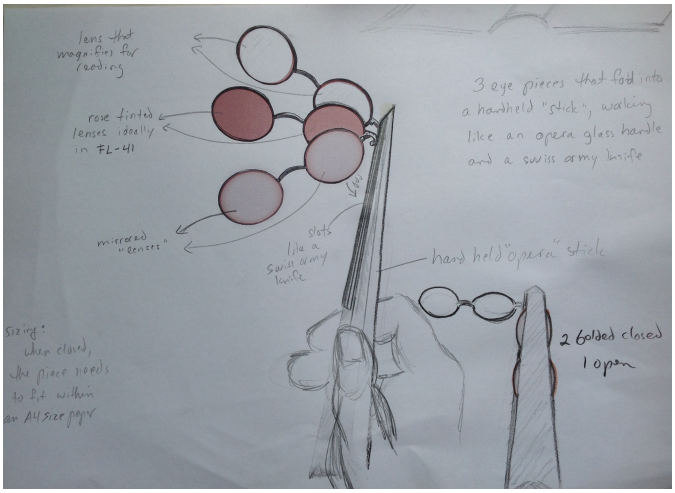


Figure 65. Glass reading aid sketch (2018) depicting design with three lens sets; Used in production discussions with technicians

14



(23 June 2020)

While it does have some practical purposes as a functional object, I designed the glass reading aid, *Spectacles for the Black Box Dissertation*, as an object loaded with associations, to convey my creativity research and to aid the reader in understanding my writing. The three sets of lenses, its hand-held nature, and its visual references to lorgnettes, opera glasses, Swiss Army knives, reading glasses, and mapmaking lenses are the most important aspects of the object. I did not include many details or design specifications in my sketch because I wanted to remain flexible to work within the boundaries and possibilities (skillset, timeframe, and budget) offered by my technician. I began a second sketch to use a different opening and folding mechanism in case I needed to offer the technician a second option (Appendix S, page S-5). I found my technician in the Cubitts Bespoke Team, spectacle makers with a workshop at King's Cross, London. We worked together remotely for nearly seven months, primarily through email and phone calls. I also made a site visit to the Cubitts studio to finalise details in person before production began. Our discussions and the making process are documented in Appendix S (pages S-5 to S-21). Below are images of the final piece in Figures 66a/b. Additional images can be found in pages S-1 to S-4.



Figure 66a. *Spectacles* with lens sets unfolded



Figure 66b. *Spectacles* partially folded

The reader first encounters my *Spectacles for the Black Box Dissertation* as an image juxtaposed against the title page of the thesis PDF. For viewers handling the physical, artist's book-thesis, this object is fitted to the inside of the box cover (as shown in Figure 63, page 292). It immediately alerts the reader that this is not an ordinary thesis. I exapted, referenced, and combined aspects of lorgnettes, opera

15



(23 June 2020)

glasses, Swiss Army knives, and mapmaking lenses to create a new re-framing tool or way-of-seeing tool—specialised reading glasses to aid my reader in navigating my unconventional thesis and watching my words perform. Through it, I offer the reader a fan of perspectives or an array of viewing options in its lenses and lens combinations. It has three sets of moveable lenses that fold open from the handle. Each pair of lenses has both associative functions and practical uses for the thesis. Overall, the piece references the history and innovative use of glass as a seeing aid (Chapter 3).

The magnifying lens set or reading glasses (the clear lens pair in Figures 66a/b, page 302) is probably the most familiar to the reader. It is a traditional mineral glass which magnifies small type, is used for seeing in closer perspective or in detail, and calls to mind the history of lenses used in scientific devices for studying objects and phenomena. In *Spectacles*, this lens holds the essence of the traditional, academic, PhD voice: the one that focuses, narrows in vision, and becomes the expert. Figure 67 shows the view through the magnifying lens on a draft thesis page.

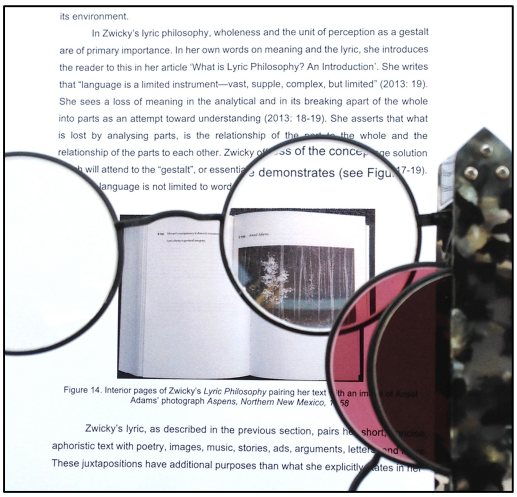
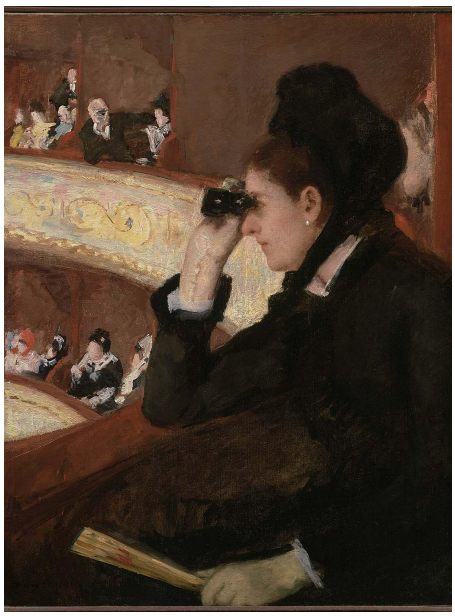


Figure 67. Each *Spectacles* lens set folds open to provide a practical function for the thesis reader.

The rose-coloured lens, in contrast, is a direct reference to the idiom 'seeing the world through rose-coloured (or rose-tinted) glasses' and with this connection to the expression, suggests the lyric voice. This phrase can be interpreted in slight variations. It can mean seeing things in a positive light but perhaps being unduly optimistic or it can mean a way of seeing the world as better than it is and being blinded to the rest; it is a filtered world view (Farlex Dicitionary of Idioms n.d., OED Online 2020). It has both positive and negative connotations depending on the scenario and suggests nuanced looking. For instance, to make a map as Turchi

16



(23 June 2020)

explains, the mapmaker must assume a filtered view and ignore some aspects of the landscape to offer a clear way forward (2004: 44, 73). Practically speaking, rose-coloured, lens tints have been proven to ease migraines and other headaches by blocking certain light wavelengths that can aggravate them (Solomon 2012, University of Utah Health 2020). If my untraditional thesis writing makes the reader too uncomfortable, then perhaps, a filtered view will ease any difficulties of reading it. In all seriousness though, the thesis can be read in different ways, and some readers might find it helpful to ignore parts at times for easier access. I, in my rose-coloured view, am hopeful the reader will be highly engaged, to access its various layers.

The third lens is a mirrored lens: readers will see themselves in it and they are invited to participate in the thesis. It reminds them that time for reflection must be part of the reading process. This lens first reflected me though, as the author and *Spectacles* designer. My reflection (looking at my previous work to find a way forward) and introspection as a scholartist have been critical to fuse my scholarship and art within this thesis. This lens suggests my personal voice, my stream of consciousness, and this element of time. As a functional lens, it will mirror the *Working Titles* text that I wrote in reverse, so that the reader will be able to decipher these log entries. Figure 68 below shows me testing the mirrored text.

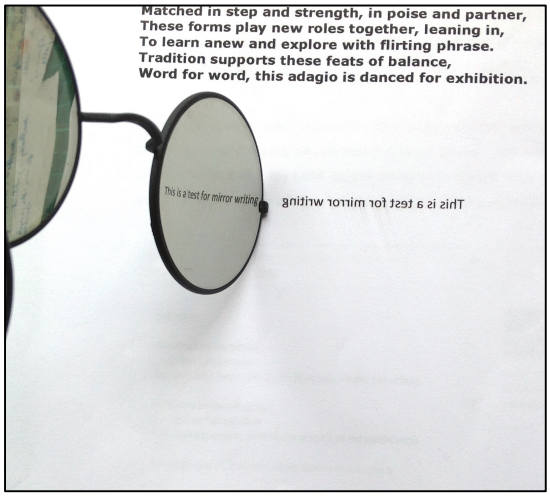


Figure 68. The reversed type on the thesis pages can be read in the mirrored lenses of *Spectacles.*

For ease of sourcing with Cubitts, both this mirrored lens and the rose-coloured lens are made of CR-39, a plastic used by the eyeglass industry (Aboc 2018). CR-39 heightens specific characteristics of glass, such as its resistance to impact, while costing and weighing less (Aboc 2018). Glass used to be the mimicking

17



(23 June 2020)

material, but now is being mimicked. I bring both together in *Spectacles.*

Spectacles for the Black Box Dissertation is first and foremost a conceptual piece and a work of glass. It holds the primary points of my research in its design elements and is intended as a provocation to the reader, suggesting associations and encouraging different ways of viewing my work. These different perspectives are held within the same tool, functioning separately but also together as one, like the three voices of my thesis writing and my creative process. Finally, with the design references to the lorgnette and opera glasses, these *Spectacles* for my thesis suggest that a performance will take place in its reading. The words will perform; the thesis will perform; and the reader is encouraged to watch and perhaps participate, as a 'Word Triangulation' takes place and partial ideas for exhibiting my research develop over the course of the reading. One of the first places the performance is captured is in my developed lyric writing—the 'Interludes' at the ends of Chapters 1–7, and in the small, curated book of short writings called *Broken words lost in silence seek connections*.

7.3.2. 'Interludes' and *Broken words*

While my lyric lines and images are in dialogue with the academic text and integral to the thesis, the writings that I developed from them are additional, creative outputs of my process and important developments in my introspective ideation observation (pages 48, 52, 65). To close each chapter (except the Conclusion), I brought together the lyric lines of the previous pages and developed them into a writing piece I called an 'Interlude'. Initially, I planned the 'Interludes' for the reader to facilitate access to my lyric lines. I thought that at the end of each chapter, I would simply collect the lines (with perhaps a few minor edits) and present them to the reader along with an artist statement to provide additional context and link them more closely to my research. I thought that all the chapter 'Interludes' would eventually link in a clear way to tell a long story about glass. They do tell a story about glass, but they do not link easily. This is because, unexpectedly, my 'Interlude' writing became as much about me and my creative process as it was about presenting the lyric to the reader.

These 'Interludes' are individual in character and at least half are fragments and not fully developed writings. 'Interlude 1' is the only one that is straightforward as I had originally planned for the reader—the lyric lines are collected from the chapter pages and presented at the end of the chapter (page 20). Chapters 2–6, however, all include lyric images and relaxed parameters (page 300), which did not allow for a

18



(24 June 2020)

simple collection and presentation. I attended to each chapter's lyric differently as each varied in nature. The 'Interludes' became writings for myself, as much as the reader, and I used them to experiment with association. For instance, in 'Interludes 2' and '4', I used their lyric images to prompt associative text, which respectively, created the third stanza of 'Interlude 2' and the interspersed, italicised background thoughts in 'Interlude 4' (pages 68, 166). For 'Interlude 5', I did not directly present the chapter's lyric, but rather, created a re-articulation of it (page 194). The 'Interludes' are inter-connected, but I was mistaken to think that all the lyric lines would neatly link to form one, long, poetic text. It might have been possible, if I had not relaxed my parameters or experienced personal loss, but personal themes surfaced in my writing, making the 'Interludes' too fragmented and disjointed to be a unified collection. If I wanted a cohesive lyric voice for the thesis, I realised writing the 'Interludes' was only part of that process.

I used the 'Interludes' and artist statements to articulate themes and inspire a new subproject. I recognised that certain lyric sections were complete thoughts and I was very satisfied with specific lines. After I had written 'Interludes 1–6', I collected favourite words, phrases, and lines, repositioning them for new associations and developing them in the same way one would develop a 'Word Triangulation' map-sketch (Chapter 6). From this, I wrote 'Listen to the glass', capturing interconnected 'Interlude' themes of vulnerability, loss, memory, creative process, and change. The essence of this poem, that 'the healing process is like the creative process', became the project driver for my book of lyric works, *Broken words lost in silence seek connection.* 'Listen to the glass' anchors the collection (*Broken words,* page 37). For an intimate reading, I printed and hand-bound A6 pages with a kettle and French link stitch (Figures 69a/b).

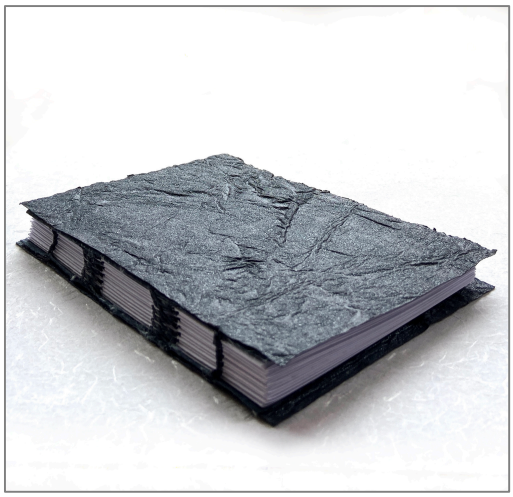
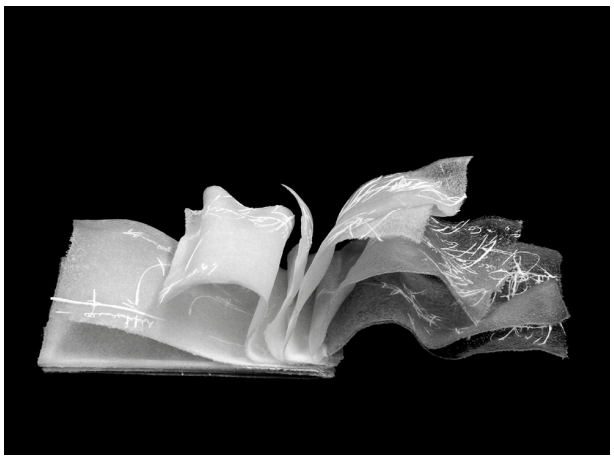


Figure 69a. *Broken words* artist's proof



Figure 69b. Title page, *Broken words*

19



(24 June 2020)

The lyric works in *Broken words* address topics that comprised much of the environment of my mind as I wrote my thesis and performed its 'Word Triangulation'. The writings attend to the fringe thoughts that were constantly present during my thesis writing. This collection is highly personal, but as I explain in the book's Author's Note (pages 1–3), the personal bled into my thesis writing, specifically in the lyric text, beyond my individual glass concepts. It would be inauthentic for me not to discuss this 'bleeding'—*Broken words* is this discussion. *Broken words* opens with 'Interludes 3' and '4' in full and offers them together with other curated lyric works, which I wrote during my doctorate. This new association highlights meaning in the 'Interludes' that was shadowed by their connection to the academic text. Connecting these two 'Interludes' and 'Listen to the glass' with these other writings tells a new story: the personal narrative running through my PhD. One of two small books within my larger, physical, artist's book-thesis, *Broken words* fits inside the box cover, beneath *Working Titles: A Book of Ideas* (Figure 63, page 292). (*Broken words* is available digitally following *Working Titles*.) The two are very different works as *Broken words* is a polished, bound, cohesive writing collection. My ideas logbook, however, is open-ended with text pieces that document my idea events and serve my practice as partial ideas or points of departure (page 48). It is fully integrated into the main thesis, but also stems from it.

7.3.3. *Working Titles: A Book of Ideas*

Almost every entry in *Working Titles* is a response to my 'Word Triangulation' question of how to show my research in exhibition (page 286). There are a total of eighteen entries and ideas, some of which are connected, others which stand more alone. The 'Glass Reading Aid' entry of '▽**C. 15.09.17**' became *Spectacles for the Black Box Dissertation* and is the only idea from the collection that is (to the date of this writing) fully realised and completed (pages 300–308). The *Spectacles* idea surfaced twice in different ways, which I used as an indication that it was a strong starting point. Even after I moved forward with producing *Spectacles,* I continued logging idea events that occurred during my thesis work. Of the total, four occurred while I was writing new text and four while I was editing or revisiting text already written. Ten 'outliers' occurred while I was purposefully disengaged from writing or when I was engaged in other activities. I logged each idea event in stream of consciousness writing as soon as I was aware of it. I did not edit any of the words or belabour them when I wrote, though I did give attention to the formatting when I pulled the collection

20



(24 June 2020)

together. Rather than bind the pages, as I bound *Broken Words,* I kept the entries on separate pages and clipped them together so that they could be viewed as a collection, but also taken apart for different purposes (Figures 70a/b). For instance, keeping them partially bound allows them to be used by readers working with the main body of the thesis: they may take them apart, put related ideas together, and make notes in the white spaces. I can do the same to develop them for my practice.

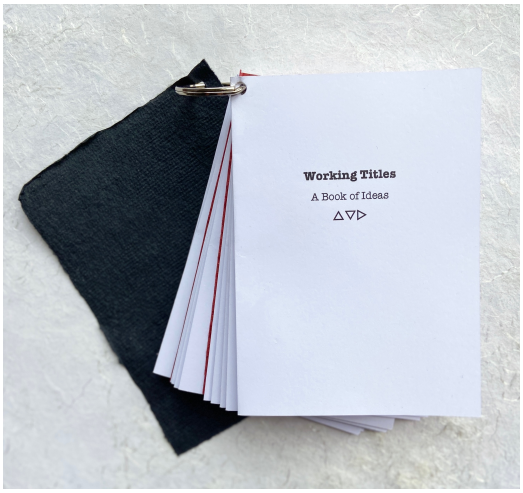


Figure 70a. *Working Titles* artist's proof



Figure 70b. Idea cards hinged together

I reversed the text for ideas I hope to develop, but on which I have not yet begun working. This mirror writing directly references my British Library intersectional experience (page 276) and Leonardo da Vinci who used this glass concept to keep his ideas and inventions secret in his notebooks (British Library 2017, n.d.). It is my homage to him: explorer of glass lenses and inventor of ideas. An example entry is below in Figure 71.

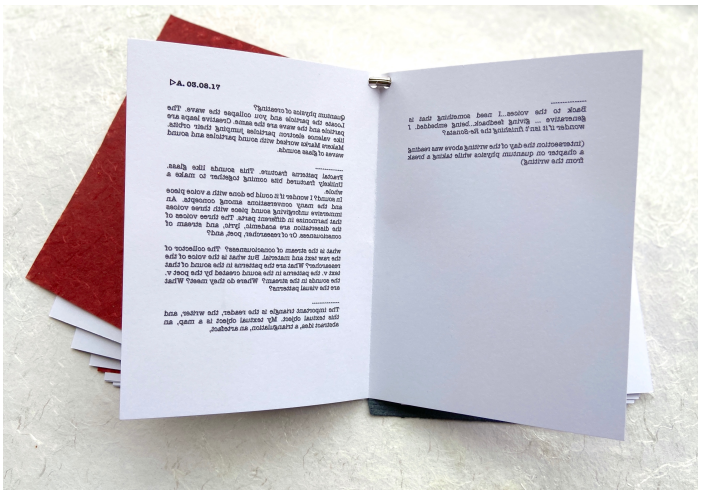


Figure 71. *Working Titles* showing the mirrored text of entry '▷**A.03.08.17**'

21



(24 June 2020)

Working Titles also has one outlier idea, *Measuring My Days,* that is worth discussing in detail, because I have already begun developing it as a physical project and it was selected as a finalist for the Viral Glass Exhibition (Habatat Galleries 2021). As such, it is also an output of my writing process. The idea event for *Measuring My Days* occurred a day and a half after working on lyric images and notes for Chapter 2. After I placed Liza Lou's *Continuous Mile* (page 51), I could not stop thinking about her work and its physical presence (Corning Museum of Glass 2015a). Lou used glass beads woven together to create a large-scale sculpture that captures the heft and labour of artisan workers. Her work gives weight and monumental status to the nearly invisible (the tiny bead and daily labour). In the entry, I wrote about her piece as a primary trigger of my idea event, which describes giving a physical presence and weightiness to my 'invisible'. I entered the event as '▷**I. 22.02.20**' (*Working Titles,* pages 28–34 or Card 11, shown in Figures 72a/b). The event itself was different than others in the log, because I woke up thinking about it in the middle of the night and it took nearly an hour to capture. It was the most associative and detailed idea event during my thesis writing. Figures 72a/b shows how extensive it was, filling several pages.

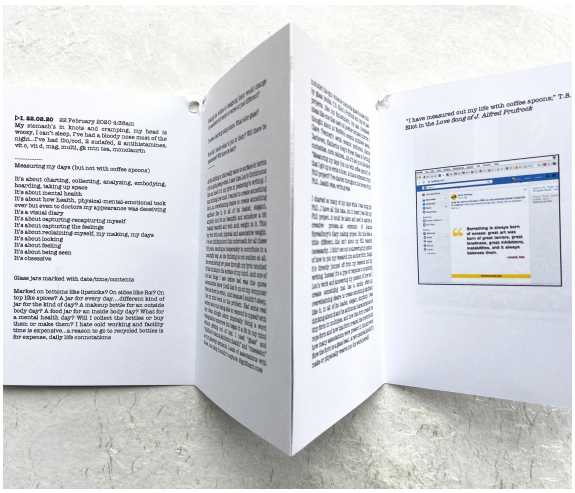


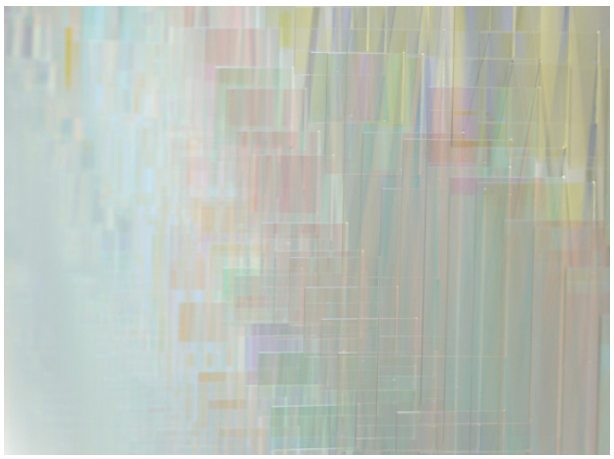
Figure 72a. *Working Titles,* Card 11 front side



Figure 72b. *Working Titles*, Card 11 back

This idea entry is one of only two in the *Working Titles* collection that is not about exhibiting my research and does not respond to my thesis 'Word Triangulation' question. It is, however, connected to my PhD writing through Lou's piece, through the charts I kept to track my writing and health (pages 294, 296), and through the under-current of environmental events and emotions taking place during the writing. Lou's piece was one of several triggers; the entry also shows clear connections to T.S. Eliot's

22



(25 June 2020)

‘The Love Song of Alfred J. Prufrock’ as well as a quote I saw that day by Anaïs Nin. Visual associations that occurred within my idea event included various images of other artworks using multiples and time as factors (Figure 72b, page 316). The entry describes my realisation that my health charts held an enormous amount of data that could be reframed as a physical, visual diary. I also intended the project to be an artwork to discuss chronic illness, an often invisible, and frustratingly silent presence.

In the days after the entry, I began developing the project, lifting log text into a working document and adding to it (see Appendix T for work in progress and its inclusion in *Viral Glass 2021* (page T-10 to T11), alongside ‘Glass Secessionism’ founder Tim Tate (page 98). The original idea entry is so detailed and loaded with associations, that the project driver, ‘measuring (and reclaiming) my days’ was clear from the start. I would reclaim every day of the past eighteen months lost to medical issues, by capturing, containing, and taking back my days. My integrative health recovery programmes encouraged me to talk to my pain and rename it, to reshape my responses to the pain. I would give my ‘invisible’ chronic fatigue illness some weight and physical space to view it and my days from a different perspective.

In *Measuring My Days*, I use my health chart as the project’s foundation and as an integral design element. From July 2018, I have obsessively charted my daily symptoms to find their patterns and document my days to aid discussions with my doctors. My Microsoft Excel chart includes thirty-two fields about my body, emotions, diet, exercise, and environment. It uses a rating system of words and colours in the cells. When I was quite sick (as I am in recovery-remission at the time of this writing), my days were so structured with the timings of self-care, that the shape of every day was very similar. Many of my therapies revolved around strict diets to consume nutrients and medicines at specific times, therefore, I opted to use the kitchen to find my raw materials. I chose glass jars for their common, transparent nature. They were also readily available to me because many of my diet foods were packaged in these and the city suspended recycling for COVID-19. I used the same jar type to represent each day on the chart. If the shape of a day was notably distinct from the rest, then I used a different glass container to indicate this. I translated the health chart data into a value system of food colourings, which I combined with a set amount of water to mix each day’s colours (Appendix T, page T-4). Basing my colour choices on my chart, I used reds and pinks to indicate bad symptoms and a green set to show the positive (pages T-4, T-6 to T-7). For instance, the ‘strawberry’ food colour is the red-black of my chart, indicating high pain/serious symptom. I topped each jar with a minimised chart

"I have measured out my life with coffee spoons" [23]

(24 June 2020)

image, with the represented day highlighted in yellow. Figures 73a–d show examples. I tagged each jar with the date, its value, and food colouring contents. Jar bottoms have labels with my actual chart data as ingredients. *Measuring My Days* reframes my accounting of my illness to make a conceptual artwork. I enact the analogy that *Broken Words* discusses—'the healing process is like the creative process' (page 310).



Figures 73a–d (clockwise): Profile of a single jar topped and tagged; detail of minimised health chart used as jar topper; detail of a jar label with health chart 'ingredients'; jar tag 'contents'

With *Working Titles,* my writing process—my map-sketching—has generated a book of partial, seed ideas for my creative practice. Loaded with associations and tied to glass concepts, they are my prompting cards to develop projects. The thesis location of the ideas is listed in the *Working Titles* contents for future reference and context. While the writing process outputs (the main text, *Working Titles*, *Broken Words*, *Spectacles*) can stand alone, they are interconnected—I present them together as my artist's book-thesis.

"Something is always born of excess" [24]

(24 June 2020)

7.4. *The Black Box Dissertation*

Throughout this chapter, I have evidenced how I have been creative with my thesis, in its concept and its writing. To maintain the scholartist spirit of my project, I also needed to be creative about the work through to its completion—that is, through to its submission. As I have described, the University has a long-standing tradition requiring the submission of a physical, bound thesis for all PhD students, including practice-based doctorates (pages 160, 288). The University regulations describe how to bind the thesis, but nowhere in the language does it state that my bound thesis cannot be an element or component of a larger, physical artwork (University of Edinburgh 2019b). I set out to challenge not only the writing, language, and voice of the thesis, but also its final, physical form. From the start, I intended my thesis to be an artist's book. In character, in these pages, it is already so—it is my art and my creative process in book form—but I also built it out beyond the requirements of the University to complete it as a physical artefact. Figures 74a/b show my black box, artist's proof, a modified clamshell box without a case. With Jane Furness, Academic Support Librarian for Edinburgh College of Art, I have discussed the possibility for the final version (after my viva voce) to be part of the ECA Artists' Book Collection (Appendix U).



Figure 74a. Artist's proof closed box



Figure 74b. Open artist's proof with 'Black Box' poem

When I was exploring various metaphors for the writing process (pages 273–286), I also considered them for the physical artist's book-thesis. The project driver for this final form, however, also needed to incorporate the driver for writing the thesis (my 'thesis as a "Word Triangulation"', pages 286–294). To embrace lyric philosophy, I

25



(29 June 2020)

needed to be creative about the project as a whole, not only its parts. Designing the physical *Spectacles* piece convinced me that my initial 'black box' theatre analogy from my First Year PhD Report (page 274) was still very relevant. *Spectacles* holds strong associations and references to performance and ways of seeing. For use in this final artefact and to tie the entire thesis project together, I re-imagined 'black box' to encompass the thesis both as a 'Word Triangulation' and an experimental performance of words and my creative process. My physical submission and its project driver—indeed, the whole of my thesis—can be expressed as 'a black box dissertation'.

Beyond being the colour of a container, 'black box' is a phrase that has multiple meanings, making it appealing to use as a metaphor because my thesis is multi-dimensional. In Chapter 1, I approach this subject of 'black box' to discuss my thesis title, providing some basic definitions and allusions (page 11). 'Black box' is most personal and familiar to me from my work in the performing arts prior to my PhD studies: I know 'black box' as experimental theatre, in both space and art. My specific experience was as a regular attendee of the Jacob's Pillow Dance Festival, where its Doris Duke Theatre was its black box stage: a small, informal, convertible space for non-traditional performance (Jacobs Pillow 2020). Due to its intimate space and experimental staging, black box theatres (often painted black for versatility) can also 'connect the audience to performers in a purposeful and uninterrupted way' (Staging Concepts n.d.). Through my experimental thesis writing, I aim to do the same for my readers—connect them purposefully to my words and creative process, and to bring them into the intimacy of my process. I created the physical artefact to do the same. I took the black colour and box as design elements to create a mysterious, but simple format. It is an artefact to be opened, touched, and explored.

In the exploration, the reader becomes a performer too—the final creative act generated by my thesis. University professor and researcher Louise Rosenblatt asserts that the engagement by a reader with a lyric text is a creative act and a creative experience; the following is an excerpt from her *Literature as Exploration*, reprinted in the journal *Voices from the Middle*:

> ...No one else can read a literary work for us. The benefits of literature can emerge only from creative activity on the part of the reader himself. He responds to the little black marks on the page or to the sounds of the words in his ear and he makes something of them. The verbal symbols enable him to draw on his past experiences with what the words point to in life and literature. The text presents these words in a new and unique pattern. Out of these he is enabled to mold a new experience, the literary work. (2005: 27)

26



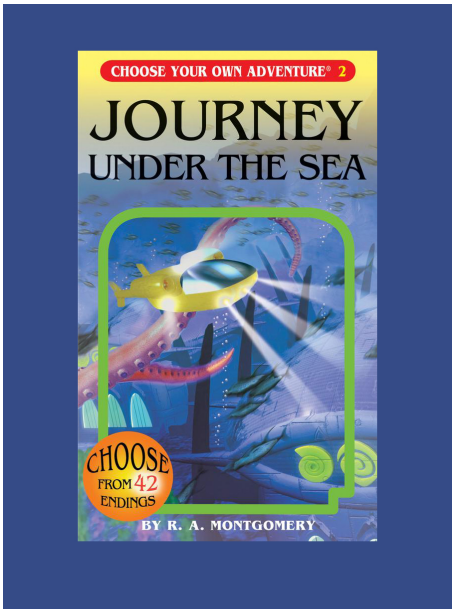
(29 June 2020)

As readers draw on personal experiences, each will read my thesis a little differently and interact individually with my black box dissertation, connecting with it on varying levels. Perhaps a reader will perform the audience role as viewer and use the *Spectacles.* Perhaps the reader will join the dialogue as a player, and my words will associate with the reader's words, generating new ideas for that person. Perhaps my reader will ignore certain aspects of my work, making their own path through the text. Perhaps my experiment will so engage a reader that they will undertake an adventure to track my writing and creating process for a new discovery.

The physical artefact is designed to suggest performance, but also to facilitate this adventure tracking. I performed a 'Word Triangulation' while I was writing my thesis and its resulting map-sketch elements are contained in the artefact, making use of another meaning in 'black box', as the colloquial term for the flight data recorder on aircraft. Contemporary black box recorders are fitted with locator beacons and can track more than 700 parameters about a plane, providing valuable information about its flight (Tilley 2015). By following the route of dates and clues I have left in the texts, a physical map-sketch could be created from the contents of the box (a possible project from my idea event logged as '△**D.04.06.20**' in *Working Titles* page 5–6 or Card 4). For the final, physical artist's book-thesis, I plan to include unbound pages beneath the bound copy of the main thesis text for this purpose (see Figure 74b, page 322). These could be laid out and displayed on the floor or hung on a wall following page numbers, or they could be displayed by date written. The adventure reader could mark outlier associations, use drawing tools or other means to make connections, and flag idea events using *Broken words* and *Working Titles* for reference. In doing so, the reader could exhibit my conceptual art project and my research as the map-sketch from my thesis 'Word Triangulation'.

Lastly, I must acknowledge that 'black box' is also a reference to designers, suggesting that they sometimes work like mysterious input/output devices. In *Design Methods,* author John Chris Jones discusses 'designers as black boxes' and the theorists who believe that the most valuable design process happens in the minds of designers, out of reach of conscious control and not fully explainable—creativity as a type of magic (1992: 46). Conversely, he also categorises most design methods as externalised thinking, labeling the designers 'glass boxes', where their processes are transparent, fully explicable, and rational, even if the designers cannot always give strong reasons for their design decisions (1992: 49–51). Admittedly, I was not aware of the 'glass box' design reference until I was well into writing the thesis and making

27



(29 June 2020)

plans for my artist's book, but I accept the coincidence and related connotations as a happy accident. It adds a bit of irony and twist to the work or perhaps creates an oxymoron: I have created a transparent black box. My experimental thesis aims to unveil the inner workings of a black box creator to make the introspective, association process more transparent through glass concepts.

This dissertation is my scholartistry (Knowles, Promislow, and Cole 2008), a merging of my scholarship and art, which uses lyric inquiry (Neilsen 2008) and glass concepts as creative strategies during the project. It resists most labels and categories, and is situated on the edges of genres, blurring their boundaries. Characteristic of my practice, it is accessible in layers or different levels. To conclude, Chapter 8 discusses these layers, as well as the results and potential of the research and my creative thesis.

7.5. Revising the Thesis after my Viva Voce

Throughout this chapter, I have described and documented my thesis writing process, the outputs it generated, and my experience in creating this creative, non-traditional dissertation. I set out to turn the doctoral process into a creative process from concept through development to completed research and work submission. Along the way within the writing, I have chronicled the work and my experiences, therefore, I would be remiss not to include a section on revising my thesis, as the outcome of my viva voce directly affected its content. I submitted my thesis for assessment on 31 July 2020 and successfully passed my viva voce (with corrections) on 2 October 2021. (For reference, the examiners' report and my document of corrections are included at the end of this manuscript as a final attachment after the Appendices.)

The examiners required that I revise the thesis to articulate more emphatically its contribution to the Glass discipline in art and design. Specifically, they recommended reworking parts of the Introduction and Conclusion to do this. Additionally, they requested that I suppress reflections, pointing to Chapter 3.3. as an example of a section needing attention. Due to my design, implementing the revisions created three major challenges:

1. maintaining the design of the thesis, especially in relation to the lyric, because any substantial edit to academic text alters the page design;
2. suppressing reflections, when reflection is a key glass concept I use and critical to introspective creativity observation (page 48); and
3. preserving the ethos of the entire project.

To meet these challenges, I focused on seeing relationships and shifting perspectives.

28



(29 June 2020)

I made revisions very carefully and judiciously because any significant academic text additions or deletions (often as few as four lines) had the potential to remove the connection point to the lyric facing it. Due to the examiners' requirements, the Introduction, Chapter 3.3., and the Conclusion (Chapter 8) needed reworking. To solve the problem of maintaining my design, I attended to this new academic revision text in the same way that I treated all my original left-facing pages: I responded with new, associative lyric on the right that dissertated with the academic text, while enhancing or forwarding the section's lyric thought. For new lyric additions, I included date stamps, lyric notes, visual credits, and bibliographic references where needed, following suit with all the other lyric of the thesis. My viva date (2 October 2021) is a marker in my PhD timeline. Timestamps after this indicate required revisions in the section, providing readers with a clue for where the viva outcome influenced the writing.

To meet the examiners' request to suppress reflections, I worked to clarify and shift perspective on reflection. I rewrote Chapter 3.3. and smaller sections to remove any story-telling language which might cause the reader confusion between 'reflection' that is 'reverie' and the essential 'reflection' that is the glass concept: mirroring, echoing, or looking back across time and space. I maintained academic descriptions of my process where I considered, explained, or examined memories or fringe thoughts critical to the project or critical to meeting my clarified aim of articulating and communicating my experience of ideation in my research process (page 12). I also revisited the thesis text to emphasise various ways that I use reflection or refraction or an optical concept of glass within my writing. For instance, in Chapter 3.3., I felt it imperative to describe for the reader at that point in the thesis, how I use glass concepts. In the original writing, I described an example from my practice, however, as the lone example with writing focusing on a memory, it gave the impression of unnecessary reverie. In the revised text, I situated my glass concepts within the conceptual approach to glass in contemporary art and design. I grounded my reflection in the pages by explaining the same example and tying it to the lyric.

Finally, to preserve the ethos of the project, I included sections like this one and 8.2.3. to address the influence of the viva and examiner requirements. As this thesis is heavily referenced and credited for each contribution, influence, and artistic inspiration; the viva outcome should be acknowledged. While I emphasised and articulated reflection throughout the text, I also decided that to preserve my embrace of lyric philosophy, I must refrain from full explanation of all reflections or glass concepts. I left gestural, resonant layers intact to protect the thesis as a lyric work and artwork of glass. Chapter 8 explains.

Chapter 7 Lyric Notes

[1] While I was pulling together materials to draft this section and looking through my early thesis prototype designs, I came across my 'Glass Writing' poem, the one in which I attempt to write as if I were making a glass piece (pages 282, 284 △C). The poem stayed in my mind as I was writing the academic text and when it came time to write my lyric lines, I returned to it. As this section is not only about designing and writing the thesis, but also about the intersection of my glass concepts and writing, I wanted to highlight the glassworking process and the similarities I see between it and making a piece of writing. The first eleven lyric lines in Chapter 7 are directly taken from my 'Glass Writing' poem. It is the only lyric text that I wrote before I wrote the academic pages, because every time I attempted to write the lyric for this chapter, I found myself working with the poem. While I was developing the poem in February 2017, I had the glassworking process in mind and for every glassworking step, I tried to describe a corresponding writing step. During the first drafting of Chapter 7 in 2018, I formally wrote out the corresponding glass steps that were in my mind while I was making 'Glass Writing'. I have included those lines as the notes below to aid the reader and showcase the glassworking process alongside the writing process (see the Glossary, Appendix A) for more details on the glass terms).

[2] Pipe to furnace. Gather well. Chalk the form outline.

[3] Heat shape always turn.

[4] Blow bubble. Wooden block and cool for strip-gather.

[5] Shape with newspaper. Pick up frit.

[6] Heat shape always turn.

[7] Blow—gently—blow, Turning to cut-in and jack the neck.

[8] Ready pontil. Marver and attach.

[9] Score. Light tap and transfer.

[10] Watch line of heat. Turn it open.

[11] Anneal to cool.

[12] This is an image of my Bortoletti calligraphy pen, made of Murano glass and argentone. I purchased it during my visit to Venice in 2015 when I delivered my glass for exhibition and then I used it later that year in my wedding ceremony.

[13] Philippe Starck's napkin sketch for his Alessi citrus squeezer is pictured here. He captured his initial concept for the design while waiting at a pizzaria for his lunch in Capraia and missing the lemon for his calamari (Lloyd and Snelders 2003, Watson-Smyth 2010).

[14] This is an image of the iconic Juicy Salif by Starck and Alessi (Watson-Smyth 2010).

[15] Édouard Manet's painting *A Bar at the Folies Bergère*, is a favourite of mine and contains various perspectives on the 'gaze'. A woman looks through opera glasses in the background. (The Courtauld Institute of Art 2020)

[16] Another Impressionist painting about the 'gaze', Mary Stevenson Cassatt's *In the Loge* highlights the function of opera glasses in the late 1800s (Museum of Fine Arts Boston 2020b).

[17] This is an image of the opera glasses ascribed to Mary Todd Lincoln, which she reportedly used on the night of President Abraham Lincoln's assassination. They were engraved with a lament about the night. (BBC 2019)

[18] During my MFA studies, I experimented with writings in glass. This image shows the detail of my kiln-formed test piece of raised lettering in black, Bullseye glass.

[19] This is an image of one of Anne Petters' *Books of Disquiet* from 2017 (Petters 2017).

[20] Siobhan Healy's *Herbarium* was shown along with my *Flight Gesture*, in the 2016 Edinburgh College of Art *Transition* Exhibition of alumni work (Edinburgh College of Art Alumni).

[21] This is a detail image of Jeffrey Sarmiento's *Encyclopaedia v. 1–7, 2007* (Sarmiento n.d.).

[22] This detail shows a small number of the 600 panels of glass used to make *Stripe Drawing—Flow of Time*, a public art installation by Nobuhiro Nakanishi in a Tokyo Metro station April 2020 (AGC, Inc. n.d.).

[23] This is a line from T. S. Eliot's *The Love Song of Alfred J. Prufrock* that has stayed with me since I first read the poem in 2009 (Eliot 1915).

[24] 'Something is always born of excess' is the first part of a quote by Anaïs Nin, whose diaries author Maria Popova explores in her writing on creativity and emotional excess. Popova quotes Nin in full as 'Something is always born of excess: great art was born of great terrors, great loneliness, great inhibitions, instabilities, and it always balances them' (BrainPickings.org 2012).

[25] This is an image of Heike Brachlow's cast glass *Connotation* from 2018 (Traver Gallery n.d.). It is a Möbius strip, one of the metaphorical forms I was considering for my artist's book before I settled on 'Word Triangulation'.

[26] Jonah Bokaer's *Why Patterns* was one of the memorable performances I attended at the Doris Duke black box theatre at Jacob's Pillow in 2011. This image shows a dancer with a cascade of ping pong balls in the theatre (Rogovoy 2011).

[27] My childhood reading included these 'choose your own adventure' books, written in the second person. At certain points in the story, the reader-as-protagonist must make decisions for the protagonist, which determines the course of the narrative. Each decision shifts the order in which the pages are to be read to enable different paths through the books. *Journey Under The Sea* first published in 1977 (Chooseco LLC 2020).

[28] During one of the first weeks of my MFA programme in 2013, I put a just-blown, not annealed, wine glass on a little stage in the hotshop and filmed it. Before cracking, it moved and rocked and shimmied on its own for two minutes, due to the stress of the cold air on the hot glass. This image is a screenshot from that video of my dancing glass.

‘Interlude 7’

Glass Writing

(for two voices and several performers)

Pen to paper. Place the words. Define the structure.
Pipe to furnace. Gather well. Chalk the form outline.

Subject verb object.
Heat shape always turn.

Inflate them. Preposition and postposition.
Blow bubble. Wooden block and cool for strip-gather.

Build the paragraph. Draft and shape.
Shape with newspaper. Pick up frit.

Subject verb object.
Heat shape always turn.

Inflate them more. Adverbs and adjectives add in bits.
Blow—gently—blow, Turning to cut-in and jack the neck.

Offer meaning. Reframe and rework.
Ready pontil. Marver and attach.

Edit. Edit again.
Score. Light tap and transfer.

Make it stronger. Temper the tone.
Watch line of heat. Turn it open.

Transcribe in Word.
Anneal to cool.

Statement on ‘Interlude 7’

What has always captured my attention about glassblowing is the physicality of the process, coupled with the brief, verbal directives pronounced by the makers. After my first experiences watching, I stopped looking at the glass and started observing the glassblowers in motion. It is very physical, whole-body work, but also intricately nuanced, as every gesture, every timing, every touch affects the glass. The process also requires trusting, developed relationships among the makers as a team. For those teams which have been making together for a while, their steps, turns, and movements in the workshop are very precise and appear choreographed and synergetic, even the spontaneous or improvised actions. There are solo moments, pas de deux, and full troupe appearances. It is quite beautiful to watch as the bodies come together and separate and come together again to shape the moving glass material into a stable form. The short, verbal directives from the makers, especially those by teachers (as I experienced as a student time and again and tried to replicate in the ‘Interlude’), do not capture the nuances and subtleties of the process. Any straightforward explanation of the glass process falls short, just as any textbook explanation of the writing process, especially creative writing, fails to capture the energy and synergy among the writer, the subjects, and the textual medium. Through ‘Interlude 7’, I suggest that perhaps, instead, a performance using bodies and voices might showcase the intricacies and similarities of the two processes.

‘Interlude 7’ takes the ten lyric lines on writing, pairs them with their glass origins from the Lyric Notes (page 331), and combines them with thoughts of performance from the second half of the chapter. The ‘Interlude’ offers a basic script that will need performers to enliven the words and share them with an audience. Writing it was another way for me to think about glass concepts, but it is incomplete and a fragment only. Both process descriptions have gaps and certain line pairings do not link well enough. It could also be enhanced by more attention to rhythm and beat. As a process piece for use in developing ideas for my practice, though, the overarching thought behind the ‘Interlude’ is strong: ironically, writing, like glassblowing, cannot be fixed in explanation by words alone. Writing for me is a bit like glassblowing, as I must react to and manipulate the malleable and shape-shifting lyric that is my creative voice, but the movements, gestures, and associative jumps, are the exciting parts of the process—what I really enjoy observing.

8. Conclusion: Finale

This thesis contributes a creative practitioner's perspective to creativity research with a layered examination of creativity and idea-making that produced layered outputs, conclusions, and contributions to knowledge. These could directly benefit university students engaging with glass as a creative medium (especially those new to glass), artists approaching glass conceptually, glass studios striving to be accessible or inclusive, doctoral students determined to develop creative theses, and creatives experimenting with the unknown. The research results have the potential, however, to make an even wider, positive impact on constituencies such as university-level students seeking starting points to project briefs, academic glass departments restructuring under COVID-19 pandemic restrictions, creativity researchers interested in an introspective accounting of a creative process, creatives attempting to encourage or bolster creativity; and even educators supporting a case for liberal arts programming.

Disseminating my research and outputs to make an impact on these groups is a next step for this PhD work; and I have begun this. In addition to writing the *Makers Marks* articles to discuss metaphorical language as a creative practice tool (Appendices I and J), I have a book contribution under review which offers 'Word Triangulation' as creative resilience tool (Appendix Y-1 to Y-24). I also presented *The Black Box Dissertation* as a creative, non-traditional thesis at an international, artistic research conference (pages Y-25 to Y-35); and I have submitted proposals to exhibit it and *Spectacles* as works of glass (pages Y-36 to Y-46). Additional routes exist; I discuss these in relation to paths for more research and development (8.2.2.), and opportunities found in pandemic challenges (8.4.).

This chapter summarises and discusses how the thesis answers the initial research questions. It addresses potential impact of the research and contributions to creative practice toolkits, glass, and lyric philosophy, while considering further routes of inquiry. It also acknowledges limitations and challenges of the research. Finally, it offers a formal statement of theory, adding to the body of knowledge on creativity.

8.1. In Summary—Answering the Research Questions

I opened this thesis by posing multi-faceted questions about creativity (page 12):

- How do word and concept associations function in creativity and ideation, and how might I use them to facilitate idea generation and the creative process for myself/my practice and for university students using glass as a creative medium?

- How can I turn the doctoral research process, based in my intersectional practice, into a creative act or creative process itself?

I responded by exploring creativity research literature across disciplines to understand its scope and define terms, while following a specific thread on association stemming from Wallas' *The Art of Thought* (Chapter 2). Related theories I found align in asserting that association is fundamental to creativity: specifically, concept association is one key to the creative process, and words hold concepts, which in novel uses, combinations, and relationships, are the basis for new ideas (Chapter 2). I articulated how the word 'glass' and glass concepts are critical to my creative practice, and how glass material is especially suited for creativity and innovation, and therefore, for creativity research (Chapter 3). Concurrent with my reading, I examined my creative process by reflecting on prior work and expressing the essence of my process lyrically, which led me to lyric philosophy, scholartistry, and meta-creativity as a framework for my research (Chapter 4). In Chapter 5, I explain how I developed a formal approach in my practice to attend to my research questions, enfolding the theories I encountered into my creative practice using my word-working. I describe how, at every research stage, I used my lyric inquiry to focus on 'modes of association' (aspects of creativity theories detailed in Chapter 2): I tried to see and expand the adjacent possible, to make analogies, to break patterns in favour of making new ones, to find intersections and bisociations, and to make exaptations (page 186). This facilitated my articulation of these same modes of association and my process, while aiding in my design of 'Word Triangulation'—a new ideation tool—and this creative thesis, among other outputs (Chapters 6, 7). Studies of volunteer students and myself employing 'Word Triangulation' in response to creative practice briefs about 'glass' and glass material show positive results for helping users with ideation. Significantly, those studies and use of the tool in my thesis writing/design support related theories by Poincaré, Wallas, Ghiselin, Mednick, Johansson, and others (Chapter 2), that remote associates, fringe thoughts, and disparate combinations are key for creative outputs. My lyric method of enfolding modes of association into my research process and designs, in turn, helped me transform the research process into a creative process as a conceptual artwork.

The next two sections present 'Word Triangulation' and this creative thesis as specific responses to the original research questions. They address impact, contributions to knowledge, and future research pathways for these major outputs.

(This page purposefully blank.)

(27 July 2020)

8.2. ‘Word Triangulation’ and its Contributions to Knowledge

8.2.1. A New Ideation Tool for Creative Practice

Through its design and technique, which exploit modes of association, ‘Word Triangulation’ facilitates early idea-making for university-level students seeking to use glass material as a creative medium. As evidenced throughout the workshop studies in Chapter 6, the design element of words—which hold concepts (Barrett 2017)—and my association technique (page 222) assist users in revealing the adjacent possible (Johnson 2010: 30–31) for their creative practice question, statement, or intention. With words as moveable elements, the design acts like a type of personal prompting tool to enable new combinations and intersections that might be key to new project ideas (Johansson 2004). The technique’s incorporation of mindfulness (pages 218, 220) assists the user in watching their words (self-awareness), seeing—and seeking—the relationships and conceptual meeting points necessary to creative ideas (de Bono 1977, Johansson 2004). As the users develop their map-sketches, they reveal more remote associates and fringe thoughts also important to creative ideas (Ghiselin 1954, Mednick 1962, Wallas 1926). By using words and all the users’ thoughts without curation, ‘Word Triangulation’ encourages a lyric inquiry (Neilsen 2008) that is organic, as the users capture their phonetic responses, unusual phrasing, and unstructured language. This, in turn, provides the user with the raw materials of concepts and the potential for bisociations (Koestler 1964), intersections (Johansson 2004), analogy-making (Holyoak and Thagard 1999) and exaptation (Johnson 2010) that are important to creativity. With its built-in perspective shifting, ‘Word Triangulation’ also offers a way to start lateral thinking with new associations and pattern breaking (de Bono 2016). This research and ‘Word Triangulation’ contributes a new, alternative ideation tool for creative practice: it is ‘an ice-breaker [for] the blank page’ (page 252).

8.2.2. A Model for an Inclusive, Accessible Approach to Glass

As a gateway to working with glass material through ‘glass’ and glass concepts (Chapter 3), ‘Word Triangulation’ makes multiple contributions to Glass as an art and design discipline. First, it forwards glass as a versatile creative medium, inviting interdisciplinary exploration and collaboration. It encourages the current ‘post-studio glass’ movement and ‘glass in the expanded field’ by putting the concepts of glass at the forefront (page 96–100). More importantly, this research and the ‘Word Triangulation’ technique/tool contribute an inclusive, accessible approach to glass as a

1



(27 July 2020)

creative medium. In the workshop studies of Chapter 6, numerous disciplines are represented at undergraduate and postgraduate levels, with most students showing interest and successful ideation with the tool. The majority student response to 'Word Triangulation' has been very positive and inclusive: students developed project ideas for the briefs by using 'glass' and glass concepts regardless of glassworking abilities or prior knowledge of the glass medium or glass workshops.

'Word Triangulation' and its idea-making with glass concepts have the potential to make glass more accessible as a creative material for more students and for various student perspectives. 'Word Triangulation' is economical in its analogue form of paper, pencil and basic materials, removing cost as a factor to access the tool. Additionally, in the studies from Chapter 6, students successfully engaged in idea generation without having to spend long periods of time in the expensive studios by alternating 'Word Triangulation' sessions with glass history lectures and short glass skills introductions in the hotshop. This also suggests that 'Word Triangulation' and/or designing with glass concepts might provide more flexibility to glass programmes in the COVID-19 era, when hands-on glassworking is restricted by numbers or cost or even impossible in pandemic circumstances.

This inclusive, accessible approach using 'Word Triangulation' and glass concepts has the potential for a much greater impact on glass art and design as well as the larger glass community and industry. If students from diverse disciplines, backgrounds, and perspectives were 'introduced' to glass through 'Word Triangulation', it would follow in creativity theory that these 'meetings' would expand the possibilities for glass material innovation with new associations, combinations, and intersections for new ideas. Conversely, introducing students, who specialise in glass, to liberal arts programming or other 'intersectional' opportunities or concepts through 'Word Triangulation', might enable them to expand their personal adjacent possibles, to bring new perspectives and concepts into their practices for creative ideas in glass.

8.2.3. An Idea from the Thesis 'Word Triangulation' and Viva

During my viva, the examiners and I discussed 'Word Triangulation' and this contribution it makes to Glass—this inclusive, accessible approach to glass. In their report, they state that they are eager for me to claim the contribution as 'an anti-hierarchy access model for the industry' (Final Attachment). I agree to a point. My workshop studies (Chapter 6) have shown that the tool is inclusive and accessible to

No lyric here.[2]

(27 July 2020)

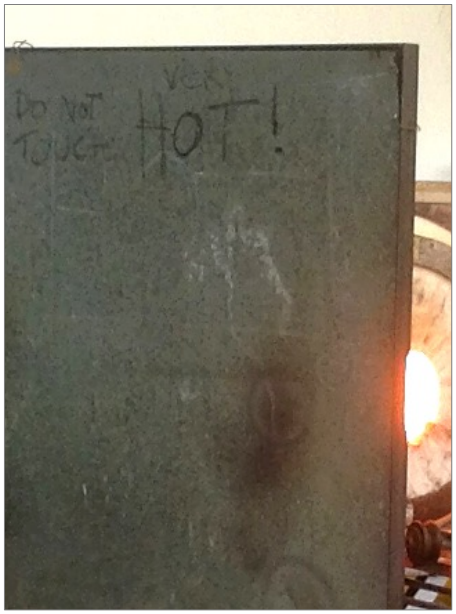
students at various University levels (and two professionals) and to a multitude of disciplines regardless of glass ability or prior knowledge of studio glass material. ‘Word Triangulation’ thereby breaks down barriers of access to ideation with glass regardless of technical skills, physical ability, experience, age, and Glass discipline knowledge. ‘Anti-hierarchy’, however, is a word that has too many personal, negative associations and connotations for me (‘disjointed’, ‘unruly’, ‘chaotic’, ‘disordered’—what ‘Word Triangulation is not); therefore, I would not choose it to describe ‘Word Triangulation’ or its contribution. ‘Industry’ is too wide a term as glass pervades society and fields and I have only made studies based in glass within art and design.

That said, I believe the idea of ‘Word Triangulation’ as ‘an anti-hierarchy access model for the industry’ is a testament to the success of my thesis design as a ‘Word Triangulation’ performance. I posit that my examiners became participants in the map-sketching with me, as was my hope when I wrote: ‘Perhaps the reader will join the dialogue as a player, and my words will associate with the reader’s words, generating new ideas for that person’ (page 326). I believe they developed this idea by associating with my words, using elements of the map-sketch that is my thesis. In my original thesis text, I use ‘hierarchy’ and ‘hierarchical’ only in relation to set structures and word fixtures of mind maps (pages 204, 208). I also contend that the ‘Word Triangulation’ design removes the hierarchical structure of value and placement with the words and concepts during the mapping technique (page 220). Concepts of ‘breaking down boundaries’ and ‘pushing against established rules’, however, abound throughout my thesis as they are inherent to creativity and present because of the creative, non-traditional design I developed to challenge the standard form. I believe these concepts associated and combined to become this new idea for ‘Word Triangulation’ as ‘an anti-hierarchy access model for the industry’. While I might struggle to associate ‘anti-hierarchy’ with ‘Word Triangulation’, I acknowledge that ‘anti-hierarchy’ is related to access, equality, and pushing against the establishment. More research is necessary though, with more studies of the tool required in more situations before one could describe ‘Word Triangulation’ as ‘an anti-hierarchy access model for the industry’. While this is one path for further research and development, additional routes are discussed in the next session.

8.3. ‘Word Triangulation’ Pathways: Further Research and Development

Many options exist to develop ‘Word Triangulation’ and expand its reach (and adjacent possible). This section addresses possible routes and explains progress to date.

3



(27 July 2020)

8.3.1. A Model for Introducing Lyric Philosophy to Students

One path forward could be studying 'Word Triangulation' coupled with a glass skills session as a potential model for introducing lyric philosophy to students. As discussed on page 340, **'**Word Triangulation' encourages an organic lyric inquiry by shifting perspectives on words and concepts and fostering new associations and patterns with word parts. By incorporating physical glass skills sessions as an intersection (like the workshop studies of Chapter 6), it might be possible to go a step further and use the 'Word Triangulation'/Glass Skills Workshop as a lyric philosophy teaching tool. The pairing of tool with studio work enables the experience of thinking between the glass concepts held on paper and the concepts tangibly apparent in the physical material. The intersection of the physical glass experience creates a bridge between the conceptual held in words on the page and the glass material holding those same concepts. Meaning transfers and meaning associates so that when students return to map-sketching, they bring new understandings of glass to the page of concepts. The two experiences in glass together might work as an introductory teaching tool for the 'thinking between' and gesturing that is inherent to Lyric Philosophy (Chapter 4). It could aid in accessing gestalts and learning how to carry over meanings to other forms and media. I have not yet used 'Word Triangulation' and my Glass Skills Workshop in this manner, so this is an open path forward for a study in learning or teaching lyric philosophy, but one with potential given the accessibility of the model and the innumerable array of glass concepts available.

8.3.2. 'Word Triangulation' in other University Scenarios

Chapter 6 discusses the tool testing sessions, which I conducted in person with volunteer participants in relatively controlled environments, but I also tested the tool in three, additional workshops. Too many variables existed around these testing circumstances to enable comparisons and inclusion in the Chapter 6 discussions, but I describe them briefly in this section to show that pathways for further research and development are already in place for the tool to be used in other University scenarios.

I had the opportunity to test 'Word Triangulation' in workshops presented through the Glass Programme at Edinburgh College of Art (ECA), delivered as part of two sanctioned University courses: *Digital Crafting in Glass* (28 March and 4 April 2017) and *Thinking Through Glass* (8 November 2018). Both lecturers overseeing these classes included my workshop as required coursework for their students. While

“Stop” [4]

(27 July 2020)

students could opt out of having their information included as part of my PhD work, they were required to participate. The *Digital Crafting in Glass* session was coupled with a lecture on my creative practice; and for *Thinking Through Glass*, the lecturer conducted the workshop while I was not on site. I was not able to control either session environment nor deliver the workshops like those of Chapter 6. While I conducted the session in-person for *Digital Crafting in Glass,* there was not a comfortable workspace available for 'Word Triangulation' map-sketching. Students worked on the glass studio floors, which seemed conducive to distraction or socialising. From conversations with the lecturer running *Thinking Through Glass*, I understand that my presentation was not fully used and students were not eager to participate, spending much of the session time socialising as well. For both workshops, I provided written instructions (page 222) to the students, while I had only given verbal guidance in the sessions of Chapter 6. Additionally, in those earlier workshops, I provided the brief and used 'glass' as an intersectional concept, but 'glass' was the known concept for these sessions; and an alternative unknown or intersection was not provided.

Results are inconclusive. In *Digital Crafting in Glass,* I observed twelve students who began a map-sketch, but only four were thoroughly engaged (and half the class did not actually participate). For that session, I was unable to distribute and collect surveys, except for one. As part of the course requirement, however, the students wrote reflection pieces. In these, a few people addressed the tool, while most commented primarily on my creative practice. Further complicating matters, I was unable to collect consent from many students, and from those I did, only one addressed the triangulation session in the online reflection. In the *Thinking Through Glass* workshop, I did obtain consent and my surveys were distributed and collected, though results are mediocre. The supervising lecturer provided feedback that much of the session broke down into a spirited debate about words and the creative process, when one student with dyslexia refused to participate because of the tool's focus on words. Appendices V and W include session information and the respective consent forms, map-sketch images, and student feedback from both workshops. Numerous factors affected these two sessions: their required nature, the working environments, the reliance on written instructions, the lack of an intersectional experience, the lack of a focused brief specific to the workshops, and my absence in *Thinking Through Glass.*

Lastly, I workshopped the tool outside of the Glass Department and outside of glass concepts altogether. Global Edinburgh asked me to be a guest presenter and design consultant for the Mastercard Foundation Scholars Program 'Design Day'. This

5



(8 May 2021)

was a retreat-like, day-long session on 21 April 2018, where a cohort of seventeen graduating students volunteered to design schedules and orientation programs for the next Mastercard Scholars incoming class. Their primary language was not English and their disciplines were varied, but not in ECA or traditionally-labelled, creative disciplines. The briefs included developing concepts, drafting program outlines, and presenting them. After the Mastercard Scholars administration discussed the briefs, I introduced myself and 'Word Triangulation'. Following that, students used the tool in small, collaborative groups to begin discussing responses to the briefs. Overall, the day was highly successful with each group actively using the tool, generating ideas, and presenting new programs, which staff planned to incorporate into the 2019 Mastercard Scholars Program. For 'Word Triangulation', (called 'Creative Triangulation' for the day), thirteen students completed surveys (a few left early). I added a survey question, asking students to rate, on a scale of 1–10 with 10 the highest rating, how useful they found 'Creative Triangulation' for developing a shared team vision or project driver for the Design Day challenges. Their rating average was 7.625 (with results in Appendix X, pages X-45 to X-57), which includes details on the 'Design Day' session.

Due to the many different variables involved in these three workshops, further research and testing sessions on 'Word Triangulation' are needed to determine:

a) if the tool is viable as part of required University coursework;
b) if the tool can be useful to students with dyslexia;
c) how it can be delivered by external facilitators for positive results;
d) if verbal-only instructions are more successful than written ones;
e) if the tool is more successful with a brief or open-ended exploration;
f) if the environment is critical to the tool's success; and
g) if the tool can be successful for individual use outside of glass concepts.

8.3.3. 'Word Triangulation' Additional Development Routes

I have also identified four additional routes for further research and development of 'Word Triangulation', stemming from my own observations and personal interests:

a) use in conjunction with formal mindfulness or yoga practice;
b) use by youth for learning and creativity skills development;
c) use as an analogue tool versus a digital tool; and
d) use with principles transposed into a different creative medium.

6



(27 July 2020)

I would like to undertake research to determine if a 'Word Triangulation' session with an even greater focus on mindfulness affects results. In other words, if I presented 'Word Triangulation' in conjunction with a formal session or exercises on mindfulness or yoga, would that alter or enhance the experience and usefulness of the tool? Psychologists and cognitive scientists have begun studying creativity together with mindfulness, offering good starting points for a contextual review (Capurso, Fabbro, and Crescentini 2014). Developing the technique as a guided, meditation-like, audio recording would be interesting as well. This format could serve a dual purpose: a way to investigate 'Word Triangulation' in conjunction with mindfulness, and also a format to enable the tool's delivery by an external facilitator.

The next two research pathways could be explored together. To date, my investigation with the tool has been with adults, but I am interested in trialing it with younger students, aged 8–16, to teach the associative, creativity skills that include seeing relationships, perspective shifting, and concept development, that 'Word Triangulation' facilitates. In this respect, I wonder if 'Word Triangulation' could be useful to phenomenon-based learning programs like those in Finland, where the focus is on multi-discipline, multi-perspective, collaborative-based learning to understand and address topics, current events, and social problems (Drew 2020, Grunwell 2016)? This could be a starting point for a next research project. Working with youth and the tool's analogue format could be interesting. Currently, the tool is only in analogue form, which I did purposefully for its economy and ease of access, but also because I had a hunch that the physical act of moving the word-concepts on paper is important to the map-sketching and idea generation. I did not explore this hunch in my research but it would be a next step. Data journalism professor Meredith Broussard recently wrote *Artificial Unintelligence*, which provides a good entryway, as she uses the example of map-reading on paper as a more effective, associative process to know a place than by a digital map on the screen (2020, 2018). Generations Z and Alpha, born during the digital boom, have not had the same analogue experiences like those of my Generation X. I wonder how they might experience my 'Word Triangulation' and if it could be useful to them.

I am also interested in using 'Word Triangulation' in a different creative medium or creative language. I am curious about the 'internal word' of respondents in Hadamard's survey (pages 52, 54): for instance, would a creative practitioner, who uses mental or 'internal words' that are in the form of sounds be able to use the technique? What would happen if they re-perceived the tool and exapted its principles,

7



(8 May 2021)

transposing them onto their medium and creative practice? How might their map-sketch develop? When I exapted the principles and placed them onto my writing process with my creative practice and word-working, I developed my unorthodox thesis. The next section discusses my thesis, drawing conclusions about it and from it.

8.4. This Thesis: What is It? And Where is It Going?

My thesis is 'more than just a thesis' and as such, fulfils my intention from the start of my studies (page 280). It is an academic investigation into creative ideation through practice-based research. It is a work of scholartistry using a lyric inquiry (Knowles and Promislow 2008: 5, Neilsen 2008, Neilsen 2002: 211, Neilsen 2001). It is a meta-creative look at creativity (Runco 2015: 295). It is a 'Word Triangulation' and a new thesis writing form. It is a full, introspective accounting of my creative process (Hadamard 1954: 1–3) in response to Guiselin's want of them (page 54). It is both an example of my creative process and a demonstration of it, holding the design of 'Word Triangulation' within the performance of a 'Word Triangulation'. It is a concept within a concept (Dines 2017, Gagne 2011). It is an artist's book and portrait of the artist. It is the concentrated result of a conceptual art project to make the research process a creative one. It is a work of lyric philosophy (Zwicky 2014). Finally, it is a work of glass.

This thesis is a work of glass created for the discipline and practitioners interested in an accessible approach to glass as a creative medium. 'Glass' permeates the text and its subject is glass creativity. Its research is staged in glass workshops and it incorporates glass material with *Spectacles* in the physical artist's book. The thesis dissertates in three voices about glass: the academic text describes the research in glass; the lyric associates and muses in 'glass' and related words, and the stream of consciousness voice of *Working Titles* captures ideas in glass for creative practice. It even employs Silbert's 'glassy thinking' (page 98) at various points when I write as if I were making glass (Chapter 7). Most importantly, the thesis is completely saturated with glass concepts.

As I noted in Chapter 3, the glass concepts I feature most prominently throughout the thesis are optical in nature (page 102): 'reflection', 'refraction', 'mirroring', 'distortion', 'filtering', 'lenses', and 'transparency', among others. They shift perspective to introduce new viewpoints and relationships necessary for creativity. 'Reflection' is most prominent and evident: lyric pages reflect academic text, 'Interludes' reflect environmental factors, 'Statements' reflect on 'Interludes', academic descriptions reflect on idea-making and previous artwork, *Spectacles* reflect with a mirrored lens, the writing process reflects

8



(27 July 2020)

my word-working ideation, and the entire form of the thesis reflects its content. It is a work of glass and I have submitted it as such for exhibition (Y-44 to Y-46).

My thesis contributes to and forwards 'glass in the expanded field', an assertion I defended in my viva by referencing Jerome Harrington's mapping of contemporary glassworks (2012). I explained that my thesis is located far from traditional studio glass, but situated in an area of glass activity where both concept and skilled making are of equal priority, pointing to Harrington's project (page 98). To preserve it as a glass artwork, it was imperative that I leave spaces in the writing for readers/viewers to navigate: to rely on their own glass concepts, to bridge gaps with associations, and to join my glassmaking process. To completely explain or analyse every detail of this thesis would negate its contributions as a work of glass and a work of lyric philosophy.

Encompassing all these 'things' I have described, this thesis is a lyric work, a contribution to lyric philosophy in practice: polydimensional, gestural, integrated, and resonant (Heiti 2015: 188, Zwicky 2013, 2014); it is multi-voiced and associative as well (page 128). If its parts (academic text, lyric lines, *Book of Ideas*, *Book of Lyric*, and *Spectacles*) were analysed separately, the whole meaning of the work—and its polydimensionality and resonance—would be dismantled. Each piece can be read and partially understood separately, but the sum of its parts do not equal the whole. The whole meaning of the work cannot be conveyed without all the pieces in dialogue.

This thesis is creative. It is original, using novel combinations and concept associations. For me, it is 'exploratory', leaning toward the 'transformational' 'P-creativity' that Boden describes (2010: 41–43, 2004: 3–6): it did not exist before and could not exist before (as there was no 'Word Triangulation' from which to exapt principles). Whether it is 'H-creative' in any form, however, is yet to be determined (Boden 2010: 41–43, 2004: 3–6). Importantly, it is also a 'generative' work, producing new ideas (Chapter 2: page 26, 36): such as the 'Interludes', *Spectacles*, *Working Titles*, *Broken Words*, and *Measuring My Days*. It holds within it, my system of thinking and writing for the dissertation process that produced those new ideas. With this system, it may take on another meaning of 'generative', which Boden relates to the artwork of Sol LeWitt and others, where '*the artwork is generated, at least in part, by some process that is not under the artist's direct control*' (2010: 138–139). As a creative thesis, it pushes against the boundaries of what a doctoral dissertation is or can be. It is a hybrid work: it is a research dissertation that is an artwork (Elkins 2005: 16–17). Given this, it is a thesis that does not fit into a single category or genre, and if viewed only from one category, genre, or perspective, it might appear to break rules. Breaking

9



(8 May 2021)

rules and traditional patterns, however, is a hallmark of the creative. For further research and development, I submitted a proposal to the Leverhulme Trust to explore the creativity of contemporary, non-traditional doctoral dissertations (pages Y-47 to Y-56).

To continue the conceptual art project of making the research process a creative process, the next steps for this work might be for me to find a gallery and 'adventure' readers to help me exhibit the map-sketch that has resulted from the thesis 'Word Triangulation'. I would also be interested in documenting experiences of different readers and their interactions with the physical artist's book. While my focus has been on creating a physical, artist's book-thesis as a designed artefact to push against the tradition of the required, bound, paper PhD dissertation, one way forward with this project might also be to develop a creative, digital submission form for this thesis. Artists' books can exist digitally, of course, as this one does, however, in its required, compressed, Portable Document Format (PDF) for submission to the University's system, it does not convey its whole meaning as I intended. The flat PDF loses some of the resonance of the thesis parts. I would like to undertake further practice-based research to design a web-based, interactive form that better conveys the whole meaning of my work as the PDF alone is not a good fit for a thesis like mine. I have begun this work already to present my thesis to my examiners, who could not interact with the physical artist's book due to pandemic restrictions (pages Y-57). This pathway forward is especially relevant and timely because Edinburgh abruptly shifted its doctoral submission process entirely to electronic files only (Appendix Z), foregoing any physical book submission and relying heavily on the PDF (Andrew 2020, Hunter 2020). Indeed, time has proven to be a challenge and practice-based research variable in making my thesis; the next section discusses this.

8.5. Time as a Challenge, Research Variable, and Opportunity

Throughout my doctoral studies, time has been a challenging variable. It has played a pivotal role in my research and my practice-based outputs. For instance, I performed the 'Word Triangulation' underlying my thesis writing during two distinct time periods: before my abrupt personal losses and medical issues, and then during my grieving and recovery. The challenge was in how to navigate the time change from a 'before' to an 'after' in a creative work that spans the two. (Chapter 7 describes how I responded, working through the challenges by altering my writing.) Based in my creative practice, my doctoral project and thesis could not continue as what they were

before the ‘after’. Time became a distinct, practice-based, research variable for me—an ‘intersection located in time’ for my creative practice. Experiences of loss did surface in my writing, but these concepts of ‘before’ and ‘after’ were crucial intersections.

Similarly, the COVID-19 pandemic has created another ‘before’ and ‘after’ intersection and I have been struggling to reconcile my doctoral output with the current circumstances. I worked for the greater part of five years toward submitting a physical artefact in a bound, paper format—the focus of the regulations—to be examined alongside the auxiliary PDF (pages 158, 160). Due to pandemic restrictions, the University no longer allows physical book submissions and now accepts only electronic files, intending to do so permanently (Andrew 2020, Hunter, 2020). Ironically, my intention to push against the bound, paper requirement has been upended and inverted: my thesis now pushes against the electronic-only requirement.

8.6. A Final Statement of Theory

Using a lyric inquiry (Neilsen 2008) in conjunction with modes of association (page 186)—adjacent possible (Johnson 2010), intersections (Johansson 2004), bisociation (Koestler 1964), analogy-making (Holyoak and Thagard 1999), exaptation (Johnson 2010), pattern breaking (de Bono 1977)—can facilitate generation of concepts and project drivers (page 30–36) for new ideas using glass as a creative medium, specifically through ‘glass’ and glass concepts (Chapter 3). My research provides evidence for this through development of ‘Word Triangulation’ and studies of the tool’s use (Chapter 6), and through my thesis writing approach and its outputs (Chapter 7).

I used my word-working, the lyric writing of my creative practice, to respond to and dissertate with my academic writing for intersectional purposes to facilitate my creative idea generation and study of idea-making. It aided me in knowing my unknown, but this meta-creativity approach (Runco 2015) with my lyric inquiry is just one possible way of being creative about creativity research through creative, practice-based research. The research is limited in this way. Further research and development by creative practitioners through their own creative, practice-based research (with lyric inquiry or with methods and media specific to them) is needed to re-perceive and re-imagine this approach for more insight as to how it might be useful.

In the spirit and tradition of Edinburgh, as expressed by Sir Timothy O’Shea, I did ‘make trouble’ (page 160) with this thesis. For me, certainly, it was forged in a crucible of my own curiosity, but I hope readers find it useful and enjoy the show.

Chapter 8 Lyric Notes

[1] This is a photograph I took at the Edinburgh Waverley Station in 2013. I used it to discuss the phrase 'Mind the Gap' in the opening to my first MFA essay: its cautionary use in the United Kingdom's transportation system and its related phrasing in yoga and meditation practices which seek the gap in thoughts. In light of my creativity research on association, the phrase takes on additional meaning when considered with associative leaps and the gaps between the concepts they bridge.

[2] To conclude the 'Word Triangulation' writing process, I need to stop making associations with the academic content, but I put in place a writing system that could continue endlessly. For these new lyric lines I write, my system necessitates an 'Interlude' to collect them together and develop them further. That 'Interlude', then, would need academic explanation and then my lyric would respond yet again and so on.

[3] This is the detail of a photograph I took in 2015 in the ECA hotshop, while we (the *Makers Marks* team) recorded the sounds of glassmaking, which we later embedded into the designs of our physical glass outputs.

[4] This line recalls the *Working Titles* entry '▷**F. 29.03.18**' when I could not calm my mind and its rambling, associative thoughts. For the conclusion of this project, I must and therefore, have decided that I will not be making an 'Interlude' from these lyric lines of Chapter 8 in order to find my ending.

[5] I photographed the 'Changed Priorities Ahead' roadworks sign in Edinburgh in 2017.

[6] As the hourglass suggests, time has been a factor in this thesis writing (and time is running out for me to finish my submission). One more interesting note about glass associations: while the hourglass timepiece can be traced back centuries, it has taken on another meaning in writing as a structural form. It is found in journalism to blend reporting and story-telling, and considered a creative approach (Scanlan 2003).

[7] Taken by Christopher Payne for the *New Yorker*, this is an image of Valor Glass vaccine viles in production at the Corning Glass factory in November 2020 (Khatchadourian 2020).

[8] This image depicts the showing of Christian Marclay's 2010 film *The Clock*, an 'ode to time and cinema' (Museum of Fine Arts Boston 2016). It is a 24-hour-long, looped video, comprised of thousands of fragments of television and film media clips that show the time in the scenes. It is also a time-piece, synchronised with the time of its showing and running in exhibition, with audiences, over the course of 24 hours. I queued at the Museum of Fine Arts Boston, in 2011, to see it during one of its 24-hour showings.

[9] This meme, along with several other similar ones, circulated widely on social media sites in the days following the United States election of Kamala Harris to the Vice Presidency.

Coda

crucible

Pronunciation /ˈkruːsɪb(ə)l/

NOUN

A ceramic or metal container in which metals or other substances may be melted or subjected to very high temperatures.

A situation of severe trial, or in which different elements interact, leading to the creation of something new.

(Oxford University Press 2020)

(22 July 2020)

The Glass Confluence
can occur in the crucible of the hotshop's furnace

or

It can take place as a conceptual meeting:
lyrically in a creative mind or on paper as a 'Word Triangulation'.

(22 July 2020)

Encore

When my words converse among themselves,
Their chatter is familiar,
Quiet roaming, disquieted by routine
They seek to be noticed but go unseen.

When my words play with your words
Wrested thoughts converge,
A bit mangled they are for the mingling
But happy refreshed, recombobulating.

—Written on 28 February 2016 and placed as the 'Encore' on 22 July 2020

Note: On 10 August 2021, I accepted an employment offer to become the new Executive Director for the Newburyport Art Association in Newburyport, Massachusetts (United States). The organization's mission is to provide access to the arts for everyone while striving toward a vision of inclusivity and diversity.

Working Titles

A Book of Ideas

△▽▷

Contents

△

△A. Cathedral (6: 2**13**).....3

△B. Polyphonic (7: **276**).....3

△C. Poetry Collection (7: 3**31**).....4

△D. "Unbounded" (7: **294**).....5

▽

▽A. "String Theory" (6: 19**7**).....11

▽B. Triangulation of Time (6: 2**15**).....11

▽C. Glass Reading Aid (Appendix R: R-1).....12

▽D. Fun House Space (2: 2**7**).....13

▷

▷A. Quantum Creating (6: 21**7**).....17

▷B. Triangulating (no page ref.).....18

▷C. Reflections (6: 26**7**).....19

▷D. Capturing the Environment (no page ref.).....20

▷E. Book "Pages" (no page ref.).....21

▷F. Consequential Poetry (*Working Titles*: ▷E).....23

▷G. Fusion (2: 2**8**).....25

▷H. Three Voices (4: 1**42**).....26

▷I. Measuring My Days (2: **51**).....28

▷J. Prince Rupert's Drops (*Broken words*: 37).....35



△**A. 17.07.17** Triangles of cut and coloured glass hanging in a large space with colours and sizes representing various aspects of the dissertation-chapter hierarchy perhaps-a literal response...an installation of colour and light suspended as if the stained glass windows of a cathedral exploded but designed as an abstract composition making a whole; viewers could walk through it; *a cathedral to the dissertation*

△**B. 31.05.18**

Do I carry the Word Triangulation metaphor into an exhibit? Exapt the principles and place it onto an exhibit? How to do this? I mentioned earlier in the Outlier Log the idea of the voices converging with readings of various pieces...but what would it generate? What would the generative act be? Would it be the merging of sounds to create a polyphonic (Zwicky used this word and I was first introduced to it by Jen) a polyphonic music work? How to capture it or orchestrate it? Would I work with Dave? Would the audience play a part in adding their voices?

If the voices merged, what would this merging look like? Could it be etched into glass? Or "dusted" into glass? Am thinking of those kinetic audio sculptures using large speakers and drums where the pass moved sorrowe glass moved when the sensor was triggered). particle grains on the speakers (kind of like the

△C. 01.06.18 I was just writing the lyric note about the origin of the lines for chapter 7 (drawing from my *Glass Writing* poem to develop them) when I had an exhibition idea. To reference this poem as well as the others I have done during my PhD work, I have been thinking that I should pull them all into a collection and include the collection as an Appendix. I have been thinking this for a while, but when I actually began to type out this thought—the thought of creating the collection and making it an Appendix—I realised that it in itself could be the idea for an exhibit. At first, I dismissed the idea because the intent of this Word Triangulation is for an exhibit, not a single artist book. (That's the thesis itself; I am already doing this). I walked away from my computer thinking I was done writing for the day and I wasn't really having an idea event. When I returned to my desk space, I wrote a note on a torn piece of paper to add making the poetry Appendix to my "to do" list. And the idea event began again with the question to myself: "What if I etched each poem into a glass panel and exhibited the glass panels?" A debate ensued. "But why use glass then? What purpose would the glass serve really? And how

creative is that anyway? You don't even like etching. Well, what if we coupled the etchings into glass with the very first delta log idea of the 'cathedral' to the PhD dissertation? What would the bells be?"
(As an aside, I waivered as to where to place this idea event given that I walked away from the text and it was a note to myself that restarted the event. I wrote it first as ▷H in the Outlier log but then decided that it belonged in the Delta log because the event cascaded (are my idea events cascades similar to what Lisa Feldman Barrett calls "cascades"?) from when I started typing "Appendix" in the lyric note.)

△D. 04.06.20
For the past two days, I've been rereading my idea book and its entries. I also reread my meetings notes from 31 May 2017 about challenging the physicality of my research by considering an exhibit. I've also been writing on Chapter 7 and just explaining this idea logging system, and thinking about my lyric dating. In these meeting notes, Jessamy talked about the submission as being "unbounded" or in soft form until after the Viva when the hardbound thesis was required. At the moment though, the University has stated that it does not want physical work, just electronic copies, because of the coronavirus. Prior to it, the physical book was the ultimate goal, with not a lot of attention given to the electronic format. It takes a pandemic to uproot that tradition. All this time, I've been working to be creative while also conforming to the binding regulations and the paper format of the

thesis-all the rules that to me, seem to hinder creativity in a practice-based PhD. I've been looking at my artist's book again from this new perspective of not actually having to submit it. I'm already so very far into its production with the way that I've laid out the text-in a traditional book form for the University requirement-that I don't have a lot of room or time for really altering what I've done and re-attacking form. However, if my physical thesis is no longer required or wanted, then I don't have to bind the final copy. I could leave it unbounded with pages folded as signatures so that it would read as I have intended, with lyric juxtaposed against academic. But I could leave instructions (like Sol LeWitt did) for more of the performance of the Word Triangulation. I could instruct the reader to hang the pages ceiling to floor (in the air if I print double-sided) or spread out on a floor or hung on the wall if I print single-sided, to create the physical map-sketch. The reader could use string included in my book to trace the writing route using my lyric dates. Flag pins could highlight where the ideas occurred. What would traveling the writing route look like? Would any new insights be gained from looking at the writing this way? Would different readers approach the instructions differently? This certainly could be an answer to my question of how to exhibit the research. But interestingly, the medium is the same, as is the artist's book form. And it has its origins in my first year annual review presentation when I showed all the pages of my report in one slide to show patterns. What's also fun is that in this idea, the experimental black box performance is there, but also the black box travel data recorder.



∇A. 25.07.17 Life-size or rather room-size, three dimensional containers of brightly coloured string or string art offering a space for the viewer to trace the connections and intersections; another literal response to the explosion of the dissertation following its many threads of thought; *"string theory" of a different kind*

creative process is so far from being executed in a vacuum-the strings came from a quick glance at FB during the day I was reviewing this piece of writing and I saw a friend's invitation to like her mother's textile shop; the photographer had posted photos of her weaving loom with bright coloured threads and the word 'highlight' in my writing brought me back to those images I had seen

∇B. 27.07.17 Any "explosion of the dissertation form for exhibit" would have to address the variable of time. The manuscript requires discussion of the past (what has come before), the present (what the researcher/author is doing), and the future (what might come next with the research or how the research might make an impact); the author is also required to be in the present but reflect on the work, a type of time warping for editing and revision; *the academic dissertation is a triangulation of time*

∇C. 15.09.17 A glass aid for reading the dissertation? A physical, circular lens of some kind? Glasses. Rose-coloured glasses! Perhaps I could insert a pair into the sleeve of the book? Write the lyric in red text so that the rose-coloured glasses *blind the sensitive reader* to the "uncomfortable" parts of the dissertation?

23.09.18 During my 3rd Annual Review meeting, I had this thought again about my dissertation readers using rose-coloured glasses. My format seems to make everyone so uncomfortable that I might as well invite the optimism in by referencing the idiom of "seeing the world through rose-coloured glasses". Rose-coloured glasses (especially the FL-41 tint) have been found scientifically to ease the pain of migraine sufferers, so perhaps it would ease the discomfort of my readers! Thinking further about my original entry, rose-coloured glasses would actually amplify red text. So, I could write the lyric in a very light pink so that readers who are very uncomfortable with it, don't see it, but in my ideal world, the lyric holds such weigh in fewer words and the rose-coloured glasses would amplify the lyric text. I could create a pair of glasses that allow for three ways of viewing...clear glass, rose tints, and mirrors (for introspection).

∇D. 03.12.17 Create a fun house type space to represent the creating mind and process that wrestles with time, memory, experience using both physical artefacts and Tilt Brush or Oculus Rift ...can Tilt Brush create mirrors and mirror effects within the virtual reality space to represent time?



▷A. 03.08.17

abstract idea' a triangulation' an artefact'
this textual object. My textual object is a trap' an
The important triangle is the reader' the writer' and

---

are the visual patterns?
the sounds in the stream? Where do they meet? What
text v. the patterns in the sound created by the poet v.
research? What are the patterns in the sound of that
the raw text and material. But what is the voice of the
what is the stream of consciousness? The collector of

consciousness. Or of research' poet' and?
the dissertation are academic' lyric' and stream of
that harmonize in different parts. The three voices of
immersive multiplying sound piece with three voices
and the many conversations among concepts. An
In sound? I wonder if it could be done with a voice piece
whole.
Unlikely fractured bits coming together to make a
fractal patterns fracture. This sounds like glass.

---

waves of glass sounds.
Makers Marks worked with sound particles and sound
like valence electron particles jumping their orbits.
particle and the wave are the same. Creative leaps are
Locate the particle and Von collapse the wave. The
Quantum physics of creating?

Back to the voices...I need something that is generative ... giving feedback...being embedded. I wonder if it isn't finishing the Re-Sonata?

(intersection the day of the writing above was reading a chapter on quantum physics while taking a break from the writing)

▷B. 11.03.18 (I don't think an outlier symbol belongs in the book anywhere for this entry...I was thinking about the writing/work in general...it doesn't relate to a specific page or section and it wasn't on a writing day)

I didn't capture the stream of consciousness...at first I didn't realise that I was thinking about my dissertation...I was doing housework around Noon before Dave and I were supposed to go to for a nature walk. I was thinking about the dissertation writing that I have to start again tomorrow (Monday) and was feeling a bit anxious that I hadn't had an idea event during those two days of writing. So, I remember purposefully thinking that I need to think about my intention before my writing and I need to be aware of it during my writing; I ignored this last week. So the idea ...perhaps I should start with a blank exhibition space on the first day of the exhibition and be given a set period of time...the exhibition is open x number of days. On day one I begin one of my triangulations and

from there, I see what happens. I develop the triangulation and leave that for display and hopefully have the start of an idea afterwards. The exhibition is the idea generation process itself and cameras would follow me outside of that space and project what I do within the exhibition space. I would work within the space whenever it allowed, but I would work within other studios when necessary and bring back artefacts to the space, using it like a curated studio space. The space and arrangement of the artefacts would vary daily each day during the progression of work.

▷C. 13.03.18 (I was thinking about the lyric note I wrote about Josiah McElheny in section 6, so perhaps an outlier symbol belongs there)

I finished an hour's worth of academic text writing on Chapter 1 and stopped to take my shower around 10:30am. I found myself worrying again about meeting my word count for today as well as enabling idea events. It's a shift in focus to allow the idea events and I worry about taking the time to focus on my intention when I am trying to meet word counts. It was then that I remembered the idea event I had last night. I was in bed trying to sleep and recounting the day, worrying about the next day's writing. I focused on my intention and found myself thinking about Josiah McElheny's work and the lyric line and note I wrote for chapter 6. I had an image of one of the studio spaces off the ECA Sculpture Court and turning that into a performance space. Inside I pictured a man (I don't know why)

"playing" glass water bowls that were mirrored in the same way McElheny's are. The studio space was also mirrored throughout in the same way as his Boston MFA work. The sounds of the glass bowl playing were projected outside the space into the Sculpture Court but also captured and fed back into the studio space where the man was playing the bowls. Perhaps it could be fed back in as a reflection or a crab canon? In any case it was overlaid as a layer in the studio room. As I was falling asleep I considered getting up and writing it down in the moment but then assured myself I would remember it and fell asleep. I didn't remember the event until now. Today I think that some improvisation or reaction to the overlaying feedback sound would be important by the performer. Or would there be another performer? How would an audience see or experience the performance from inside the studio?

▷**D. 19.03.18** (I was settling into sleep but was worried again about starting the week's writing and still stressing about exhibition ideas, thinking about my intention of exploding the research for public exhibition...where to put the symbol?). I argued with myself that this is what I am doing with the thesis book. But it's not necessarily for the public at large. So what to do? I thought that I should follow with the project and exapt the triangulation and place it onto a larger, physical space for exhibit. That set my mind to working out what the three points of the triangulation would be. I landed on "environment", "glass", and "me".

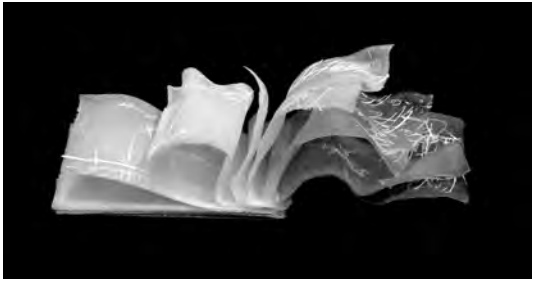
I got up out of bed and wrote those words down and another note about kiln-firing glass based on the environment (sounds, dust, etc.) of the day. The idea would be to capture the environment every day, encode it onto glass by firing a glass piece a day in the kiln, and then exhibiting the glass as my adjacent possible. But how to capture sound or the traces of dust in the environment onto the glass? I would need to come up with some sort of notation/etching system to encode the day.

Or what about capturing the affect/valence and the word count within the glass as part of the process of writing? X would be a metal? Y would be a different material? Number of words or minutes spent writing could be represented by something else? Firing times?

▷**E. 28.03.18** (where to put the symbol? Maybe on the lyric contents page?)
I recognised that an idea event was happening and stopped what I was doing (making breakfast) to start writing this. A few minutes ago, I had read a private Facebook message to me from Nancy Current, encouraging me with my PhD work and talking about how she had an early body of work that incorporated poetry in her glass by making vitreograph prints. I walked away from the computer thinking about the poetry in the glass and thinking about the various reasons I hadn't wanted to go this route. But then I began questioning myself...well, shouldn't I reconsider

it? If I am creating this “epic” PhD poem, and lines of poetry/lyric are drivers for my glass work, shouldn’t I think about how to use the whole finished poem to drive a final exhibition and explode the research? I thought of Anne Petter’s recent glass books and wondered if I might collaborate with her to get my poem into her book form. She was a big influence on me as have been other glass artists at the ECA. What if I invited multiple artists who have been influential in my glass world to collaborate using the poem as a driver?

Anne Petters’ recent glass books were the first to come to mind as I had at one time thought of doing something similar and she has been posting recently about them:



Book of Disquiet from her website.

Then a former glass associate from Diablo Glass School Boston came to mind as she had made a cast glass version of a book. It was a solid and weighty item, very unlike Anne’s.

I remain intrigued by the ECA alum’s flameworked glass tree growing from a paper book. I can’t find the image of the glass tree out of the book-ask Jess

▷F

For an exhibit, I pictured my book at the center with the rest of the “pages” growing from it within the gallery space as the tree was for this book.

Jeff Zimmer came to mind as his work looks to me like pages out of a dark, dutch, 17th century storybook ...and then I also thought of my glass pate de verre work to embody sorrows.

Maybe it is a mapping/exploring of my adjacent possible in glass with my thesis at the center of it. With “pages” of the book reinterpreted by other glass artists who were influential? Combining and recombining possibilities?

▷F. 29.03.18 (This is an outlier idea that directly stems from searching for the image to finish off the outlier post from yesterday above-so the above post needs a symbol)

Frustrated...loved all the images I was seeing as I was searching for the glass tree growing from the paper book. I love artists books and sculptural books. So many ideas already taken. Will I ever truly have a good one?? It's such a worry. Glass books have been done. Everything Su Blackwell. Words spilling from the books has been done.
So what is a book?
What is a poem?
What is a glass poem?

–cut to image of floating glass–
why is the glass always floating and light when I think of poetic glass?
What would a poem of glass look like?

–cut to image of 4th year's encoded braille patterns on her silversmiths cups from her dissertation–
so it would have rhythm and pattern and be light and floating. What if I went back to my sorrows glass and reworked it? Aren't poems reworkings of the language? Ideas are reworkings and recombinations? How can I use what I already have made? Funny that I used "cut" in this write-up. A glass poem wouldn't only be light...it would come crashing down and have consequences. So there would be movement and an event within the piece. What about my Sorrows bits patterned and rhythmic in the air only to fall and shatter? We've been here before. Yes, but we haven't done it yet. A kinetic event. Polarity in sound and feeling. But safety? A dropped floor/a false floor. Success and failure of the research process. Starts and

stops. Remains. Energy. Movement. What would it look like? How would it move rhythmically? How would it fall? Would it be a new mobile sculpture each day of exhibit? Falling daily, creating a pile. A pile of pieces. A pile of crap. But out of the ashes?

Is this normal???? My brain won't stop. Stop.
Reminds me of my Embodiment piece strung up for the Traces exhibit.
Stop.

Pieces of glass corresponding to numbers of?Maybe a different motif each day based on each line of the poem? Cut the strings as a physical performance act each day...the act of rewriting...the physical stamina it would take to do the creating each day...the completed work...just the pile and documentation, but the act would be new
Please stop.

▷G. 13.04.18 I used today as a reading day, rather than a writing day, to source some additional supporting statements and prep for my next bit of work in chapter 2 on ideas and concepts. I finished my reading and notetaking and went to the gym near the end of the afternoon. I had headphones in for music and was concentrating mostly on that, but was aware that I was thinking underneath the lyrics about what I had read and how I would approach my next writing session. I still have a section to work in about words and the primary connection there with innovation, concepts, and my dissertation. So, as I was thinking

about that I remembered the video I had watched last night of Callahan Connor performing “Woodchuck”, his fusion of spoken word and music that he developed in residence at Banff for the 2015 Spoken Word Program. I had no place in the gym to capture the idea as it was developing in my mind, but the thought is this: what if I would collaborate with a spoken word artist such as Connor (I really like how he uses words and jumps off of them to get to the next thought-it feels familiar) to present my glass confluence poem and my research? It could be a spoken word performance of my material-we’d work through together with me leading the design of the word flow and performance. We could couple it with visuals or optics related to glass and innovation.

▷H. 07.06.19 This hasn’t happened in some time, but I found myself having those quick flashes of association again, thinking again about how I might exhibit/present my work for the Viva. My supervisory meeting was last week and I wrote up notes for it today while pausing from thesis work. I was just now standing by the window looking out at the waning summer light and thinking: Geoff’s comment about going the untraditional route for the viva presentation, which led to Seeing my image of my book spotlit in an empty room Remembering the University post about an ESALA’s student PhD exhibition of “Prototypes” from earlier today

What is the essence of my work? The dialogue of the three voices that generates something new

It’s why I was thinking about incorporating sound...the sound of the three voices in my writing that create something new when they sound together- I can do some of that. I couldn’t do everything I’d want to do, it would be too much by myself. It would be incredible if the three voices were sounding around my open book which would be spotlit with the tool or display. But how else can they make something new? When new adjacent possibles are incorporated. So what if various environment sounds made their way into the voices dialogue through some sort of live recording and remixing to add a new beat or tone or rhythm

---

So my thesis is all about ideas. What if my Viva presentation presented a selection of the best of my ideas for the Viva presentation?? Superimposed within a “black box” room? Or in this case of art....a white space?

What if I curated an exhibition of the ECA Library’s artist books to incorporate mine? The dialogue of the pieces would generate something new

I could include large-scale images like the glass book...what if I went further and asked artists/museums if I could show prints to place my book in context. That’s a bit egotistical and self-centered. Well, the work didn’t happen in a vacuum.

Okay so it's about context...all the research context. That the writing is a curated voice...it has all these other voices happening during the writing that don't get shown in the final work usually. So dump all the research into the space around the book. What would that look like? Make three piles. Borrow back all the books. Print out all the articles and websites and all the images of the academic. This doesn't really work.

▷I. 22.02.20 22 February 2020 4:38am
My stomach's in knots and cramping, my head is woozy, I can't sleep, I've had a bloody nose most of the night...I've had ibu/cod, 2 sudafed, 2 antihistamines, vit c, vit d, mag, multi, gk mtn tea, monolaurin

---
Measuring my days (but not with coffee spoons)

It's about charting, collecting, analyzing, embodying, hoarding, taking up space
It's about mental health
It's about how health, physical-mental-emotional took over but even to doctors my appearance was deceiving
It's a visual diary
It's about capturing-recapturing myself
It's about capturing the feelings
It's about reclaiming-myself, my making, my days
It's about looking
It's about feeling
It's about being seen
It's obsessive

Glass jars marked with date/time/contents

Marked on bottoms like lipsticks? On sides like Rx? On top like spices? A jar for every day....different kind of jar for the kind of day? A makeup bottle for an outside body day? A food jar for an inside body day? What for a mental health day? Will I collect the bottles or buy them or make them? I hate cold working and facility time is expensive...a reason to go to recycled bottles is for expense, daily life connotations

Making the bottles or designing them would change the aesthetic-for better or worse or just different?

I've been charting using colors. What color glass?

How will I decide what to put in them? Will there be parameters? Will there be text?

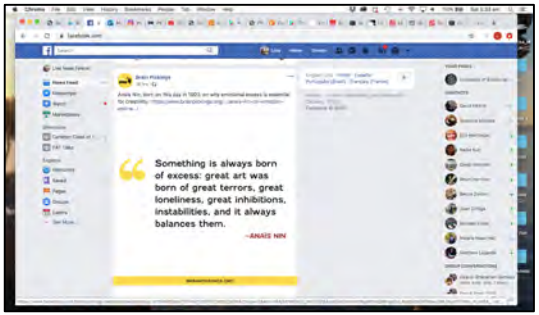
All the thinking on this really came to surface-in terms of it not going away-when I saw Liza Lou's Continuous Mile and used it in my lyric in yesterday's writing. I kept thinking how much I wanted to create something like it...an overwhelming desire to create something significant like it, in all of its loaded, elegant, simplicity. And it's so beautiful and somehow a bit tragically beautiful and with such weight to it. This tiny form with such physical and associative weight. I've been thinking about this underneath for all these PhD years...wanting so desperately to contribute in a meaningful way...so the thinking is not sudden at all.

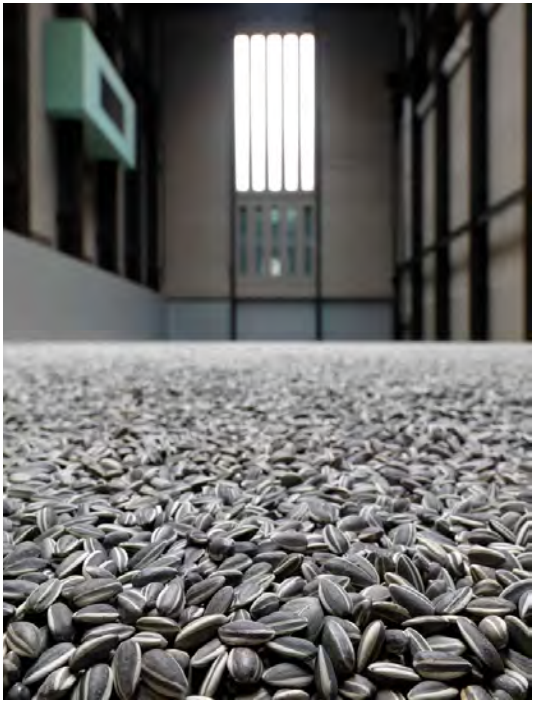
But remembering her piece through my lyric touched off the thinking on the surface of my mind. And one of the last things I saw before bed was the quote screenshotted below (I still had it up on my computer when sat down to write). And because I couldn't sleep, I let my mind work on the problem. Had some real anxiety about not being able to respond to myself with any ideas...thought about physically doing a word triangulation tomorrow but began it a bit in my mind without getting out of bed. I used "glass" and "childhood trauma/addiction/health" and "obsession" as my gateway elements. Loads of associations with those...too many I couldn't capture. Significant ones included the gun violence memorial glass houses built by glass bricks, T.S. Eliot's *Prufrock* and bits of past projects, like my Embodiment, but also unrealised ideas like one that used old powder compact mirrors. I thought about Ai WeiWei's ceramic sunflower seeds, Clare Twomey's serial ceramic production, Hanne Darboven, Katherine Gray's Forest Glass at Corning, curiosities, curio cabinets...All of it led up to the above "Measuring my days (but not with coffee spoons)" so that I got up to write it down. Is this an extension of my PhD project? I've charted throughout the course of my PhD...health wise, writing wise

I charted so many of my days while I was doing my PhD...I have all this data...but it doesn't feel like my PhD project...it could be taken and used to capture a creative process...an extension of Joanna Spreadbury's diary making project. But this feels a little different...this isn't about my PhD research

necessarily...I didn't set out to answering my question of how to put my research into another form, though it's directly jumped off from my research and my writing. Instead it's a type of response to considering Lou's work and answering my question of how can I create something that has a similar effect...an overwhelming desire to create something significant like it, in all of its loaded, elegant, simplicity. I was thinking about it and its additional characteristics-one tiny form in multiples, and how that form created the rope form and how that form created the tire form and how many associations were present in this art work. How the form is a glass bead...a raw material she didn't make or physically weave into the work herself.

"I have measured out my life with coffee spoons;" T.S. Eliot in the *Love Song of J. Alfred Prufrock*





Ai Weiwei ceramic sunflower seeds at the Tate



Clare Twomey, Trophy at V&A

Hanne Darboven at Talbot Rice

Forest Glass, Katherine Gray
2000 found drinking glasses

--5:36am--

▷J. 07.05.20

I finished the writing of what I believe to be my final, overarching lyric piece for this dissertation. I recognized the themes while writing Interludes 3 and 5, but had to finish 6 because it included lines that were rotated with early idea events. For this final lyric, I pulled from all the Interludes I had written to date and took my favourite lines and the lines that I knew held the themes that have concerned me throughout the dissertation writing. I wrote the new lyric in a couple of hours but my mind hasn't settled yet. I was hoping it would with the writing, but now that it is down on paper, it's clear I am still searching for ways to put this lyric and the themes into glass again. Earlier today, I was writing on Chapter 6 and working with the lyric images and I returned to thinking about the Prince Rupert's Drops. I think they encapsulate the tensions and polarities to an extreme and I know I would like to work with them either in installation form or to create memories of a performance or memories of the drops. I can see making the drops and then exploding them onto other glass surfaces which would be prepped to retain the shards. And then work with those pieces of glass further to track fuse in the kiln or to fire to higher degrees to see how the drop shard\dust patterns appear. How will the glass retain the memory of the drops? What would that glass then look like made into vessel form?

This book was created as a section of the author's
artist's book-thesis, in partial fulfilment of her
Doctor of Philosophy, Design degree at
Edinburgh College of Art at the
University of Edinburgh, Scotland, UK

Image credit information can be found in the Lyric
Figures List in the main body of the thesis

Type set in American Typewriter

This is a unique edition
(excepting the artist's proof)

Copyright © 2020 Lisa Naas
Glasgow, Scotland

Broken words lost in silence seek connections

A Book of Lyric



by Lisa Naas

A TangledTree Studios Publication

For Dave, my love,
who gives me my safe space
and so much more every day

Cover image:
Tangle Tree (2007) by David Faleris

Contents

Author's Note 1

On vulnerability ...
In the Evening's Gloaming 7

On loss ...
Ashen Roses 11

Two memories ...
With Maraschino Cherries 15
If You Ever 21

On self-doubt ...
Letting Go 25

On persisting ...
The Day After 29

On resilience ...
On Scotland 32

On memory and healing ...
Listen to the glass 37

Author's Note

When I set out to be creative about creativity research by using my own practice, I put myself in a rather vulnerable position without initially realising it. The creative process is often a personal one, and for me, at times, it can be deeply personal. During the first year of thesis writing, I maintained an easy distance though, using 'glass' concepts in my lyric writing to refer to innovation, history, and popular culture—safe topics. But my thesis writing coincided with major life events for me that began in July 2018: a cancer diagnosis, subsequent surgery complications, a chronic fatigue illness that clouded my thoughts and stripped me of control over my days, the death of a friend and three family members (including my estranged, alcoholic father), and political upheaval in my home country. And all this was prior to the Covid-19 pandemic. My path in life had suddenly and irrevocably changed course. My writing changed as well.

The personal inevitably bled into my lyric thesis writing. When these life events dominated my days and I could not work on my thesis, I wrote other lyric pieces as both a release for my thoughts and emotions and a way to work through the grief, loss, and change I was experiencing. To ignore the

personal would be inauthentic to my process, as it ultimately influences my creative practice. This book brings together these other lyric texts, to acknowledge the role of my personal experiences in the making of my thesis and related outputs. The lyric writings in this book evidence the environment of my mind, and provide yet another backdrop to my thesis writing and the creative process held in it.

These lyric works developed over the course of my doctoral research. Three are direct outputs from my thesis writing ('In the Evening's Gloaming', 'Ashen Roses', and 'Listen to the glass'). In the context of this collection, these writings take on additional meanings and layers beyond what is found in their juxtaposition to the academic text. As memory has repeatedly factored into my 'Word Triangulation' and lyric thesis writing, I include two memoir pieces ('With Maraschino Cherries' and 'If You Ever') that influenced some of my thesis text and images. 'With Maraschino Cherries' began as part of a side project I created to use 'glasses of' as a catalyst for my writings. The piece is certainly an ode to a child's glass of the Shirley Temple drink, but it developed into much more than that, addressing some very adult topics in the writing. 'If You Ever' was written prior to the George Floyd protests of 2020, but is, unfortunately, very timely. 'Letting Go'

discusses my struggle with words, especially, when I was very sick. 'The Day After' pays homage to Maya Angelou and specifically addresses the protests and women's mobilisation triggered by the 2017 United States Presidential Inauguration. 'On Scotland' provides a glimpse of place and my relationship with my host country. The pieces are certainly varied in theme, but they are connected in purpose.

Through the curated, ordered collection, I do tell a story about the creative process, the role of memory in it, and the vulnerability, self-doubt, self-criticism, persistence, and resilience that sometimes accompanies it. But I also tell a story about the healing process, which can be similar to a creative process in the same terms of requiring a safe, supportive space for memories, vulnerability, self-doubt, self-criticism, persistence, and resilience. The creative process uses modes of association and combination to shape new ideas. I learned that the same can be said of the healing process. One way to heal and begin to move forward is to reframe emotional pain by breaking patterns and forming new associations, essentially reshaping the experiences and the inner dialogue. This collection is a meditation on the creative process and the healing process, with a mantra for both: 'Breathe it in. Exhale it out. Shape it anew'.

On vulnerability ...

In the Evening's Gloaming

The first notes hung in the evening's gloaming, but there was light enough. She wrote, "I am all of glass" and "Your gaze hits the side of my face".

"Your gaze hits" And I am all of glass!

Deep breath...keep on center, she thought. Breathe of toasted Times and burnt blocks while crackling bits chatter of losing heat in the bins.

Shards of glass sound off, the sound of forgiveness blocked.

Listen to the glass.

Body of glass remains a portrait of some clarity.

The turn is the key.

Surface textures the vessel interior.

Work the line of heat.

Trust the inner fire. Trust the hands and their touch, what only they know. Trust the senses and what the body breathes in, to exhale it out and shape it anew.

She came back to herself, the line of light dark now and the music swelling.

(March 2018, May–July 2019)

On loss ...

Ashen Roses

Vaulted, exalted, your view soars through time,
Where the South Rose bloomed perennially.
Prayers I left in your thin space,
In the divide between here and There,
In between the colours that sift the air.

Ash to ashes perhaps or ash contained
By brick by brick, in forever buildings.
Small vaultings with barren spaces,
Made for memories to reside there,
Wakened for public viewings, unrest bare.

(April 2019, February 2020)

Two memories ...

With Maraschino Cherries

She traced her fingers along the ruts and ridges in the old mahogany, varnished over the years with lacquer touch-ups and amber, beer washes. So thick and smoothed-over was the resin coating, that she couldn't feel the wood itself, except when she explored its knots and imperfections. The edge of the bar was wrapped in leather, and she felt it soft against her chest as she leaned forward to look at the bartender. It was quite dark in the room. The cellar space offered no windows, at least, not any that she could see. From floor to ceiling, the walls showcased red, velvet drapery that held swaths of murkiness between their folds. The heavy fabric matched the seatbacks, and the whole of the place seemed rinsed with a deep wine color. The area behind the bar was bright enough though, and the light gleamed and reflected off the glass bottles, displaying a fluid palette of earth tones echoed in the wood. She put her cheek to the counter for a closer look and watched her bartender from the skewed angle. He was dressed sharply in his tailored vest and crisp white apron, busy preparing a glass, stacked high with just-cut ice. But it wasn't her drink, she would have to wait.

All around her were her father's businessmen

in their suits, their voices rumbling low in conversation. She tilted her head occasionally to follow their cigarette smoke. The grey curls floated upward to play with the dust that shimmered and whirled in the tinted lamp glow. Every now and then, the front door would creak open to reveal someone new. She would swivel in her seat, just in time to watch the shadows explode with sunlight. When she blinked, she could see the light streams and silhouetted figures on her eyelids, even after the door shut. Savouring her temporary, secret pictures, she blinked again.

Most of the men were standing or seated at the booths and tables, but here she was, high on a tall stool. Her legs dangled and she liked to raise her feet so that her patent-leather shoes touched the wall of the bar. They were her dress shoes, shiny, stiff and black with little straps that held them in place around her ankles. It was a rare occasion when she had permission to wear these, but a visit here always meant her best clothes. Her dress had layers to it, with its built-in, silky slip, and a pink, satin bow that wrapped around and tied behind her back. Even her socks were dressed up with their ruffles. Her mother had fastened a little gold cross around her neck, and she tried to look at it now by pulling her chin in and peering down her nose. It was shiny and interesting

with its scrolled etchings, but the chain was too short and her eyes were crossing, and she didn't know how to take it off to see it better. She felt grown up when she dressed up, so she tried not to move too much to disturb her look. Her white-blond hair was still free of tangles from the last brushes of her mother's hand about an hour ago. But little beads of sweat were forming behind her knees, and her bare legs were starting to stick to her leather seat, just like they did in the car after a visit to Coney Island. She lifted each leg and shifted, pulling at the hem of her dress to cover more beneath her, but that made her collar too tight and the crinkly lace scratched at her neck. The elastic of her puff sleeves cut into her upper arms and itched where they made little rivets in her skin. She tugged at them where they held on to her. She knew she wouldn't last much longer—she was ready for her drink.

She could just about taste the sticky-sweet redness of it. The tiny, fizzy bubbles were always the first part of the drink. They tickled her upper lip and nose when she would take her sips. Sometimes they even made her sneeze, if she breathed them in. Little plastic swords usually held two cherries speared through their middles. She liked to have one cherry before sipping and save the other until the end of her drink when it would be soda-soaked. The plastic

swords always seemed like toys misplaced to her in such an adult glass, but she accepted them in order to have the candy fruit. She could see the cherries now, in their jar across the bar top, but she knew she couldn't quite reach them without stretching out across the counter and bringing attention to herself.

For distraction, she listened for her father's voice. His was now the loudest, easy to pick out among the men. She heard him talk of her mother and laugh that deep growling laugh he had when he relaxed. The other men laughed too. She didn't hear all his words, but there was something in the laughter with the men that made her blush. Her ears felt hot and she wanted to leave, but it was just then that her father seemed to notice her. He stepped toward the bar and bumped her chair, standing close. His suit coat hung in her lap as he reached behind the bar. She could smell his warm cloud of peppery cigarettes and leftover cologne. He chose a bottle with a uniformed soldier on the label and poured more drink into his glass. He placed a tumbler in front of her and motioned to the bartender, before returning to his circle of men. The bartender leaned over, pulled the trigger on his plastic gun, and with a whooshing gush, filled her glass. Another separate splash of red created a thick, floating ribbon through the crystal clearness and

then he pushed the pierced cherries into the ice.

She tucked her feet underneath her bottom and knelt up higher. Leaning into the bar, she listened to the fizz. The little pops and whispers covered the men's voices if she concentrated. She closed her right eye and put the left nearer the glass, to see the bubbles jumping on the liquid surface. They sparkled and danced under the lights in a miniature world of their own, and she focused on trying to count them before they burst.

***

"Shirley Temple"
Ginger Ale, 7-Up, or Sprite over ice
Splash of grenadine
Garnish with maraschino cherries

(February 2018, 3 October 2019)

Note: 'With Maraschino Cherries' was published in Winter 2019 edition of *The Inkwell*, the University of Edinburgh's creative writing and arts magazine.

If You Ever

I was nine years old. I remember that. I must have said something to him—some clever remark or smartass comment. Something that poked at his anger. Didn't I? If I did, that memory is gone now. But I will forever recall the black and white of his rage and the snarl of his voice in that moment. He turned on me, towering above the child's height I owned. Through bared teeth, my father growled

"IF YOU EVER DATE A NIGGER—I SWEAR TO GOD I'LL KILL YOU BOTH."

His silhouette blocked the afternoon sun from the windows and his bulk in our white living room overwhelmed my space. I looked down at my feet, where his spotted cow hide covered our floor. And then I looked up beyond the blot of him to the black bear skin hanging on the wall.

And I believed him.

(August 2019)

On self-doubt ...

Letting Go

Here I am, in the middle way,
Middle of the way
To letting go and releasing

Words
Fears
Judgement.

Judging myself so harshly,
Fearing failure of words,
I stall.

Mid-way through,
Resignation is not the right word,
Is trepidation?

Deep breath in—
Exhale out—
Breathe.

If only that were enough
To balance the weight
And way of the words.

It does feel like the world,
For I am not Eliot,
Nor Angelou.

I fall.

(11 March 2019)

On persisting ...

The Day After

Phenomenal Woman
We saw Her there today
From the Capital Mall to Trafalgar Square
From the Empire State to San Fran Bay.

Phenomenal Women
Collected. Resounded.
Measured not in pounds nor inches
But in footstepped miles grounded.

Phenomenal Women
Proud voices registered
Reveling in their Reveal
And in turn, the world tuned.

Phenomenal Women
With collective sigh for sure
Swelling in song and bursting conceal
Silent no longer.

(21 January 2017)

On resilience ...

On Scotland

Wind-whipped and weather beaten,
Walking Hume's path and climbing Arthur's Seat,
I hear the echoes of Edinburgh's literary gods.
They work on my mind, less teasing than taunting,
Rebounding against the ancient rocks
My booted footfalls disrupt.
My breath catches in the mist,
Becomes the ghostly particles I pass through
On my way to the summit.
Striations of grey in the sky make colder
The stones of the city splayed out below.
My bird's eye view but for a moment,
I witness the haar crawling over brush,
Curling smoky tentacles around first foundations,
Bearing swaths of heaviness.

Oh, how dreich the day as
The heavens spit down on me!

The grasses shiver nearby.

Day wanes.

...

Sunrise Over Frost and Fog,
My love's Cross Country,
So the new morning serenades me.
Its hoary frost feathers the land in glinting sheaths,
Winking in the cold brightness.
A grounded invitation.
The day woos, but the soothing night still courts,
Where all the music is in his whisper.

Pipes begin to tune the flat,
A warming reconciliation then.
Yesterday's haze is but a blink away now.

And I?
Well, I ...
I must write on of course.

(March 2019, May 2020, June 2020)

On memory and healing ...

Listen to the glass

Broken words lost in silence,
between the colours that sift the air.
Come with me—take my hand,
let us wander through the looking there.
View, with shifting array,
the divide between here and There.

Shards of glass sound off, the sound of forgiveness blocked.

Malleable memory folds away tension
to reside with unrest bare.
The body remains a portrait of clarity though,
with textures only the vessel inside, aware.
Ever after, the gesture transfers,
by innuendo or with care.

Scored and cut, these fractal moments coordinate movements.

We wonder among the menagerie,
seeking connections to bear
what the body breathes in.
While we listen, the silences stare:
Exhale it out. Shape it anew.
This is the point of the entire affair.
Revel in the colour stained light,
Reflection and mirror reveal Where.

▷J

(May 2016–June 2020)

This book was created as a section of the author's
artist's book-thesis, in partial fulfilment of her
Doctor of Philosophy, Design degree at
Edinburgh College of Art at the
University of Edinburgh, Scotland, UK

Type set in Palatino

This is a unique edition
(excepting the artist's proof)



A TangledTree Studios Publication

Copyright © 2020 Lisa Naas
Glasgow, Scotland

Bibliography

A

Aboc, H. L. (2018) *CR-39 Plastic vs Glass Lenses—Battle of the Oldies* [online] available from <https://eyehealthhq.com/cr-39-plastic-vs-glass-lenses> [26 July 2020]

Adamson, G. (2007) *Thinking Through Craft.* Oxford and New York: Berg

AGC (2020) *A Sculpture of Light and Color Born from Optical Filters* [online] available from <https://www.agc.com/en/hub/meet-agc/kyobashi.html> [26 June 2020]

Albert, R. S. and Runco, M. A. (1998) 'A History of Research on Creativity' in *Handbook of Creativity.* ed. by Sternberg, R. J. Cambridge: Cambridge University Press, 16–32

Albinsson, L. (2017–2018) 'The concept of concept'. [29 December 2017–2 February 2018] *PhD-Design* [online] available from <https://www.jiscmail.ac.uk/cgi-bin/webadmin?A1=ind1712&L=PHD-DESIGN> [22 November 2019]

Alford, L. (2015) 'We know it in our bones: reading a thirty-five-acre plot in rural Virginia with three poems by Charles Wright'. *Philosophy and Literature* 39 (1), 219–232

Amazing Space (2018) *Galileo's Refractor* [online] available from <http://history.amazingspace.org/resources/explorations/groundup/lesson/scopes/galileo/index.php> [8 June 2018]

Amazon (2020) *Amazon Prime* [online] available from <https://www.amazon.co.uk/> [15 April 2020]

Amirkhanian, C. and Eno, B. (1980) *Brian Eno Interview on KPFA's Ode to Gravity Part 1, 1980* [online] available from <https://archive.org/details/BrianEno/BrianEnoOTGR1.473.wav> [17 April 2020]

Andrew, T. (2020) *Query About Non-Standard Thesis Submission* [email] to Naas, L. [13 July 2020]

Art Alliance for Contemporary Glass (2016) *Artist of the Month June 2016: Lino Tagliapietra* [online] available from <https://contempglass.org/artists/entry/lino-tagliapietra1#more> [18 November 2019]

Artpil (2020) *Soundtracks* [online] available from <https://artpil.com/news/soundtracks-at-sfmoma/> [12 May 2020]

Ayoa (n.d.) *What is a Mind Map?* [online] available from <https://www.ayoa.com/mind-mapping/> [20 April 2020]

B

Bajarin, T. (2017) *How Corning's Crash Project For Steve Jobs Helped Define The iPhone* [online] available from <https://www.fastcompany.com/40493737/how-cornings-crash-project-for-steve-jobs-helped-define-the-iphone> [1 April 2020]

Bali, A. and Faleris, D. (2016) *Ewok Machine* [e-mail] to Naas, L. [29 April 2016]

Ballato, J. and Dragic, P. (2016) 'Glass: The Carrier of Light – A Brief History of Optical Fiber'. *International Journal of Applied Glass Science* 7 (4), 413–422

Bannerman, C., Sofaer, J. and Watt, J. (2006) *Navigating the unknown: the creative process in contemporary performing arts.* London: Middlesex University Press

Barbican (2012) *Random International: Rain Room* [online] available from <https://www.barbican.org.uk/read-watch-listen/random-international-rain-room> [12 May 2020]

Bard Graduate Center (2018) *Susie J. Silbert Lecturing on 'Blue Chip Artists, Glassy Thinkers, and Boro Boys: Navigating Contemporary Glass'* [recorded lecture] 13 April 2017. New York: Bard Graduate Center <https://www.youtube.com/watch?v=RHJR2R_k1Ac> [13 April 2021]

Barrett, L. F. (2017) *How Emotions Are Made: The Secret Life of the Brain.* London: MacMillan

Barrett, L. F. and Russell, J. A. (1998) 'Independence and Bipolarity in the Structure of Current Affect'. *Journal of Personality and Social Psychology* 74 (4) 967–984

Bastién, A.J. (2016) 'Hollywood Has Ruined Method Acting'. *The Atlantic* [online] available from <https://www.theatlantic.com/entertainment/archive/2016/08/hollywood-has-ruined-method-acting/494777/> [12 August 2016]

BBC News (2019) *'Abraham Lincoln assassination' opera glasses sell at auction* [online] available from <https://www.bbc.co.uk/news/uk-england-essex-49798821> [25 June 2020]

Beale, S. (2020) *'Through a Glass Darkly': The Deep Theology Behind St. Paul's Phrase* [online] available from <https://catholicexchange.com/through-a-glass-darkly-the-deep-theology-behind-pauls-phrase> [22 October 2020]

Becker, M. (1995) 'Nineteenth Century Foundations of Creativity Research'. *Creativity Research Journal* 8 (3), 219–229

Benedek, M. and Neubauer, A. C. (2013) 'Revisiting Mednick's Model on Creativity-Related Differences in Associative Hierarchies. Evidence for a Common Path to Uncommon Thought'. *The Journal of Creative Behavior* 47 (4), 273–289

Bengtson, T. A. (1982) 'Creativity's Paradoxical Character: A Postscript to James Webb Young's *Technique for Producing Ideas*'. *Journal of Advertising* 11 (1), 3–9

Bergstrom-Mahler Museum of Glass (2020) *Paperweights* [online] available from <https://www.bmmglass.com/collections/> [19 May 2020]

Bethune, G. W. (1839) 'Genius'. *Casket* X (2), 59

Blades Biological Ltd. (2017) *Amoeba Proteus Slide (CBS 067)* [online] available from <https://blades-bio.co.uk/shop/carolina-biological-supply/individual-microscope-slides-and-slide-sets/protists/amoeba-proteus-slide/> [6 May 2020]

Blocko, P. (2016) 'Glass: The Art & Technology of a Material of the Information Age'. *The Glass Art Society Journal* 2016, 21–23

Boden, M. (2010) *Creativity and Art: Three Roads to Surprise.* Oxford: OUP Oxford. Available from <http://search.ebscohost.com/login.aspx?direct=true&db=e000tww&AN=488671&site=ehost-live> [19 July 2020]

Boden, M. (2009) 'Creativity and Conceptual Art' in *Philosophy and Conceptual Art.* ed. by Golide, P. and Schelleken, E. Oxford; New York: Oxford University Press, 216–237

Boden, M. (2004) *the creative mind: myths and mechanisms.* 2nd edn. London and New York: Routledge, Taylor & Francis Group

Bolt, M. (2016) *Revealing the Invisible: The History of Glass and the Microscope* [online] available from <https://www.cmog.org/article/microscopes> [13 March 2020]

Botella, M., Zenasni, F. and Lubart, T. (2018) 'What Are the Stages of the Creative Process? What Visual Art Students Are Saying. *Frontiers in Psychology* 9: 2266, 1–13

Braungardt, J. (2019) *Gestalt Psychology* [online] available from <http://braungardt.trialectics.com/sciences/psychology/gestalt-psychology-2/> [30 April 2019]

British Library (2017) *Treasures of the British Library* [permanent collection exhibition] London: British Library, 15 January 2017

British Library (n.d.) *Leonardo Da Vinci's Notebook* [online] available from <https://www.bl.uk/collection-items/leonardo-da-vinci-notebook> [26 May 2020]

Broussard, M. (2020) *Why Paper Maps Matter in the Digital Age* [online] available from <https://thereader.mitpress.mit.edu/why-paper-maps-matter-in-the-digital-age/> [27 July 2020]

Broussard, M. (2018) *Artificial Unintelligence: How Computers Misunderstand the World.* Cambridge, MA: MIT Press

Bruch, C. B. (1988) 'Metacreativity: Awareness of thoughts and feelings during creative experiences'. *The Journal of Creative Behavior* 22 (2), 112–122

Bruner, J. S. (1974) ed. by Anglin, J. M. *Beyond the Information Given: Studies in the Psychology of Knowing.* London: George Allen & Unwin Ltd

Buck, A. (2012) *Black Box* [online] available from <http://dictionary.tdf.org/black-box/> [29 October 2019]

Bunnell, K. (1998) *The Integration of New Technology into Designer-Maker Ceramic Practice.* Unpublished PhD thesis. Aberdeen: The Robert Gordon University

Burkley, M. (2019) 'The Hour Between Dog and Wolf: Harnessing the Power of Hypnagogia (The Literary Life)'. *Poets & Writers Magazine* 47 (1), 25–31

Buzan, T. (2015) *What is a Mind Map?* [online] available from <http://www.tonybuzan.com/about/mind-mapping/> [December 27, 2016]

Buzan, T. and Buzan, B. (2010) *The Mind Map Book: Unlock your creativity, boost your memory, change your life*. Harlow, England: BBC Active

Buzan, T. with Buzan, B. (1994) *The Mind Map Book: How to Use Radiant Thinking to Maximize Your Brain's Untapped Potential*. New York: Penguin Books.

C

Calkins, M. W. (1896) 'Association: An Essay Analytic and Experimental'. *Psychological Review* 2, i–56

Calvo, M. (2017) 'Reflective Drawing as a Tool for Reflection in Design Research'. *The International Journal of Art & Design Education* 36 (3) 261–272

Candy, L. (2020) *The Creative Reflective Practitioner: Research Through Making and Practice*. London and New York: Routledge

Candy, L. and Edmonds, E. (2018) 'Practice-Based Research in the Creative Arts: Foundations and Futures from the Front Line'. *Leonardo* 51 (1), 63–69

Cappello, M. (2013) 'Propositions; Provocations: Inventions'. In *Bending Genres: Essays on Creative Nonfiction.* ed. by Singer, M. and Walker, N. New York: Bloomsbury, 65–74

Capurso, V., Fabbro, F., and Crescentini, C. (2014) 'Mindful creativity: the influence of mindfulness meditation on creative thinking'. *Frontiers in Psychology* 4, 1–2

Carroll, L. (1920) *Alice's Adventures in Wonderland.* New York: The MacMillan Company and London: MacMillan & Co., Ltd.

Carroll, L. (1897) *Through the Looking Glass and What Alice Found There.* Philadelphia: Henry Altemus Company

Carson, A. D. (2017) *Owning my Masters: The Rhetorics of Rhymes and Revolutions.* Unpublished PhD thesis. Clemson: Clemson University

Carson, A. D. (n.d.) *Owning my Masters* [online] available from <http://phd.aydeethegreat.com/> [26 August 2019]

Catmull, E. (2014) *Creativity, Inc., Overcoming the Unseen Forces That Stand in the Way of True Inspiration.* London: Transworld Publishers

CC Windows (2018) *11 Different Types of Window Glass* [online] available from <https://crystalclearwindowinstalls.com/11-different-types-window-glass/> [23 March 2020]

Centre des Monuments Nationaux (2018) *Sainte-Chapelle* [online] available from <http://www.sainte-chapelle.fr/en/> and <https://www.monuments-nationaux.fr/en/Discovery-area/Sainte-Chapelle-Paris> [12 March 2019]

Charles Hosmer Morse Museum of American Art (2019) *Louis Comfort Tiffany* [online] available from <https://www.morsemuseum.org/louis-comfort-tiffany> [25 March 2020]

Château de Versailles (n.d.) *The Hall of Mirrors* [online] available from <http://en.chateauversailles.fr/discover/estate/palace/hall-mirrors#the-hall-of-mirrors> [12 March 2020]

Chihuly, D. (2020) *Architectural Installations* [online] available from <https://www.chihuly.com/work/installations> [18 May 2020]

Chihuly, D. (2019) *Macchia* [online] available from <https://www.chihuly.com/work/macchia> [31 March 2019]

Choi, K. (2015) *Invented exoticism: The development of artistic forms and inlaid colouring technique to explore the aesthetics of the cultural uncanny in an individual's visual experience with glass.* Unpublished PhD thesis. Edinburgh: University of Edinburgh

Choi, S. (2017) *Keys to Successful Collaboration in a Project* [sIREN workshop seminar on themes of collaboration] Edinburgh: University of Edinburgh, 19 April 2017

Chooseco LLC (2020) *Journey Under The Sea* [online] available from <https://www.cyoa.com/collections/classics/products/journey-under-the-sea> [30 June 2020]

Chopra Center (2015) *Mandalas & Sri Yantras* [online] available from <http://www.chopra.com/mandalas-sri-yantras> [13 January 2015]

Chopra, D. (2019) *7 Myths of Meditation* [online] available from <https://chopra.com/articles/7-myths-of-meditation> [10 May 2019]

Christie's (2019) *Collecting Guide: 10 things to know about Tiffany lamps* [online] available from <https://www.christies.com/features/Tiffany-lamps-10-things-you-need-to-know-9542-3.aspx> [19 May 2020]

Connor, C. (2015) *Woodchuck* [online] available from <https://www.facebook.com/BanffCentre/videos/10157604669378438/> [31 May 2018]

Cook, J. (2019) *How Glass Heals* [online] available from <https://blog.cmog.org/2019/01/09/how-glass-heals/> [31 March 2020]

Corley, C. (2020) *Nearly 700 People in the U.S. Die From Gun Violence Each Week; A Memorial Honors Them* [online] available from <https://www.npr.org/2020/02/04/802336681/nearly-700-people-die-from-gun-violence-each-week-in-the-u-s-a-memorial-honors-t> [6 February 2020]

Corne, S. (2020) *The Yoga of Awakening* [online] available from <https://www.udemy.com/course/seane-corn/learn/lecture/4706814#overview> [24 April 2020]

Corning Incorporated (2020) *Life Sciences: Glassware* [online] available from <https://www.corning.com/worldwide/en/products/life-sciences/products/glassware.html> [25 March 2020]

Corning Incorporated (2018) *Corning* [online] available from <https://www.corning.com/worldwide/en/innovation/the-glass-age/the-glass-age-today.html> [21 May 2018]

Corning Incorporated (2014) *The Glass Age, Part 1: Flexible, Bendable Glass* [online] available from <https://www.youtube.com/watch?v=12OSBJwogFc> [11 February 2019]

Corning Museum of Glass (2020a) *Connected by Glass: Microscopic Worlds* [online] available from <https://www.youtube.com/watch?v=6dUEFHrMhcU> [23 July 2020]

Corning Museum of Glass (2020b) *Glass in Nature* [online] available from <https://www.cmog.org/collection/galleries/glass-in-nature> [20 July 2020]

Corning Museum of Glass (2020c) *Origins of Glassmaking* [online] available from <https://www.cmog.org/collection/galleries/origins-of-glassmaking> [20 July 2020]

Corning Museum of Glass (2015a) *Continuous Mile* [online] available from <https://www.cmog.org/artwork/continuous-mile?image=9> [25 February 2020]

Corning Museum of Glass (2015b) *New Glass Review 36.* Corning, NY: The Corning Museum of Glass

Corning Museum of Glass (2013) *I Saw Othello's Visage In His Mind* [online] available from <https://www.cmog.org/artwork/i-saw-othellos-visage-his-mind> [26 Feb 2020]

Corning Museum of Glass (2011a) *Carroña (Carrion)* [online] available from <https://www.cmog.org/artwork/carro-carrion> [26 February 2019]

Corning Museum of Glass (2011b) *One Step Closer: The Iron Glassblower* [online] available from <https://www.cmog.org/article/one-step-closer-iron-glassblower> [10 March 2020]

Corning Museum of Glass (2011c) *The Origins of Glassmaking* [online] available from <https://www.cmog.org/article/origins-glassmaking> [20 February 2019]

Corning Museum of Glass (2011d) *What is Glass?* [online] available from <https://www.cmog.org/article/what-is-glass> [12 February 2019]

Corning Museum of Glass (2009a) *Forest Glass* [online] available from <https://www.cmog.org/artwork/forest-glass> [1 July 2020]

Corning Museum of Glass (2009b) *New Glass Review 30.* Corning, New York: The Corning Museum of Glass

Corning Museum of Glass (2006) *Glass: A Pocket Dictionary of Terms Commonly Used to Describe Glass and Glassmaking (Revised Edition).* compiled by Whitehouse, D., New York: Corning

Corning Museum of Glass (2002a) *Disk Pendant with Star Pattern* [online] available from <https://www.cmog.org/artwork/pendant-shaped-star> [22 February 2019]

Corning Museum of Glass (2002b) *Jar, Egyptian* [online] available from <https://www.cmog.org/artwork/jar-20> [10 July 2021]

Corning Museum of Glass (2002c) *Necklace with Pendants and Beads* [online] available from <https://www.cmog.org/artwork/necklace-glass-pendants-and-faience-beads?image=1> [31 March 2020]

Corning Museum of Glass (2002d) *Pitcher (filigrana a retortoli)* available from <https://www.cmog.org/artwork/ewer-lion-mask-prunts?image=0> [30 March 2020]

Corning Museum of Glass (2002e) *Prince Rupert's Drop* [online] available from <https://www.cmog.org/glass-dictionary/prince-rupert-s-drop> [6 May 2020]

Cowan, A. (2012) *Blue Feelings* [online] available from <https://ambercowan.com/artwork/2624614-Blue-Feelings.html> [6 May 2020]

Cox, L. (2017) *Who Invented the Telescope?* [online] available from <https://www.space.com/21950-who-invented-the-telescope.html> [11 December 2019]

Cray, W. D. (2014) 'Conceptual Art, Ideas, and Ontology'. *The Journal of Aesthetics and Art Criticism* 72 (3), 235–245

Cropley, D. (2015) *Creativity in Engineering: Novel Solutions to Complex Problems (Explorations in Creativity Research).* San Diego; London; Waltham; Oxford: Academic Press

Cross, N. (2011) *Design Thinking*. London and New York: Bloomsbury Academic

Cross, N. (2006) *Designerly Ways of Knowing.* London: Springer-Verlag

Cross, N. (2001) ‘Design Cognition: Results From Protocol And Other Empirical Studies of Design Activity’ in *Design Knowing and Learning: Cognition in Design Education.* ed. by Eastman, C. M., McCracken, W. M., and Newstetter, W. C. Amsterdam; New York: Elsevier Science B.V.

Csikszentmihalyi, M. (2007) *Creativity: Flow and the Psychology of Discovery and Invention.* Harper-Collins e-book

Cubitts (2019) ‘Retrospective: London, Spectacles, and Half a Millennia’. *The Spectacle* 02, 4–5

Cubitts (2012–2019) *Bespoke* [online] available from <https://www.cubitts.com/bespoke> [11 December 2019]

Current, N. (2018) *Ideas and Glass Poetry* [Facebook message] to Naas, L. [28 March 2018]

Cutcher, A. (2004) *The Hungarian in Australia: A portfolio of belonging.* Unpublished PhD thesis. Sydney: University of Sydney

Cytter, K. (2014) ‘Something Went Wrong’ in *A Needle Walks into a Haystack.* ed. by ElDahab, M., Huberman, A., and Pageard, C. London: Koenig Books

D

Dam, R. F. and Teo, Y. S. (2019) *Introduction to the Essential Ideation Techniques which are the Heart of Design Thinking* [online] available from <https://www.interaction-design.org/literature/article/introduction-to-the-essential-ideation-techniques-which-are-the-heart-of-design-thinking> [15 April 2020]

Darke, J. (1979) ‘The primary generator and the design process’. *Design Studies* 1 (1), 36–44

Davis, C. (2013) ‘“Now I Get It!” The Dogmatic Assurance of Lyric Philosophy’. *Common Knowledge* 20 (1), 62–67

deadoralivetv (2019) *Dead Or Alive-You Spin Me Round (Like a Record)* [online] available from <https://www.youtube.com/watch?v=fpmTe3TDdVU> [10 April 2020]

De Bono, E. (2016) *Dr. Edward De Bono, Brain Training And Lateral Thinking Pioneer* [online] available from <https://www.edwddebono.com/> [4 March 2020]

De Bono, E. (2007) *How to Have Creative Ideas: 62 Exercises to Develop the Mind*. London: Vermilion

De Bono, E. (1977) *Lateral Thinking: A Textbook of Creativity*. London: Penguin Group

De Guire, E. (2016) *Defining an epoch: Can the case be made for the Glass Age?* [online] available from <http://ceramics.org/ceramic-tech-today/defining-an-

epoch-can-the-case-be-made-for-the-glass age?utm_campaign=shareaholic&utm_medium=twitter&utm_source=socialn etwork> [25 April 2018]

Design Council (2020) *What is the framework for innovation? Design Council's evolved Double Diamond* [online] available from <https://www.designcouncil.org.uk/news-opinion/what-framework-innovation-design-councils-evolved-double-diamond> [23 July 2020]

Dictionary.com, LLC (2020) *through a glass darkly* [online] available from <https://www.dictionary.com/browse/through-a-glass-darkly#:~:text=To%20see%20%E2%80%9Cthrough%20a%20glass,time%2C%20we%20will%20do%20so.> [22 October 2020]

Dimofanous, A. (2017) *Map-Sketch Feedback* [e-mail] to Naas, L. [2 March 2017]

Dines, K. (2017) *The Matryoshka Principle, dolls and modelling your business (Part 1)* [online] available from <https://www.adviser-hub.co.uk/the-matryoshka-principle-dolls-and-modelling-your-business-part-1/> [6 December 2019]

Dorst, K. and Dijkhuis, J. (1995) 'Comparing paradigms for describing design activity'. *Design Studies* (16), 261–274

Doyle, C. L. (1998) 'The Writer Tells: The Creative Process in the Writing of Literary Fiction'. *Creativity Research Journal* 11 (1), 29–37

Drew, C. (2020) 'What is Finland's Phenomenon-based Learning approach?' [online] available from <https://www.teachermagazine.com.au/articles/what-is-finlands-phenomenon-based-learning-approach> [30 July 2020]

Dunlop, R. (1999) *Boundary Bay: A Novel as Educational Research*. Unpublished PhD thesis. Vancouver: University of British Columbia

E

Edinburgh College of Art Glass Alumni (2016) *Transition.* Edinburgh: Edinburgh College of Art Sculpture Court

Eliasson, O. (2014) *Your lost outside* [online] available from <https://olafureliasson.net/archive/artwork/WEK108940/your-lost-outside#slideshow> [12 May 2020]

Eliot, T. S. (1943) *Four Quartets*. Orlando: Harcourt, Inc.

Eliot, T. S. (1915) *The Love Song of Alfred J. Prufrock* [online] available from <https://www.poetryfoundation.org/poetrymagazine/browse?contentId=44212> [25 June 2020]

Elkins, J. (2005) 'The Three Configurations of Practice-based PhDs'. *Printed Project* 4, 7–19

Elman, K. (2015) *Frank Lloyd Wright and the Principles of Organic Architecture*. [online] available from <http://www.pbs.org/flw/legacy/essay1.html> [18 April 2019]

Encyclopaedia Britannica (1998) *Kaleidoscope: Optical Device* [online] available from <https://www.britannica.com/technology/kaleidoscope> [26 March 2020]

Engineering: LibreTexts (2016) *Glass (Amorphous Solids)* [online] available from <https://eng.libretexts.org/Core/Materials_Science/Insulators/Glass_(Amorphous_Solids)> [25 April 2018]

Eno, B. (2001) *Oblique Strategies* [online] available from <https://www.enoshop.co.uk/product/oblique-strategies?filter=Oblique%20Strategies> [17 April 2020]

Ethridge, R. (2018) *Robert Mapplethorpe: Freesia, 1982* [online] available from <https://dailyartfair.com/exhibition/8002/robert-mapplethorpe-gladstone-gallery> [27 May 2019]

Evenhaugen, A. (2012) *What is an artist's book?* [online] available from <https://blog.library.si.edu/blog/2012/06/01/what-is-an-artists-book/#.XOu4FNNKh-V> [27 May 2019]

F

Faherty, A. (2018) *Genius spirits and the mystery of creative inspiration* [online] available from <https://wellcomecollection.org/articles/Wtdl8iAAABJiKOvK> [11 November 2019]

Faleris, D. (2016) *Makers Whirlpool* [e-mail] to Naas, L. [10 June 2016]

Fallman, D. (2008) 'The Interaction Design Research Triangle of Design Practice, Design Studies, and Design Exploration'. *Design Issues* 24 (3), 4–18

Farlex Dictionary of Idioms (n.d.) *rose-coloured glasses* [online] available from <https://idioms.thefreedictionary.com/rose+coloured+glasses> [26 July 2020]

Fertig, C. (2020) *News: Forgiveness at Inverness Museum and Art Gallery* [online] available from <http://www.carriefertig.com/news> [8 April 2020]

Fibre Glast Developments Corp. (2020) *Fiberglass* [online] available from <https://www.fibreglast.com/category/Fiberglass> [26 March 2020]

Finch, S. (2012) *Painting Air* [online] available from <http://www.spencerfinch.com/view/installations/103> [14 April 2021]

Fowler, T. A. (2013) *Z: A Novel of Zelda Fitzgerald*. New York: St. Martin's Press

Friedman, K. (2018) 'Call for Papers: PhD in Art and Design'. [20 March 2018] *PhD-Design – This list is for discussion of PhD studies and related research in Design* [online]. available from: <https://www.jiscmail.ac.uk/cgi-

bin/webadmin?A2=ind1803&L=PHD-DESIGN&O=D&P=26828> [5 July 2019]

Fusco, M. (2015) *Master Rock: Repertoire for a Mountain*. London: Artangel and Book Works

G

Gagne, T. (2011) *The Matryoshka Principle and Software Design* [online] available from <https://it.toolbox.com/blogs/tgagne/the-matryoshka-principle-and-software-design-101711> [19 April 2018]

Gardner, H. (2011) *Creating Minds: An Anatomy of Creativity seen through the lives of Freud, Einstein, Picasso, Stravinsky, Eliot, Graham, and Gandhi.* New York: Basic Books (Perseus Books Group)

Garrison, J. (2015) *glass.* New York; London; Oxford; New Delhi; Sydney: Bloomsbury e-book

Ghiselin, B. (1963) 'Automatism, Intention, and Autonomy in the Novelist's Production'. *Daedalus* 92: 2, 297–311

Ghiselin, B. (1954) *The Creative Process: A Symposium.* Berkeley and Los Angeles: University of California Press; London: Cambridge University Press

Giaccardi, E. (2017) *Opening Provocation* [presentation] Research Through Design Conference, 22 March 2017. Edinburgh: National Museum of Scotland

Gibson, E. (2019) *Five installations and exhibits not to miss at Chicago Architecture Biennial 2019* [online] available from <https://www.dezeen.com/2019/09/20/five-installations-exhibits-chicago-architecture-biennial-2019/> [6 February 2020]

Gilbert, E. (2015) *Big Magic: Creative Living Beyond Fear*. New York: Riverhead Books

Gilchrist, M. (1972) *The Psychology of Creativity.* London: ISBS Inc.

Giorgi, A. (2012) 'The Descriptive Phenomenological Psychological Method'. *Journal of Phenomenological Psychology* 43, 3–12

Goddard Media LLC (2020) *triangulation* [online] available from <https://politicaldictionary.com/words/triangulation/> [23 July 2020]

Goldie, P. and Schellekens, E. (ed.) (2009) *Philosophy and Conceptual Art*. Oxford; New York: Oxford University Press

Gopnik, A. (2014) *As Big as the Ritz: The Mythology of the Fitzgeralds* [online] available from <https://www.newyorker.com/magazine/2014/09/22/big-ritz> [20 June 2019]

Gormley, A. (2007) *Blind Light* [online] available from <http://www.antonygormley.com/projects/item-view/id/241#p1> [12 May 2020]

Graham, D. (n.d.) *Heraclitus (fl. c. 500 B.C.E.)* [online] available from <https://www.iep.utm.edu/heraclit/> [8 April 2019]

Gray, C. and Malins, J. (2004) *Visualizing Research: a guide to the research process in art and design*. England: Ashgate

Greary, J. (2011) *I Is an Other: The Secret Life of Metaphor and How it Shapes the Way We See the World.* London and New York: HarperCollins e-books

Grimm, J. and W. (1857) *Little Snow-White*. trans. by Ashliman, D. L. [online] available from <http://www.pitt.edu/~dash/grimm053.html> [1 November 2019]

Grunwell, L. (2016) 'Nuturing student creativity to promote independent, employable learners' [online] available from <https://www.wcmt.org.uk/sites/default/files/report-documents/Grunwell%20L%20Report%202015%20Final_0.pdf> [30 July 2020]

Guilford, J. P. (1950) 'Creativity'. *American Psychologist* (5)*,* 444–454

Gunner, D. (2019) 'Chihuly the Genius' in *Experience Dale Chihuly glass art in Seattle and London* [online] available from <https://blog.virginatlantic.com/experience-dale-chihuly-glass-art-in-seattle-and-london/> [18 November 2019]

Gupta, A. (2019) *How to be a triangle-shaped designer* [online] available from <https://uxdesign.cc/how-to-be-a-triangle-shaped-designer-cd44c605fbe> [24 July 2020]

H

Haapasaari, R. (2021) *Glass taking the lead: glass-informed filmmaking in creative practice.* Unpublished PhD thesis. Sunderland: University of Sunderland

Habatat Galleries (2021) *Viral Glass, Curated by David McFadden* [online] available from <https://www.viralglass.org/> [06 May 2021]

Hadamard, J. (1954) *An Essay on The Psychology of Invention in the Mathematical Field.* USA: Dover Publications, Inc. arranged with Princeton University Press

Hadamard, J. (1949) *An Essay on The Psychology of Invention in the Mathematical Field.* Princeton: Princeton University Press

Harden, D. B. (1968) 'Ancient glass I, Pre-Roman'. *The Archaeological Journal* (125), 46–72

Harmon, G. (2009) 'Technology, objects and things in Heidegger'. *Cambridge Journal of Economics* 34 (1), 17–25

Harrington, J. (2017) *The Glass Archive* [online] available from <https://www.jeromeharrington.net/the-glass-archive> [12 April 2021]

Harrington, J. (2012) *Glass in the Expanded Field* [online] available from <https://www.jeromeharrington.net/glass-in-the-expanded-field> [22 July 2020]

Hartley, D. (1790) with contributions by Priestley, *J. Hartley's Theory of the Human Mind, on the Principle of the Association of Ideas: with Essays Relating to the Subject of It*. 2nd edn. London: Printed for J. Johnson

Heiti, W. (2015) 'Introduction: What is Lyric Philosophy?'. *Philosophy and Literature* 39 (1), 188–201

Hennig, P. (n.d.) *The History of the Lens* [online] available from <http://www.photodo.com/topic_112.html> [13 March 2020]

Hicks, D. (1987) *Style and Design*. Harmondsworth, Middlesex, England: Viking Penguin Inc.

Hicks, D. (1979) *Living with Design*. New York: William Morrow and Company, Inc.

Hinnant, L., Petrequin, S., and Ganley, E. (2019) *Fire ravages soaring Notre Dame Cathedral, Paris left aghast* [online] available from <https://apnews.com/7538fdb8fc8b476b8c442f0c2ac52115> [6 February 2020]

Hirsch, E. (2014) *Free Verse: From a Poet's Glossary* [online] available from <https://www.poets.org/poetsorg/text/free-verse-poets-glossary> [8 June 2018]

Hobson, B. (2014) *Philippe Starck's Juicy Salif was "the most controversial lemon squeezer of the century"* [online] available from <https://www.dezeen.com/2014/07/09/movie-alberto-alessi-juicy-salif-controversial-lemon-squeezer-philippe-starck/> [26 June 2020]

Holyoak, K. J. and Thagard, P. (1999) *Mental Leaps: Analogy in Creative Thought.* Woburn, Massachusetts: The MIT Press

Hou, J., Rashid, J., and Lee, K. M. (2017) 'Cognitive map or medium materiality? Reading on paper and screen'. *Computers in Human Behavior* 67, 84–94

Howes, P. and Laughlin, Z. (2012) *Material Matters/New Materials in Design*. London: Black Dog Publishing

Howling Pixel (2019) *Caneworking* [online] available from <https://howlingpixel.com/i-en/Caneworking> [12 September 2019]

Huber, A. M., Leigh, K. E., and Tremblay, K.R., Jr. (2012) 'Creativity Processes of Students in the Design Studio'. *Project Innovation* 46 (4), 903–913

Hunter, S. (2020) *Query About Electronic-only thesis submissions* [email] to Naas, L. [9 July 2020]

Hurley, M. and O'Neill, M. (2012) 'The Elements of Poetic Form' in *Poetic Form: An Introduction*. Cambridge: Cambridge University Press, 16–52

Hutchinson, S. (2015) *Mapping your Mind* [Institute of Academic Development Workshop, University of Edinburgh] with post-graduate students [15 October 2015] Edinburgh

I

IDEO (2020) *About IDEO* [online] available from <https://www.ideo.com/about> [15 April 2020]

IDEO (2003) *Method Cards* [online] available from <https://www.ideo.com/post/method-cards> [15 April 2020]

IDEO.org (2018) *Kickstarter: Design Kit Travel Pack* [online] available from <https://www.kickstarter.com/projects/581125890/design-kit-travel-pack> [16 April 2020]

iMindMap (2014) *Top Ten Mind Mapping Moments* [online] available from <https://imindmap.com/blog/top-10-mind-mapping-moments/> [27 December 2016]

Information Services (2017) *Producing a Thesis Using Word 2013* [lecture] 31 January 2017. Edinburgh: University of Edinburgh

Ingold, T. (2012) *Thinking through Making* [online] available from <https://www.youtube.com/watch?v=Ygne72-4zyo> [9 March 2018]

International Marianne Brandt Contest (2019) *Current Contest: Announcement* [online] available from <https://marianne-brandt-wettbewerb.de/en/announcement.html> [10 May 2019]

International Year of Glass 2022 (2021) *Toward a United Nations Declaration: The International Year of Glass 2022* [online] available from <http://www.iyog2022.org/> [7 May 2021]

Irish Times (2020) *17 March, Page One Photo Tweet* [online] available from <https://twitter.com/IrishTimes/status/1239826738529611776/photo/1> [19 March 2020]

J

Jacobson, S. W. (2012) 'Glass' Big Bang'. *American Craft* 72 (1), 42–50

Jacob's Pillow Dance (2020) *Jacob's Pillow* [online] available from <https://www.jacobspillow.org/> [30 June 2020]

Jansen, A. (1985) ‘The Convex Mirror as Vanitas Symbol’. *Notes in the History of Art* 4 (2/3), 51–54

Jencks, C. (1999+) *Garden of Exaptation* [sculpture garden] in ‘Garden of Cosmic Speculation’. Dumfries, Scotland: Portrack Estate, 5 May 2019

Johansson, F. (2004) *The Medici Effect: Breakthrough Insights at the Intersection of Ideas, Concepts and Cultures.* Boston: Harvard Business School Press

Johnson, S. (2016) *Great Example of Exaptation: Apple* [online] available from <https://www.facebook.com/watch/?v=1007536862625451> [7 April 2020]

Johnson, S. (2010) *Where Good Ideas Come From: The Natural History of Innovation.* London: Allen Lane, Penguin

Jones, J. C. (1992) *Design Methods.* 2nd edn. New York, Chichester, Weinheim, Brisbane, Singapore, Toronto: John Wiley & Sons, Inc.

Judkins, R. (2015) *The Art of Creative Thinking.* Great Britain: Sceptre

Jungerius, M. (2021) *Venice and American Studio Glass: Enduring and Versatile Legacy* [online] available from <https://tlmagazine.com/venice-and-american-studio-glass-enduring-and-versatile-legacy/?print=true> [13 April 2021]

K

Kalyva, E. (2016) *Image and Text in Conceptual Art: Critical Operations in Context.* Leeds, West Yorkshire: Springer Nature e-book

Kangas, M. (2017) *Lino Tagliapietra: Birth of a Genius* [online] available from <http://www.artguidenw.com/Tagliapietra.htm> [18 November 2019]

Katz, S. L. and Gardner, H. (2011) ‘Musical materials or metaphorical models? A psychological investigation of what inspires composers’. in *Musical Imaginations: Multidisciplinary perspectives on creativity, performance and perception.* ed. by Hargreaves, D., Miell, D. and MacDonald, R. Oxford: Oxford University Press, 107–123

Kelly, J. (2011) *The hot state combination of glass and ceramics in artistic studio practice* [paper presentation] at GLASSAC11: Glass Science in Art and Conservation, 11–12 May 2011. Wuerzburg Germany and United Kingdom, 27–31

Kelly, J. (2009) *The combination of Glass and Ceramics as a means of artistic expression in studio practice.* Unpublished PhD thesis. Sunderland: University of Sunderland

Kennedy, S. (2012) ‘Celebrating the Studio Glass Movement’ in *The Studio Glass Movement: Selections from the Esterling-Wake Collection’.* ed. by Veneciano, J. D., Kennedy, S. L., Statom, T., Nosan, G. and Hussman, A. Sheldon Museum of Art at University of Nebraska-Lincoln: Sheldon Museum of Art Catalogues and Publications

Keyence Corporation of America (2012) *A Technical History of Image Processing: Lenses, Vol. 2.* Unpublished booklet. New Jersey: Elmwood Park

Khatchadourian, R. (2020) *The Race to Make Vials for Coronavirus Vaccines* [online] available from <https://www.newyorker.com/magazine/2020/12/07/the-race-to-make-vials-for-coronavirus-vaccines> [12 April 2021]

King, H. M. (2019) *Obsidian* [online] available from <https://geology.com/rocks/obsidian.shtml> [20 February 2019]

Klein, D. (2001) *Artists in Glass: Late Twentieth Century Masters in Glass.* London: Mitchell Beazley

Knowles, J. and Promislow, S. (2008) 'Inspiration to Imagine: An Invitation and an Introduction' in *Creating Scholartistry: Imagining the Arts-Informed Thesis or Dissertation.* ed. by Knowles, J., Promislow, S., and Cole, A. Halifax, Nova Scotia: Backalong Books, 1–13

Knowles, J., Promislow, S., and Cole, A., eds. (2008) *Creating Scholartistry: Imagining the Arts-informed Thesis or Dissertation.* Halifax, Nova Scotia: Backalong Books

Koestler, A. (1964) *The Act of Creation.* London: Hutchinson & Co. LTD

Koestler, A. (n.d.) *Koestler's Personal Handwritten Notes Tucked into his 1949 Copy of Hadamard's An Essay on The Psychology of Invention in the Mathematical Field.* Unpublished Notes. Edinburgh: University of Edinburgh Main Library-Special Collections

Kostomárova, E. (2015) *More than just a pretty face: The secrets of the Russian matryoshka* [online] available from <https://www.rbth.com/arts/2015/08/08/the_secrets_of_the_russian_matryoshka_48375.html> [6 December 2019]

L

Laamanen, T. & Seitamaa-Hakkarainen (2014) 'Interview Study of Professional Designers' Ideation Approaches'. *The Design Journal* 17 (2), 194–217

Lamm, M. (2007) 'The Fiberglass Story'. *American Heritage's Invention & Technology-The Magazine of Innovation* 22 (4), 1–7

LaMonte, K. (n.d.) *Nocturnes—Monumental Sculptures* [online] available from <https://www.karenlamonte.com/Contemporary-Scultpures-Prints/Nocturnes-Monumental-Sculpture/i-cPKjfSz/A> [27 May 2019]

Lasczik, A. C. (2019) *Re: Interest in reading your PhD Dissertation* [e-mail] to Naas, L. [24 June 2019]

Laughlin, W. (1948) 'Japanese Glass Fishing-Net Floats'. *American Anthropologist* 50 (3), 575

Lawson, B. (2006) *How Designers Think: The design process demystified.* 4th edn. Oxford: Architectural Press

Legg, B. (2012) *The Materiality of Place: An investigation into the makers approach to material and process as a reflection of place within Northern European contemporary jewellery practice.* Unpublished PhD thesis. Edinburgh: University of Edinburgh

Lesser, C. (2019) *10 Innovative Glass Artists on the Challenges and Joys of their Medium* [online] available from <https://www.artsy.net/article/artsy-editorial-10-innovative-glass-artists-challenges-joys-medium> [27 May 2019]

Levertov, D. (2009) *Some Notes on Organic Form* [online] available from <https://www.poetryfoundation.org/articles/69392/some-notes-on-organic-form-56d249032078f> [8 June 2018]

Lewis, W. W. and Tulk, N. (2016) 'Editorial: Why Performance as Research?'. *PARtake: The Journal of Performance as Research* 1 (1), 1–7

LeWitt, S. (1967) 'Paragraphs on Conceptual Art'. *Artforum* 1967 (Summer), 79–82

Limb, C. J. and Braun, A. R. (2008) 'Neural Substrates of Spontaneous Musical Performance: an fMRI Study of Jazz Improvisation' *PLOS ONE* [online] available from <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0001679> [11 November 2019]

Linkola, S., Kantosalo, A., Männistö, T., and Toivonen, H. (2017) 'Aspects of Self-awareness: An Anatomy of Metacreative Systems' [online] available from <http://computationalcreativity.net/iccc2017/ICCC_17_accepted_submissions/ICCC-17_paper_25.pdf> [25 July 2019]

Lipiec, M. (2019) *Beyond the Double Diamond: thinking about a better design process model* [online] available from <https://uxdesign.cc/beyond-the-double-diamond-thinking-about-a-better-design-process-model-de4fdb902cf> [23 July 2020]

Literary Devices (n.d.) *Free Verse* [online] available from <http://www.literarydevices.com/free-verse/> [8 June 2018]

Littlejohn, R. (n.d.) *Laozi (Lao-tzu, fl. 6th cn. B.C.E.)* [online] available from <https://www.iep.utm.edu/laozi/> [12 April 2019]

Lloyd, P. and Snelders, D. (2003) 'What was Philippe Starck thinking of?'. *Design Studies* 24, 237–253

Loi, D. (2005) *Lavoretti Per Bimbi: Playful triggers as keys to foster collaborative practices and workspaces where people learn, wonder and play.* Unpublished PhD thesis. Melbourne: RMIT University

Loi, D. (2004) 'A suitcase as a PhD? Exploring the potential of travelling containers to articulate the multiple facets of a research thesis'. *Working Papers in Art and Design 3* [online] available from

<https://www.herts.ac.uk/__data/assets/pdf_file/0012/12360/WPIAAD_vol3_loi.pdf> [11 July 2019]

Loi, D. (n.d.) *Daria Loi* [online] available from <https://www.darialoi.com/> [11 July 2019]

Lubart, T. I. (2001) 'Models of the Creative Process: Past, Present and Future'. *Creativity Research Journal* 13 (3–4), 295–308

Lyall, M. (2014) 'Method emerging: a statement of poetics for a project-based PhD'. *Qualitative Research Journal* 14 (2), 134–149

Lycouris, S. (2014) *ICP: Introductory Lecture* [lecture] Interdisciplinary Creative Practice Course, 18 September 2014. Edinburgh: University of Edinburgh

Lys, J. (2009) *J.S. Bach-Crab Canon on a Möbius Strip* [online] available from <https://www.youtube.com/watch?v=xUHQ2ybTejU> [12 August 2016]

M

MacDonald, J. (2016) *First Annual Review Internal Examination* [in-person doctoral examination and discussion with PhD Student Lisa Naas and her supervisors] Edinburgh: Edinburgh College of Art, 15 September 2016

Magnetic Poetry (2020) *Magnetic Poetry: Magnets That Reveal The Poet Within* [online] available from <https://magneticpoetry.com/> [17 April 2020]

Main, D. (2018) 'Humankind's Most Important Material' [online] available from <https://www.theatlantic.com/technology/archive/2018/04/humankinds-most-important-material/557315/> [8 April 2018]

Makers Marks Collaborative (2016) *Makers Marks Collaborative: In Conversation* [interview audio by Naas, L. and Terzi, A.] Edinburgh, 18 October 2016

Mandelbaum, E. (2017) 'Associationist Theories of Thought' [online] *The Stanford Encyclopedia of Philosophy.* (Summer 2017) available from <https://plato.standford.edu/archives/sum2017/entries/associationist-thought/> [23 January 2018]

Marshall, C. (2013) *Gertrude Stein Sends a "Review" of The Great Gatsby to F. Scott Fitzgerald (1925)* [online] available from <http://www.openculture.com/2013/07/gertrude-stein-sends-a-review-of-the-great-gatsby-to-f-scott-fitzgerald-1925.html> [20 June 2019]

Martin, C. (2013) *The Practice-based PhD at Edinburgh College of Art* [lecture] MA/MFA1 (Sem 1): Research Methods, 13 November 2013. Edinburgh: University of Edinburgh

Mastroianni, A. and Faleris, D. (2016) *Italian Nightmares* [e-mail] to Naas, L. [13 April 2016]

Math Planet (n.d.) *The Pythagorean Theorem* [online] available from <https://www.mathplanet.com/education/pre-algebra/right-triangles-and-algebra/the-pythagorean-theorem> [22 April 2020]

MathWorld (2016) *Möbius Strip* [online] available from <http://mathworld.wolfram.com/MoebiusStrip.html> [18 August 2016]

McCrum, R. (2017) *Creative and Critical Voices Workshop* [participatory performance writing workshop with PhD Students around the UK hosted by Scottish Graduate School for Arts & Humanities] Glasgow, Scotland, 21–22 January 2017

McPherson, M. and Limb, C. (2013) 'Difficulties in the neuroscience of creativity: jazz improvisation and the scientific method'. *Annals of the New York Academy of Sciences* 1303, 80–83

Mednick, S. (1962) 'The Associative Basis of the Creative Process'. *Psychological Review* 69 (3) 220–232

Merleau-Ponty, M. (2002) *Phenomenology of Perception, Translated by Colin Smith.* London: Routledge Classics, Taylor & Francis Group

Merriam-Webster (2019) *black box (noun)* [online] available from <https://www.merriam-webster.com/dictionary/black%20box> [29 October 2019]

MethodKit (n.d.) *MethodKit* [online] available from <https://methodkit.com/> [20 April 2020]

Michalakos, C. (n.d.) *Skins and Stones* [online] available from <http://christosmichalakos.com/works#/skins-and-stones/> [30 July 2020]

Microbiology Society (2020) *What is Microbiology* [online] available from <https://microbiologysociety.org/why-microbiology-matters/what-is-microbiology.html> [19 March 2020]

Miller, M., Chen, C. and Kaplan, J. (2020) *Should I Quarantine Because of Coronavirus? It Depends on Who You Ask* [online] available from <https://www.msn.com/en-us/news/us/should-i-quarantine-because-of-coronavirus-it-depends-on-who-you-ask/ar-BB1144OW#image=BB1144OW_1|1> [19 March 2020]

Morgan, H. (2016) *Work: Blue Corner* [online] available from <http://www.harrymorgan.info/rust/ofpyn3y1i5l4pwjl0g2y1koqyusb3h> [8 April 2020]

Morris Museum (2017) *Lino Tagliapietra: Maestro of a Glass Renaissance* [online] available from <https://issuu.com/schantzgalleries_issuu/docs/2017_morris_museum_lino_tagliaietra> [18 November 2019]

Morse, D. and Evenson, J. (2016) 'Welcome to the Glass Age'. *International Journal of Applied Glass Science* 7 (4), 409–412

Moses, M. (2014) ‘The World Beyond Studio Glass’. *American Craft Magazine* [online] 16 March. available from <https://craftcouncil.org/magazine/article/world-beyond-studio-glass> [22 July 2020]

Moynihan, T. (2015) *How This Magical 16-Lens Camera Will Actually Work* [online] available from <https://www.wired.com/2015/10/light-l16-camera/> [15 May 2018]

Mudry, A. (2000) ‘The History of the Microscope for use in Ear Surgery’. *The American Journal of Otology* 21, 877–886

Mulhere, K. (2015) *Seeing in New Dimensions* [online] available from <https://www.insidehighered.com/news/2015/03/17/comic-book-dissertation-demonstrates-capacity-picture-writing> [12 July 2019]

Mumford, M. (2003) ‘Where Have We Been, Where Are We Going? Taking Stock in Creatvity Research’. *Creativity Research Journal* 15 (2-3), 107–120

Murray, F. (2017) *The Porn Factory: A feminist counsellor’s encounter with the leaky world of online mainstream pornography* [online] PhD Thesis. University of Edinburgh. <https://web.archive.org/web/20170913172301/http://www.ed.ac.uk/health/research/ccri/projects/the-porn-factory> [22 July 2020]

Murugasen, P., Sagadevan, S., and Shajan, D. (2015) ‘Preparation, Techniques and Tools Used For Investigating Glasses: An Overview’. *International Journal of Chemical Sciences* 13 (2), 693–713

Museo Vetro (n.d.) *The origins of Venetian glassmaking* [online] available from <https://museovetro.visitmuve.it/en/il-museo/museum/teodoro-correr/> [30 July 2020]

Museum of Fine Arts, Boston (2020a) *Endlessly Repeating Twentieth Century Modernism* [online] available from <https://collections.mfa.org/objects/503178> [24 February 2020]

Museum of Fine Arts, Boston (2020b) *In the Loge* [online] available from <https://collections.mfa.org/objects/31365> [25 June 2020]

Museum of Fine Arts, Boston (2016) *Christian Marclay: The Clock* [online] available from <https://www.mfa.org/exhibitions/christian-marclay-the-clock> [27 July 2020]

Museum of London (2020) *Spectacles* [online] available from <https://collections.museumoflondon.org.uk/online/object/407684.html> [13 March 2020]

N

Naas, L. (2021) *In Concert With Glass* [online] available from <http://inconcertwithglass.com> [21 October 2021]

Naas, L. (2018a) Corning Museum (2018) *Museum Visit for Visual Research* [in-person] Corning, NY: 10 September 2018

Naas, L. (2018b) *Creative Triangulation Workshop* [Mastercard Scholars Program Design Day with student participants] Edinburgh: 50 George Square, 21 April 2018

Naas, L. (2017a) *Collaborative Word Triangulation* [in-person session with participants Faleris, D. and Gorania, S. V.] Leicester, England, 11 February 2017

Naas, L. (2017b) 'Makers Marks: Glass in Translation'. in *Proceedings of the 3rd Biennial Research Through Design Conference*. held 22–24 March 2017 at National Museum Scotland. Edinburgh, 65–81. DOI: 10.6084/m9. gshare.4746943

Naas, L. (2017c) *Word Triangulation Workshop* [Digital Crafting in Glass Course workshop with student participants] Edinburgh: Edinburgh College of Art, 4 April 2017

Naas, L. (2016a) *Music Terminology Conversation* [in person conversation with Faleris, D.] Valencia, Spain, 2 January 2014

Naas, L. (2016b) *Play with Fire: Glass Concepts* [Innovative Learning Week Workshops with student participants] Edinburgh: Edinburgh College of Art, 16–17 February 2016

Naas, L. (2016c) *Reform: Idea Generation* ['after the storm' project workshop with student participants] Edinburgh: Edinburgh College of Art, 28 September 2016

Naas, L. (2014a) *"My Summer Vacation with the Sun" or "A Conversation with Myself about My Upcoming Studio Work"* [online] available from <https://lisanaas.tumblr.com/post/96997649815/my-summer-vacation-with-the-sun-or-a> [1 April 2020]

Naas, L. (2014b) *Sorrows* [online] available from <https://lisanaas.tumblr.com/post/75803805129/sorrows> [7 June 2019]

Naas, L. and Faleris, D. (2019) 'Makers Marks: Capturing, Preserving, and Sharing the Sounds of Glassmaking' [online] available from <https://www.mdpi.com/2076-0752/8/1/19> [30 July 2020]

Naas, L., Faleris, D., and Gorania, S. (2017) *Introductions and Chat* [Skype call] 8 January 2017

Naas, L. and Terzi, A. (2016) *Makers Marks Collaborative: In Conversation* [interview audio] with Makers Marks Collaborative, 18 October 2016. Edinburgh: Edinburgh College of Art

Naiman, L. (2019) *Design Thinking as a Strategy for Innovation* [online] available from <https://www.creativityatwork.com/design-thinking-strategy-for-innovation/> [15 April 2020]

Nash, J. (2012) *I Can See Clearly Now* [online] available from <https://www.youtube.com/watch?v=FscIgtDJFXg> [22 October 2020]

National Gallery of Art (2019) *In the Tower: Barbara Kruger* [online] available from <https://www.nga.gov/features/slideshows/in-the-tower-barbara-kruger.html#slide_5> [11 October 2019]

National Geographic (2017) *Pictures: Remembering 9/11* [online] available from <https://www.nationalgeographic.co.uk/photography/2017/11/pictures-remembering-911?image=01sept11gallery> [13 April 2020]

Natty Glass (n.d.) *Herbarium* [online] available from <https://www.craftscotland.org/craft-directory/makers/siobhan-healy/work#1232|1232,1233,1235,1236,1095> [26 June 2020]

Neill, A. (1994) 'Lyric Philosophy by Jan Zwicky'. *The Journal of Aesthetics and Art Criticism* 52 (3), 373–375

Neilsen, L. (2008) 'Lyric Inquiry'. in *Handbook of the Arts in Qualitative Research: Perspectives, Methodologies, Examples, and Issues.* ed. by Knowles, J. G. and Cole, A. L. Los Angeles: Sage Publications, 93–104

Neilsen, L. (2002) 'Learning from the liminal: fiction as knowledge [Scholartistry]'. *Alberta Journal of Educational Research* 48 (3), 206–214

Neilsen, L. (2001) 'Scribbler: Notes on Writing and Learning Inquiry'. in *The Art of Writing Inquiry.* ed. by Neilsen, L., Cole, A. L., & Knowles, J. G. Halifax, Nova Scotia: Backalong Books, 253–272

Netflix (2019) *Blown Away (Season 1)* [online] available from <https://www.netflix.com/gb/title/80215147> [18 November 2019]

Nicholson, P. T., Jackson, C. M., and Trott, K. M. (1997) 'The Ulu Burun Glass Ingots, Cylindrical Vessels and Egyptian Glass'. *The Journal of Egyptian Archaeology* (83), 143–153

Nordquist, R. (2017) *Postposition (grammar)* [online] available from <https://www.thoughtco.com/postposition-grammar-1691651> [7 June 2018]

Norman, R. A. (1999) *House of Mirrors: Performing Autobiograph(icall)y in Language/Education.* Unpublished PhD thesis. Vancouver: University of British Columbia

Northrup, T. (2012) 'Lyric Scholarship in Controversy: Jan Zwicky and Anne Carson'. *Studies in Canadian Literature/Études en littérature canadienne* (S.I.), 192–214

Notre Dame de Paris (n.d.) *South Rose* [online] available from <http://www.notredamedeparis.fr/en/la-cathedrale/linterieur/vitraux/rose-sud/> [16 April 2019]

Novak, J. D. and Cañas, A. J. (2006 and 2008) *The Theory Underlying Concept Maps and How to Construct and Use Them* [online] available from <http://cmap.ihmc.us/docs/theory-of-concept-maps.php> [27 December 2016]

O

O'Connor, E. (2007) 'Hot Glass: The calorific imagination of glassblowing in practice'. in *Practicing Cultures*. ed. by Calhoun, C. and Sennett, R. London and New York: Routledge, 57–81

OED Online (2020) *rose-coloured* | *rose-colored, adj.* [online] available from <https://www.oed.com/view/Entry/167530> [26July 2020]

Ogle, R. (2007) *Smart World: Breakthrough Creativity and the Science of Ideas.* Boston, Massachusetts: Harvard Business School Press

Oldknow, T. (2021) *Venice and American Studio Glass* [online Zoom lecture] 13 April 2021. New York: Art Glass Forum

O'Shea, T. (2015) *Welcome to New Research Postgraduates* [speech] welcome address,15 Sept 2015. Edinburgh: University of Edinburgh

Oxford University Press (2020) 'crucible'. In *Lexico.com* [online] available from <https://www.lexico.com/definition/crucible> [22 July 2020]

P

Padman, M. (2020) *Make Sure To Wear Shoes, Ladies. There's Glass Everywhere.* [online] available from <https://www.instagram.com/p/CHTZOtUJ9HR/> [7 November 2020]

Panourgia, E. (2018) *Co-composition processes: Form, structure and time across sculpture and sound-Volume 1.* Unpublished PhD thesis. Edinburgh: University of Edinburgh

Park, L. (2014) *Eunoia (Version 2)* [online] available from <https://www.thelisapark.com/work/eunoia2> [12 May 2020]

Patchen, D. (n.d.) *Making Murrine* [online] available from <http://www.davidpatchen.com/studio/making-murrine#slideshow-12> [13 April 2020]

Pausch, R. and Zaslow, J. (2008) *The Last Lecture.* Great Britain: Hodder & Stoughton

Pausch, S. and Hardy, K. (2015) 'Glass flotation and instrument housings for deep ocean exploration and research'. in *Proceedings of the International Symposium on Underwater Technology.* held 23–25 February 2015 at Chennai, India. [online] available from <https://ieeexplore.ieee.org/document/7108221> [19 March 2020]

Pearson, C. (2003) *Spanish Sea Glass* [online] available from <https://www.celiapearson.com/GalleryMain.asp?GalleryID=130988&AKey=3TYDH6VD> [6 May 2020]

Pelczar, M. and Pelczar, R. (1999) *Microbiology* [online] available from <https://www.britannica.com/science/microbiology> [19 March 2020]

Petterd, R. (n.d.) *How to make sure your 702010 model is successful* [online] available from <http://www.sproutlabs.com.au/elearning/how-to-make-sure-your-70-20-10-model-is-successful/> [16 April 2020]

Petters, A. (2017) *Books of Disquiet* [online] available from <http://www.annepetters.com/books-of-disquiet.html> [25 June 2020]

Petters, A. (2010–2012) *disegno* [online] available from <http://www.annepetters.com/disegno.html> [26 February 2020]

Phillips (2016) *From the Catalogue: Mapplethorpe's Venini Collection* [online] available from <https://www.artsy.net/article/phillips-from-the-catalogue-lots-7-11> [27 May 2019]

Phillips (n.d.) *22 Mark Rothko-Black Blue Painting* [online] available from <https://www.phillips.com/detail/mark-rothko/NY010718/22> [12 September 2019]

Picasso, P. (1923) 'Statement by Picasso:1923' in *Picasso: Fifty Years of His Art* by Barr, A. H. Jr. London: Seeker & Warburg, 270–271

Pietruszewski, M. (2016) *Binaural Auditory Scene Re-synthesis* [in person conversation] with Marcin Pietruszewski [18 February 2016]

Podio (2016) *The Daily Routines of Famous Creative People* [online] available from <https://podio.com/site/creative-routines> [18 August 2016]

Poincaré, H. (1913) 'Science and Method'. in *The Foundations of Science*. trans by Halsted, G. B. New York and Garrison, N.Y.: The Science Press

Pope, R. (2005) 'The return of creativity: common, singular, and otherwise'. *Language and Literature* 14 (4), 376–389

Popova, M. (2014) *Oblique Strategies: Brian Eno's Prompts for Overcoming Creative Block, Inspired by John Cage* [online] available from <https://www.brainpickings.org/2014/01/22/brian-eno-visual-music-oblique-strategies/> [17 April 2020]

Popova, M. (2012) *Why Emotional Excess is Essential to Writing and Creativity* [online] available from <https://www.brainpickings.org/2012/09/03/anais-nin-on-emotion-and-writing/> [25 June 2020]

Popova, M. (2010) *Paula Scher on Combinatorial Creativity* [online] available from <https://www.brainpickings.org/2010/11/19/paula-scher-on-combinatorial-creativity/> [18 August 2016]

Portillo, M. (2002) 'Creativity Defined: Implicit Theories in the Professions of Interior Design, Architecture, Landscape Architecture, and Engineering'. *Journal of Interior Design* 28 (1), 10–26

Portillo, M. (1996) 'Uncovering Implicit Theories of Creativity in Beginning Design Students'. *Journal of Interior Design*. 22 (2), 15–24

Psyrra, M. (2015) *Hanne Darboven: accepting anything among everything* [online] available from <http://thisistomorrow.info/articles/hanne-darboven-accepting-anything-among-everything> [1 July 2020]

Pyrex (2020) *Pyrex: Our History* [online] available from <https://www.pyrexuk.com/pages/our-history> [26 March 2020]

R

Ralley, J. (2019) *MethodKit by Ola Möller: An interview with a toolbox creator* [online] available from <https://medium.com/toolboxtoolbox/methodkit-by-ola-m%C3%B6ller-4d8112a94225> [20 April 2020]

Ramaraj, A. and Nagammal, J. (2016) 'Investigating the creative processes and outcomes of an open ended task: A qualitative study on two days practicum for architecture students' [online] *Thinking Skills and Creativity* 21, 1–8 available from <https://www.sciencedirect.com/science/article/pii/S1871187115300377?via%3Dihub> [21 April 2018]

Red Bull Music Academy (2013) *Brian Eno on Exploring Creativity* [online] available from <https://www.youtube.com/watch?v=JUL8kNYmgsA> [12 November 2019]

Redström, J. (2017) *Making Design Theory.* Cambridge, Massachusetts; London, England: The MIT Press

Reed, L. (n. d) *Untitled* [online] available from <http://www.lareedglass.com/instalations> [24 February 2020]

Rendle-Short, F. (2015) 'How the How: The Question of Form in Creative Scholarly Works'. *New Writing: International Journal for the Practice and Theory of Creative Writing* 12 (1), 91–100

Reynolds, S. (2011) *Clamshell Box Tutorial-6 Part Video* [online] available from <https://www.youtube.com/playlist?list=PLKThD7m8NDz6zvQP3jdRi8X7SR8lO55az> [1 July 2020]

Rhodes, M. (1961) 'An Analysis of Creativity'. *The Phi Delta Kappan* 42 (7), 305–310

Riding, A. (2007) *The Glory of France, Restored to Louis XIV's Glittering Ideal* [online] available from <https://www.nytimes.com/2007/06/26/arts/design/26mirr.html> [12 March 2020]

Riello, A. (n.d) *Ashes to Ashes* [online] available from <http://www.antonioriello.com/ashes-to-ashes/index> [26 February 2020]

Robert Rauschenberg Foundation (2019) *Untitled: glossy black four-panel painting* [online] available from <https://www.rauschenbergfoundation.org/art/artwork/untitled-glossy-black-four-panel-painting> [12 September 2019]

Rogers, C. (1954) 'Toward a Theory of Creativity'. *ETC: A Review of General Semantics* 11 (4), 249–260

Rogovoy, S. (2011) *Dancing with 10,000 Ping-Pong Balls at Jacob's Pillow* [online] available from <https://rogovoyreport.com/2011/08/03/jonah-bokaer-third-floor-jacobs-pillow/> [30 June 2020]

Rosenblatt, L. M. (2005) 'From *Literature as Exploration* and *The Reader, the Text, the Poem'. Voices from the Middle* 12 (3), 25–30

Royal Academy of Arts (2015-2016) *Thinking through drawing: Chris Wilkinson RA* [online] available from <https://www.royalacademy.org.uk/exhibition/chris-wilkinson-thinking-through-drawing> [9 March 2018]

Runco, M. A. (2015) 'Meta-Creativity: Being Creative About Creativity'. *Creativity Research Journal* 27 (3), 295–298

Runco, M. A. (2014a) '"Big C, Little c"' Creativity as a False Dichotomy: Reality is not Categorical'. *Creativity Research Journal* 26 (1), 131–132

Runco, M. A. (2014b) *Creativity. Theories and Themes: Research, Development, and Practice.* 2nd Edn. San Diego: Academic Press

Runco, M. A. & Jaeger, G. J. (2012) 'The Standard Definition of Creativity'. *Creativity Research Journal* 24 (1), 92–96

S

Sadler-Smith, E. (2015) 'Wallas' Four-Stage Model of the Creative Process: More Than Meetgs the Eye?'. *Creativity Research Journal* 27 (4), 342–352

Sarmiento, J. (n.d.) *Books* [online] available from <https://www.jeffreysarmiento.co.uk/> [26 June 2020]

Sasaki, R. (n.d.) *Walking On Glass* [online] available from <https://rui-sasaki.com/section/445524-Walking-On-Glass.html> [14 April 2021]

Sawyer, R. K. (2012) *Explaining Creativity: the Science of Human Innovation*. 2nd edn. Oxford and New York: Oxford University Press

Scanlan, C. (2003) *The hourglass: serving the news, serving the reader* [online] available from <https://www.poynter.org/reporting-editing/2003/the-hourglass-serving-the-news-serving-the-reader/> [27 July 2020]

Schellekens, E. (2009) 'The Aesthetic Value of Ideas'. in *Philosophy and Conceptual Art*. ed. by Goldie, P. and Schellekens, E. Oxford; New York: Oxford University Press, 71–91

Schön, D. (1991) *The Reflective Practitioner: How Professionals Think in Action.* Aldershot Hants, England: Avebury, The Academic Publishing Group

Service, R. F. (2018) *Skyscrapers could soon generate their own power, thanks to see-through solar cells* [online] available from <https://www.sciencemag.org/news/2018/06/skyscrapers-could-soon-generate-their-own-power-thanks-see-through-solar-cells> [26 March 2020]

SFMOMA (2017) *Céleste Boursier-Mougenot* [online] available from <https://www.sfmoma.org/read/celeste-boursier-mougenot/> [12 May 2020]

Shanks, M. and Svabo, C. (2018) 'Scholartistry: Incorporating Scholarship and Art/Or: A polyphony of voices in conversation about a couple of images with reference to problem-based learning'. *Journal of Problem Based Learning in Higher Education* 6 (1), 15–38

Sheppard, L. and Cavette, C. (2020) *Cathode-Ray Tube* [online] available from <http://www.madehow.com/Volume-2/Cathode-Ray-Tube.html> [30 March 2020]

Shlain, T. (2013) *The Creative Process/Ep. 6/Future Starts Here: AOL Originals* [online] available from <https://www.youtube.com/watch?v=5IRr-JkIwlc> [12 November 2019]

Sills, C., Lapworth, P., & Desmond, B. (2012) *An Introduction to Gestalt.* London: SAGE Publications Ltd

Simonton, D. K. (1993) 'Blind Variations, Chance Configurations, and Creative Genius'. *Psychological Inquiry* 4 (3), 225–228

Sims Reed Gallery (2020) *Dale Chihuly: Prints and Works on Paper* [online] available from <http://gallery.simsreed.com/exhibitions/> [19 May 2020]

Smithsonian Institution (2019) *Human Evolution Timeline Interactive* [online] available from <http://humanorigins.si.edu/evidence/human-evolution-timeline-interactive> [11 February 2019]

Solnit, R. (2005) *A Field Guide to Getting Lost.* New York: Viking by the Penguin Group

Solomon, A. (2012) *A Rosier View for People with Migraines* [online] available from

<https://www.everydayhealth.com/headache-and-migraine/0419/a-rosier-view-for-people-with-migraines.aspx> [25 July 2020]

Sousanis, W. N. (2014) *Unflattening: A visual-verbal inquiry into learning in many dimensions.* Unpublished PhD thesis. New York: Columbia University

Spreadbury, J. (2018) *In Pursuit of Making: Research into the difficulties in making within the creative process.* Unpublished Undergraduate thesis. Edinburgh: Edinburgh College of Art at University of Edinburgh

Spring, J. (n.d.) *Sea Creatures in Glass* [online] available from <https://www.sierraclub.org/sierra/slideshow/sea-creatures-glass?slide=#3> [6 May 2020]

Sriraman, B. (2009) 'The characteristics of mathematical creativity'. *ZDM Mathematics Education* 41 (1),13–27

Staging Concepts (n.d.) *Enhancing the Performance Space: Black Box Theatres* [online] available from <https://www.stagingconcepts.com/news/enhancing-the-performance-space-black-box-theatres/> [30 June 2020]

Stermotich-Cappellari, F. (2015) *The Spiritual in Islamic Calligraphy: A Phenomenological Approach to the Contemporary Turkish Calligraphic Tradition* [LLC Works in Progress Seminar, University of Edinburgh] with post-graduate students [4 November, 2015] Edinburgh

Sternberg, R. J. ed. (1999) *Handbook of Creativity*. Cambridge, UK: Cambridge University Press

Stocker, T. (1987) 'A Technological Mystery Resolved' *American Heritage of Invention & Technology* [online] 2 (3), 64. available from <https://www.cmog.org/article/pre-columbian-use-obsidian> [20 February 2019]

Stopka, N. (2014) *the kettle stitch* [online] available from <https://www.nataliestopka.com/goingson/1671> [1 July 2020]

Studio Bruce Munro (2020) *Field of Light* [online] available from <https://www.brucemunro.co.uk/work/field-of-light/> [19 May 2020]

Studio Drift (2015) *In 20 Steps* [online] available from <https://www.studiodrift.com/work#/work/in-20-steps/> [18 May 2020]

Studio SWINE (2017) *Closing Provocation* [presentation] Research Through Design Conference, 24 March 2017. Edinburgh: National Museum of Scotland

Studio Wayne McGregor (2012) *Rain Room* [online] available from <https://waynemcgregor.com/productions/rain-room> [12 May 2020]

Stryker, R. (2011) *The Four Desires: Creating a Life of Purpose, Happiness, Prosperity, and Freedom.* New York: Delacorte Press

Strzalecki, A. (2000) ‘Creativity in Design: General Model and Its Verification’. *Technological Forecasting and Social Change* 64, 241–260

T

Tagliapietra, L. (2020) *How It’s Made—Murrini* [online] available from <https://linotagliapietra.com/how-its-made-murrini/> [13 April 2020]

Tagliapietra, L. (2019a) *Poetry* [online] available from <https://linotagliapietra.com/artwork/poesia-3> [12 September 2019]

Tagliapietra, L. (2019b) *Summing up some techniques* [online] available from <https://linotagliapietra.com/summing-up-some-techniques/> [12 September 2019]

Tait, H. (2012) *5000 Years of glass.* London: The British Museum Press

Tate (2010) *The Unilever Series: Ai Weiwei: Sunflower Seeds* [online] available from <https://www.tate.org.uk/whats-on/tate-modern/exhibition/unilever-series/unilever-series-ai-weiwei-sunflower-seeds> [30 June 2020]

Tate, T. (2016) *Tim Tate – Glass and Video Sculptor* [online] available from <https://www.timtateglass.com/about> [22 July 2020]

Tate, T. (2013) *Glass Secessionism* [online] available from <https://washingtonglass.blogspot.com/2013/07/glass-secessionism.html?fbclid=IwAR1I1ZT4pc7hm5xdMPjS3HhfFLk7yVhm-SVuNnDqZZkk8JEXxKq-2BZhQEU> [22 July 2020]

Tbakhi, A. and Amr, S. S. (2007) ‘Ibn Al-Haytham: Father of Modern Optics’. *Annals of Saudi Medicine* 27 (6), 464–467

The British Museum (n.d.) *flagon* [online] available from <https://www.britishmuseum.org/collection/object/H_GR1868-0501-264> [10 July 2021]

The Courtauld Institute of Art (2020) *A Bar at the Folies Bergère* [online] available from <https://courtauld.ac.uk/gallery/collection/impressionism-post-impressionism/edouard-manet-a-bar-at-the-folies-bergere> [25 June 2020]

The Franklin Institute (2020) *Edison’s Lightbulb* [online] available from <https://www.fi.edu/history-resources/edisons-lightbulb> [26 March 2020]

The Franklin Institute (2018) *Franklin’s Glass Armonica* [online] available from <https://www.fi.edu/history-resources/franklins-glass-armonica> [25 April 2018]

The Globe and Mail (2011) *Powerful Images from 9/11* [online] available from <https://www.theglobeandmail.com/news/world/powerful-images-from-911/article638580/> [6 February 2020]

The Wheeler Centre (2011) *Neil Gaiman: Where do you get your ideas from?* [online] available from <https://www.youtube.com/watch?v=-C48jAkVII0> [12 November 2019]

Thomas, S. (2018) *A complete guide on where to sit in the theatre* [online] available from <https://www.encoretickets.co.uk/articles/guide-seats-in-the-theatre/> [5 December 2019]

Thornton, S. (2014) *33 Artists in 3 Acts.* Granta Publications e-book

Thurston, N. (2016) 'The Poetics of Information Overload: From Gertrude Stein to Conceptual Writing'. *Parallax* 22 (2), 263–266

Tilley, C. (2015) *Eight things you might not know about black boxes* [online] available from <https://www.abc.net.au/news/2014-03-26/black-box-flight-recorders/5343456> [29 October 2019]

Traver Gallery (n.d.) *Heike Brachlow* [online] available from <https://www.travergallery.com/artists/heike-brachlow/> [30 June 2020]

Tucker, E. (2016) *Duffy London's latest Abyss table is designed to resemble ocean chasms* [online] available from <https://www.dezeen.com/2016/01/18/abyss-table-duffy-london-ocean-chasms/> [18 May 2020]

Turchi, P. (2004) *Maps of the Imagination: the Writer as Cartographer.* San Antonio, Texas: Trinity University Press

Twomey, C. (n.d.) *Trophy* [online] available from <http://www.claretwomey.com/projects_-_trophy.html> [1 July 2020]

U

University of Calgary (2014) *About the Journal* [online] available from <https://journalhosting.ucalgary.ca/index.php/ajer/about> [11 July 2019]

University of Edinburgh (2020) *Doctoral Thesis Submission* [online] available from <https://www.ed.ac.uk/academic-services/students/thesis-submission> [25 July 2020]

University of Edinburgh (2019a) *Information Services: Mindgenius* [online] available from <https://www.ed.ac.uk/information-services/computing/desktop-personal/software/main-software-deals/mindgenius> [20 April 2020]

University of Edinburgh (2019b) *Standards for the Format and Binding of a Thesis* [online] available from <https://www.ed.ac.uk/files/atoms/files/thesisbinding.pdf> [3 July 2019]

University of Edinburgh (2018a) *Degree Regulations and Programmes of Study Postgraduate Degree Programme Regulations 2017/2018* [online] available from <http://www.drps.ed.ac.uk/18-19/regulations/PGDRPS2018-19.pdf> [3 July 2019]

University of Edinburgh (2018b) *Design MPhil and Phd Programme Handbook 2018-19*. Unpublished booklet. Edinburgh: University of Edinburgh

University of Kent (2015) *Participatory Study on Personality and Creativity* [online] available from <https://goo.gl/FWybHH> [15 October 2015]

University of Southampton (2016) *Eternal 5D data storage could record the history of humankind* [online] available from <https://www.southampton.ac.uk/news/2016/02/5d-data-storage-update.page> [26 March 2020]

University of Utah Health (2020) *Migraines and FL-41 Tinted Lenses* [online] available from <https://healthcare.utah.edu/moran/optometry/fl41-lenses.php> [25 July 2020]

Urqhardt, J. (2015) *Mystery of coloured water droplets that chase and repel each other solved* [online] available from <https://www.chemistryworld.com/news/mystery-of-coloured-water-droplets-that-chase-and-repel-each-other-solved/8375.article> [3 September 2019]

V

Vávra, J. R. (1954) *5000 Years of Glass-Making: The history of Glass*. English edn. Prague: Artia

Veneciano, J.D., Kennedy, S., Statom, T., Nosan, G., and Hussman, A. (2012) 'THE STUDIO GLASS MOVEMENT: Selections from the Esterling-Wake Collection'. *Sheldon Museum of Art Catalogues and Publications*. 88

Venini Spa (n.d.) *Heritage* [online] available from <http://venini.com/en/heritage-en/> [27 May 2019]

Verene, D. P. (1994) 'Lyric Philosophy'. *Philosophy and Literature* 18 (1), 124–130

Vesaluoma, A. (2017) *Map-Sketch Feedback* [e-mail] to Naas, L. [2 March 2017]

Victoria and Albert Museum (2020) *Objects of beauty: Art Nouveau glass and jewellery* [online] available from <https://www.vam.ac.uk/articles/objects-of-beauty-art-nouveau-glass-and-jewellery> [25 March 2020]

Victoria and Albert Museum (2016) *Artists' Books* [online] available from <http://www.vam.ac.uk/content/articles/a/books-artists/> [27 May 2019]

Vision Engineering Ltd. (2018) *History of the Microscope* [online] available from <https://www.visioneng.com/resources/history-of-the-microscope/> [11 December 2019]

von Ancken, V. (2017) *Spectacles* [online] available from <https://medievallondon.ace.fordham.edu/exhibits/show/medieval-london-objects/spectacles> [13 March 2020]

W

Walker Art Center (2020) *Magnetic Poetry* [online] available from <https://walkerart.org/minnesotabydesign/objects/magnetic-poetry> [17 April 2020]

Walker Art Center (2014) *Christian Marclay: The Clock* [online] available from <https://www.youtube.com/watch?v=irtVNTFr4f4> [27 July 2020]

Walker, N. (2013) 'My Mistake'. *In Bending Genres: Essays on Creative Nonfiction*. ed. by Singer, M. and Walker, N. New York: Bloomsbury, 127–130

Wallace, B. A. (2006) *The Attention Revolution, Unlocking the Power of the Focused Mind.* Somerville, Massachusetts: Wisdom Publications, Inc.

Wallas, G. (1926) *The Art of Thought*. London: Jonathan Cape

Walt Disney Pictures (1937) *Snow White and the Seven Dwarfs* [online] available from <https://moviesanywhere.com/movie/snow-white-and-the-seven-dwarfs-1937> [1 November 2019]

Walton, M. S., Shortland, A., Kirk, S., and Degryse, P. (2009) 'Evidence for the trade of Mesopotamian and Egyptian glass to Mycenaean Greece'. *Journal of Archaeological Science* 36, 1496–1503

Watson-Smyth, K. (2010) *The Secret History Of: Philippe Starck's lemon squeezer* [online] available from <https://www.independent.co.uk/property/interiors/the-secret-history-of-philippe-starcks-lemon-squeezer-1972849.html> [25 June 2020]

Weeks, W. P. (2016) 'Realizing the Promise of the Glass Age'. *The Glass Art Society Journal* 2016, 16–18

Weiner, E. (2012) *Man Seeks God, My Flirtations with the Divine.* 2nd edn. New York: Hachette Book Group

Wellcome Collection (n.d.) *Rectangular leather-covered case containing glass artificial eyes made by W. Halford of London 1870–1920* [online] available from <https://wellcomecollection.org/works/pjeb2zpc> [7 May 2020]

Whitehouse, D. (2013) *Glass in the Epigrams of Martial* [online] available from <https://www.cmog.org/article/glass-epigrams-martial> [13 March 2020]

Wikimedia Commons (2015) *Triangulation-boat.png* [online] available from <https://commons.wikimedia.org/wiki/File:Triangulation-boat.png> [23 September 2021]

Wikimedia Commons (2011) *Canework Detail—David Patchen 8757.jpeg* [online] available from <https://commons.wikimedia.org/wiki/File:Canework_detail_-_David_Patchen_8757.jpg> [13 April 202]

Wikipedia (2020) *Palatino* [online] available from <https://en.wikipedia.org/wiki/Palatino> [2 June 2020]

Wiktionary (2020) *scena* [online] available from <https://en.wiktionary.org/wiki/scena> [30 July 2020]

Wilson, C. (n.d.) *Clare Wilson Glass: Gallery* [online] available from <http://www.clarelwilsonglass.co.uk/Gallery.php> [10 April 2020]

Woffenden, E. (n.d.) *Glass Figures, 2015* [online] available from <http://emmawoffenden.com/works/glass-figures-2015/> [24 February 2020]

Wright, F. L. (1949) 'Sullivan Against The World'. *The Architectural Review* 105 (630), 295–298

Wyatt, J. (2017) *The Designer's Toolkit for Tackling Tough Problems* [online] available from <https://www.ideo.com/blog/the-designers-toolkit-for-tackling-tough-problems> [16 April 2020]

Y

Yee, J. S. R. (2010) 'Methodological Innovation in Practice-Based Design Doctorate'. *Journal of Research Practice* 6 (2), Article M15

Yilmaz, S. and Seifert, C. M. (2011) 'Creativity through design heuristics: A case study of expert product design'. *Design Studies* 32, 384–415

Ylirisku, S., Jacucci, G., Sellen, A., and Harper, R. (2016) 'Design Research as Conceptual Designing: The Manhattan Design Concept'. *Interacting with Computers* (28) 5, 648–663

Young, J. W. (2003) *A Technique for Producing Ideas*. New York: The McGraw-Hill Companies, Inc.

Z

Zallen, R. (2004) *The Physics of Amorphous Solids*. Wiley Blackwell.

Zeisel, J. (1984) *Inquiry by Design: Tools for Environment-Behavior Research.* Cambridge: Press Syndicate of the University of Cambridge Press

Zwicky, J. (2014) *Lyric Philosophy.* 2nd edn. Edmonton & Calgary: Brush Education

Zwicky, J. (2014) *Wisdom and Metaphor.* 2nd edn. Edmonton & Calgary: Brush Education

Zwicky, J. (2013) 'What is Lyric Philosophy? An Introduction' [online] *Common Knowledge* 20 (1), 14–27 available from <http://commonknowledge.dukejournals.org.ezproxy.is.ed.ac.uk/content/20/1/14.full.pdf+html> [5 March 2016]

Appendices

Glossary of Terms....A

Tumblr Post.... B

Expressions of the Creative Process....C

From Working Notes to Lyric Assimilation....D

Thingness: To Know the Unknown....E

First Year PhD Report....F

Attention to Association....G

Word Triangulation: Guidelines and Demonstration....H

'Makers Marks: Glass in Translation' RTD2017 Paper....I

'Makers Marks' MDPI Journal Article in *Arts 2019*....J

'Play with Fire: Glass Concepts' (Innovative Learning) ....K

after the storm....L

Glass-Music-Dance Collaboration....M

'Voicing Perspective': Auto-ethnographic Writing....N

Writing Form and Book Mock-ups....O

Early Reflection on Writing the Dissertation....P

Writing Charts....Q

Early Draft Abstract with Notes....R

Spectacles for the Black Box Thesis....S

Measuring My Days....T

The Black Box Dissertation in ECA Artists' Book Collection....U

Digital Crafting in Glass Workshop....V

Thinking Through Glass Workshop....W

Mastercard Scholars Workshop....X

Research Dissemination and Development....Y

University Emails about Electronic and Non-Standard Thesis Submission....Z

Final Attachment: Examiners' Report from Viva Voce and Document of Corrections

Appendix A.
Glossary of Terms

Glossary of Terms

adjacent possible
Stephen Johnson borrowed this phrase from scientist Stuart Kauffman (who coined the term for the first order elementary combinations which created life) to discuss the spaces in which elements/thoughts/older ideas combine and recombine to create new ones (2010: 30-31). He says the adjacent possible is a key to new idea formation; Johnson says the term 'captures the limits and the creative potential of change and innovation' (2010: 30-31). By 'adjacent possible', Johnson, who is an author, a respected thinker, and also a start-up creator, is referring to that which is nearby to tap into for developing new combinations, which, once formed, pushes and extends the boundaries of the adjacent possible to allow for additional combinations (2010: 31). The adjacent possible offers potential combination by association, be it physically, geographically, literally, figuratively, virtually, or intangibly, but is also limited by those same associations.

analogy/analogical thinking
In *Mental Leaps: Analogy in Creative Thought,* the authors Holyoak and Thagard discuss metaphor or analogy, as 'model-building in the mind to understand something in the world' (1999: 5). They explain that carrying over associations from the source analog (the known domain with familiar, learned patterns) to the target analog (the relatively unfamiliar domain we are trying to understand) is the essence of analogical thinking (1999: 2). Holyoak and Thagard also write how this 'carrying over' develops a systematic set of correspondences between the source and the target so that we can see the one thing as if it were another, 'creating a tension between two perspectives: the thing as itself and the thing as something else' (1999: 9). Most interestingly, they write that analogy by 'its very nature freely oversteps the traditional boundaries between knowledge domains, making it possible to use ideas from one domain to achieve insights in another' (1999: ix-x).

anneal
To slowly cool a finished glass object in a furnace by lowering the temperature to room temperature over a designated period of time (Corning Museum of Glass 2006: 9)

aphorism
An aphorism is a short expression of a truth or principle or observation, often written in a humorous manner or conveyed cleverly. Jan Zwicky explains that 'aphoristic writing can be used to cultivate our ability to see as' (2013: 22) or in other words, to cultivate our ability to see connections.

artist's book
An arist's book is art in book form, which can take many forms. Often, in an artist's book, the form of the book can be essential to conveying its content and meaning, and artists make them to be art pieces unto themselves (Evenhaugen 2012, Victoria and Albert n.d.).

association
'Association' has multiple meanings and is used in so many different ways and contexts. I use this term to refer to relationship, connection, and connotation as it relates to the creative process and creativity. I use it to discuss these concepts on the macro level as well as the micro level, the community level as well as the individual level.

associative, combinatorial thinking
This is the phrase that I use to describe my creative process and the way images, words, memories, experiences, and world information pieces connect in my mind in the lead-up to forming an idea for a project. It occasionally happens quickly and with ease as I describe within my initial application proposal. Other times, I turn the images and words over in my mind, searching for their connection and relationship points before I can move forward with a project. The writer Maria Popova uses similar phrases of 'combinatorial creativity' and 'combinatorial thinking' to discuss 'the concept that ideas are born out of the myriad pieces of stuff populating our memories, knowledge base, our mental pool of inspiration and resources, and creativity is simply the capacity to put those together in incredible new ways' https://www.brainpickings.org/2010/11/19/paula-scher-on-combinatorial-creativity/ (Popova 2010). Key to my process are the associations I make and the relationships between the pieces I connect and combine for the idea. Therefore, I use both 'associative' and 'combinatorial' as descriptors.

block (glassblowing term) a traditional tool made of wood, with a hemispherical hollowed centre used to shape molten glass after dipping the wood in water (Corning Museum of Glass 2006: 15)

bisociation
This is Arthur Koestler's term he coined to 'make a distinction between the routine skills of thinking on a single "plane"… and the creative act', which he asserts 'always operates on more than one plane' (1964: 35-36). He says that the creative act is 'linked not only to one associative context, but *bisociated* with two' (1964:35). Koestler argues that when two associative contexts (two frames of reference or two systems of thought) or 'two matrices of perception or reasoning interact with each other the result…is either a *collision* ending in laughter, or their *fusion* in a new intellectual synthesis, or their *confrontation* in an aesthetic experience' (1964: 45).

black box
'Black box' is a phrase with multiple meanings and references. It can describe the colour of a container, but it also can specifically indicate a type of versatile, experimental, intimate theatre space that often allows the audience and performers to mix (Soho Rep 2012). 'Black box' can refer to the data recorder in an airplane's cockpit that aids in the forensic examination of crash instances (Tilley 2015). In terms of computer hardware, 'black box' is an input/output, electronic device or system that does not usually enable access to its processes; and more broadly, it refers to that which has mysterious, inner workings (Merriam-Webster 2019).

clamshell box (bookbinder/bookmaker's term)
This is a box (often used to protect a book), that has two trays, where the larger tray folds over the smaller (which usually contains the book) to encase it (Reynolds 2011)

coda (music and dance)
In music, it is a final thought or ending passage to the piece, and in dance, it is the concluding segment of a performance

commonplace book
A notebook used predominantly in the seventeenth and eighteenth centuries, traditionally in England, by scholars, students, and as Stephen Johnson explains, by just about anyone with intellectual ambition (2010: 84). Traditionally, authors of these notebooks transcribed interesting literature excerpts or quotations. Noteably, famous philosophers and scientists of the time such as John Locke and Charles Darwin maintained them as both a place to hold knowledge and as a resource and space to develop their work.

designerly
A form of activity of or pertaining to/specific to 'design'. Like the word 'artistic' is to 'art', but perhaps not as common, 'designerly' is often confused or used to refer to the making of an artefact, but 'design' is a separate, skilled process to making. While everyone can design and can be taught to design, 'design' and 'designerly', refer to characteristics and abilities that are part of a specific aspect of intelligence or a way of knowing through an exploratory process. Design is problem-solving, working toward an aesthetically pleasing end product that is a solution, which is often practical but can be beautiful, using high technical skills and visual imagination. (Cross 2011, 2006 and Lawson 2006)

dress circle
This group of theatre seats arguably offers some of the best views for performances staged more traditionally, using center stage, proscenium style, or a thrust stage. 'Sitting in the dress circle can allow you to feel immersed in the action of what's on stage, but you are able to sit from a height so you can appreciate what's going on at all levels', writes Sophie Thomas of Encore Tickets (2018).

exaptation
This is one of the seven patterns that Stephen Johnson posits is essential to the making of a good idea. He borrows this term from evolutionary biologists Stephen Jay Gould and Elisabeth Viba who coined the term in 1971 to mean a trait created for one purpose, but 'hijacked' to serve another (2010: 153-4). Johnson says that the essence of exaptation in relation to new ideas and innovation is that in one context a tool (or a thing, a system, a principle, etc) can be used for one purpose, but if it is 'hijacked' and taken into another context, it can be used in a different way (2010: 157).

frit (glass term)
The basic materials for glass, partially or wholly fused and granulated (Corning Museum of Glass 2006: 39). Sizes range from course (sea-salt grinder shapes) to a very fine sand-like quality; frits are often added to clear glass to add colouring and patterns

gaffer (glassblowing term)
The master craftsperson in charge of the team in the hotshop (Corning Museum of Glass 2006: 40)

gather (glassblowing term)
A mass of molten glass collected on the end of a blowpipe, pontil, or gathering iron; or used as a verb, it means to collect molten glass on the end of a tool (Corning Museum of Glass 2006: 40)

gestalt
A unit of perception/meaning...these units of perception can be found in different scenarios/form, but the meaning remains whole (Braunguardt 2019)

idea event
This is the term I use to discuss the moments when I recognise and am aware that I am forming an idea and my inner monologue or stream of consciousness is expressing it

intersection/intersectional idea
These types ideas/experiences combine concepts from different fields to lead in new directions' and diversifying 'occupation, interact[ing] with diverse groups of people, [and] go[ing] intersection hunting' (Frans Johansson 2004: 73).

jacks (glassblowing term)
A tool with two long metal arms joined by a spring at one end and used to shape hot glass (Corning Museum of Glass 2006: 47). "Jack the neck" and/or "cut-in" refers to using the jacks to shape and narrow the neck of a glass form.

kettle stitch/French link (bookbinders' terms)
Common sewing techniques often used together (that dates back centuries). Binders use them to hold the page of text together at the spine. The kettle stitch looks like a row of knots and the French link creates a link pattern with the thread along the spine (Stopka 2014).

lateral thinking
Lateral thinking as developed and described by psychologist Edward de Bono, is an 'insight tool' (1988: 10) and is 'the process of using information to bring about creativity and insight restructuring' (1988: 7).

line of heat (glassblowing term)
The section of the hot glass on a blowpipe or pontil that is being heated

liquid network
Environments that are open, fluid, where connectivity is high but not restrictive or contrained and where change is possible...highly conducive to innovation (Johnson 2010)

Lyric/lyric philosophy
The lyric, as described by Jan Zwicky is speech or writing 'that integrates various human modes of understanding-emotional, logical, physical, among others' (2013: 18). She writes that 'lyric meaning resists summary and paraphrase as much as it resists analysis' (2013: 1). In 'Lyric Inquiry', Lorri Neilsen, an author, teacher, and scholar, expands the description and offers characteristics of the 'lyric', describing features which include 'liminality, ineffability, metaphorical thinking, embodied understanding, and personal evocations' (2008: 4). Neilsen explains that this aesthetic writing includes such forms as letters, poems, fiction, anecdotes, and other newer, formats which cross genres (2008: 4-5). Zwicky asserts that 'form and content are inextricably bound up with one another'; lyric writing shows and gestures its meaning through the words themselves and by how they are presented (2013: 17). Both offer that the lyric is not restricted to words. The use of the term in this paper is primarily about words and writing.

lyric inquiry
Lorri Neilsen explains that 'lyric inquiry is informed by aesthetic and philosophical principles of writing; it is based on a conviction that using expressive and poetic functions of language creates the possibility of a resonant, ethical, and engaged relationship between the knower and the unknown' (2008: 3). Lyric inquiry is an approach to knowing and learning that uses this aesthetic writing; through the act of writing and the words of the writing, there is discovery and insight.

marver (glassblowing term)
To roll and shape hot glass on a blowpipe or pontil by using the marver, a flat, smooth, usuall metal surface (Corning Museum of Glass 2006: 54)

method acting
With its beginnings traced to the teachings of Russian theatrical realist Konstanin Stanislavski, this approach to acting was formally developed by Lee Strasberg, who trained students beginning in 1951. The method acting technique encourages 'actors to draw on their own experiences and emotions as a way to strip their performances of artifice' (Bastién: 2016). In contemporary acting, especially in Hollywood, actors have often recreated external circumstances of their characters within their personal lives to create experiences for themselves to enhance their understanding of their characters. As it is used today as an immersion experience technique, I have borrowed the term to begin to articulate my embedding research method as it also is an immersion experience technique.

metaphor
Metaphor is both a literary device of description and poetics, and the tool through which we can relate to the unknown. Greary writes that the primary purpose of the metaphor is 'to carry over existing names or descriptions to things that are either so new that they haven't been named or so abstract that they cannot otherwise be explained' (2011:29).

Metaphors compare one thing with another through this naming process; all of the associations with the name/word of the one thing, carry over to the other.

modes of association
My 'modes of association' is a specific collection of related creativity/ideation theories that I use throughout my research: (Stephen Johnson's 'adjacent possible' and 'exaptation' 2010, Arthur Koestler's bisociation 1964, Frans Johannson's intersections 2004, Holyoak and Thagard's analogical thinking 1999, and de Bono's pattern-breaking 1977).

pontil or 'punty' (glassblowing term)
A solid metal rod used fpr a variety of purposes in the hotshop, often to accept a transfer of glass from the blowpipe to enable an opening of a vessel (Corning Museum of Glass 2006: 67)

scena
'A scene in an opera; an unaccompanied dramatic recitation, interspersed with passages of melody, or followed by a full aria; the stage of an ancient theatre' (Wiktionary 2020)

scholartist
Creating Scholartistry: Imagining the Arts-informed Thesis or Dissertation offers examples of untraditional, creative PhD dissertations and examines various 'scholartistry' methods, processes, and writings (2008). In the opening to the book, editors Knowles and Promislow introduce what they mean by 'scholartistry', writing that 'to infuse the arts into inquiry is to break out of conventional ways of researching. It is to be inspired by the arts, with regard to process and representation' (2008: 5). They continue by describing a 'scholartist': 'to become a scholartist is to possess a creativity and artfulness about inquiry and scholarship. It is to possess a willingness to take risks and not be bounded by conventions of academic discourse and research while being grounded in them' (2008: 5).

strip-gather (glassblowing term)
A very large gathering of molten glass (usually over a previous foundational cooling gather) on a pipe, that is then taken out of the furnace and stripped of excess material before moving to shape it

studio mandala
A 'mandala' in the traditions of yoga and Buddhism is a mind focusing tool that is laden with symbols. It is essentially a type of map to engage the practitioner and offer guidance for settling into the rituals. 'Studio mandala' is the name I have given to my online documents that assist me in collecting my thoughts, images, video, sounds, and relevant words in one place, where I can view and review it to work my way into the creative project idea.

Appendix B.
Tumblr Post

Relating to Glass: Point.Counterpoint.

Text
September 08, 2014
1 note

“My Summer Vacation with the Sun” or “A Conversation with Myself about My Upcoming Studio Work”



“Plockton Rainbow” Scotland Photo: David Faleris

Lisa, what did you do for your summer vacation?

I chased the sun.

What do you mean?

I mean I literally chased the sun. I spent my days in Scotland watching the sky and waiting for a break in the clouds for the sun to emerge from hiding. And when I caught a glimpse of it, I left my flat in pursuit of its elusive rays. Sometimes I postponed my morning shower to catch it; other days I left my dinner on the table to grow cold if I caught sight of the warm glow.

What did you do when you found the sunshine?

I walked in it; sat in it; looked at it; thought in it; read books in it; picnicked in it; took photos of it; played in it; soaked it in through my skin and raised my face to it.



“Elusive Sun Patch” Scotland Photo: Lisa Naas

But you weren’t in Scotland the whole of summer. How were your visits to the US and Spain?

In New England, the sun is brighter, warmer, and more amenable to companionship. It accompanied me with my coffee in the mornings and my lunch in the afternoons. When time allowed we sometimes went hiking or driving together. I did not have to pursue it quite like in Scotland…it was more generous and giving of itself and I enjoyed my time with it immensely.



“On the road to West Stockbridge” MA, USA Photo: Lisa Naas

The Spanish sun is something else altogether though. It is a passionate thing and our relationship is a bit more volatile. It was a treat for me to wake up with it lazy and have breakfast on the balcony while it had a mild temperament. Spanish summer afternoons unleashed a sun that was wild and untamed though and I needed protection from it. But that did not stop me from playing with it and certainly did not quell the attraction…pools and oceans became lovely buffers to the heat of the moment.



"Visiting Sa Calobra, Mallorca" Spain Photo: David Faleris

But surely you have more to tell about your summer than your time with the sun?

I don't think so actually. The sun characterized my entire break and I can tell you how my studio work has developed by relating to it. My affair with the sun (my first love really) encompasses the many conceptual themes in my work from last year. Considering this ongoing relationship will provide a good vantage point from which to view my studio work, as I begin this new academic year.

I don't understand.

Well, I realized over the summer that my relationship with the sun is, in ways, not so very different from my relationships with the people I love. The sun embodies some of the same qualities and contradictory properties as people do and as glass (my chosen artistic medium) does as well. It can be hot or cold; it can be weak or strong; it can be bright or hazy; it can damage and wound or it can preserve and hold safe. As a thing of nature (many may say the central focus of our natural world), it is physically demonstrative of the intangibles and universal polarities I have been attempting to convey and discuss through my art work.

Alright, I think I follow you. Can you be more specific?

Let's take the idea of the sun being both a life-force or health restorer as well as a damaging agent. You know the extremes: very little can grow on the Earth without the sun and yet the hot unbearable sun in the desert kills or (as on Mars) permits no growth. My relationship (our relationship actually) with the sun is of course more subtle and complex than that, and my doctor brought it to my attention this summer. Due to "foreign" life in Scotland with little sunlight and many hours of darkness, I returned to the United States extremely deficient in

Vitamin D (the vitamin which builds and maintains healthy bones and which acts as something of a natural anti-depressant - one that your body produces when you are exposed to the sun). But the same day my doctor gave me a prescription for Vitamin D, she also urged me to see a dermatologist as a preventative measure against potential hurt done to my skin from my earlier days with the sun.

Take a look at this video I watched over the summer:

How the Sun Sees You by Thomas Leveritt (12 Aug 2014)



Video screenshot from youtube.com

The ultraviolet camera in the video makes visible what is currently invisible to the naked eye: the various changes to skin exposed to the sun. While our relationship with the sun is necessary for our health, it also leaves us with its marks and it ages us even if it is not evident immediately.

My love affair with the sun is ever-changing and evolving: it is essential to my well-being, but it leaves its permanent marks on me and regularly changes me. My relationship with it is like my relationships with the people I love: absolutely necessary to me and inherent to who I am, but inevitably changing me, leaving me with marks and taking bits of me away. What remains then? How we are changed or touched by our relationships? These are the questions that hold my curiosity and continue to entice my explorations in the studio.

Do you remember my “ah ha!” moment with the glass and titanium?

I do, yes, from early on in your research and studio tests last year.



"Lisa's Ah Ha! Moment" Glass and Titanium Photo: Lisa Naas

That's right. I was absolutely fascinated by how the titanium changed in both color and nature when it met the hot glass and how that little piece of glass retained the sliver of titanium when the materials broke apart several days after joining together. So my thinking hasn't changed…I am still exploring the same concepts of connection, relationships and what remains. Considering my affair with the sun this summer has helped develop my perspective on the work.

I see, that's all certainly relative to the threads you have been following in the studio.

Indeed. But the detail that most struck me in the video was that glass, even clear glass, blocks the sunlight and appears black in the ultraviolet camera.

Do you think you will turn your attention now in the studio to light and how it interacts with the glass?

Yes…maybe? Not necessarily though. It will certainly be a critical factor in the installation of the work, in this year's exposition phase. I definitely have some ideas swirling about how I might use various kinds of light and shadow (or perhaps even an ultraviolet camera. However, the light or lack of light will need to support the various themes of making the invisible visible. (For example, it will need to reveal and help "release" the emotions/sorrows/words held within The Sorrows Release Project, (please see http://lisanaas.tumblr.com/search/thesorrowsreleaseproject). And use of light will need to expose what remains or what we retain or how we are changed and marked by our relationships, for better and worse.

One last question for now before I let you get on with your work…what is your current disposition towards the sun and your relationship after such a thorough contemplation?

Affection. Fondness. And regret for having taken it for granted for so many years when I had it in such abundance!



"Lisa and the Sun" Edinburgh Photo: David Faleris

Tags: reflectionsorautoethnographypieces

1. jessamykellyglass liked this
2. lisanaas posted this

About



Welcome to my blog and thank you for visiting my site...
Documenting my day to day studio work and research as a postgraduate student at Edinburgh College of Art at the University of Edinburgh. www.inconcertwithglass.com

Powered by Tumblr. Minimal Theme designed by Artur Kim.

Appendix C.
Expressions of the Creative Process

Expressions of the Creative Process
A Pilot Study, Conceived and Organized by Lisa Naas
31 January, 2016

Background and Purpose

The creative process (the development of new, innovative, original, and imaginative concepts), is a rather contemporary area of interest and research. Scientific studies are currently challenging the idea that the process is unknowable and through genius only. The fields of neuroscience, psychology, artificial intelligence, business management, philosophy and most recently the new field of network science, are leading the way in research by attempting an understanding of creativity and the breakthrough leaps in knowledge that shape our society.

Tackling the spaces and environments of the mind in the 1960's, Arthur Koestler is believed to have been the first person with a creative practice to study the creative process (Burt, 1964: 17). He was a professional psychologist but also a novelist and essayist who undertook a major, systematic study of the creative process working through accounts of scientific and creative breakthroughs and analyzing them for patterns. His work remains some of the most significant in the study of the creative process and his theory of "bisociation" still holds in contemporary thinking.

Margaret Boden, a research professor of cognitive science, writes that Koestler "explained creativity as the unconscious combination of ideas drawn from different domains…and [as] unconsciously guided by specific conceptual matrices" (Boden, 2004: 34). She asserts that while Koestler observed mental structures at play in the creative process, he acknowledged he could not detail how the creative process happened; she writes that he did not fully explain how creativity is possible (2004: 34 -35). Boden agrees with Koestler that after this unconscious working of the mind, conscious activity is necessary for the creative process. She views Koestler as an excellent witness of the phenomena and his work and descriptive accounts as starting points for research on the subject, as they "indicate where to start looking in more detail at the psychological mechanisms involved" (2004: 35 - 36). As Boden is a scientist involved with artificial intelligence research, her work advances Koestler's threads alongside others, and departs in her own direction within the context of her discipline.

There is much room though in the creative fields of art, design, music, performance, and literature to contribute to this research alongside the studies by those in these other fields, for it is within the "creative" disciplines where society sees the most stereotypical "creatives" residing. Rather than research from an outside perspective, this pilot study was conceived of, and is being conducted by, one who has a creative practice. It intends to study the creative process from the perspective of the creators (artists, designers, musicians, performers, and writers) in an attempt to understand their lived experiences of the creative process.

Potential Methodology

Based on the work by Koestler, Boden, and the research of numerous others, it is understood that the unconscious mind and the conscious mind are key players in the creative process. Given this, the "descriptive phenomenological psychological method" as detailed by Amedeo Giorgi holds potential as an approach to modify for use in this study. The method takes from Edmund Husserl's philosophy of phenomenology and his early work on consciousness and is based in psychology, a field concerned with both the conscious and unconscious mind. Maurice Merleau-Ponty explains phenomenology as "the study of essences; and according to it, all problems amount to finding definitions of essences" (2002: vii). Merleau-Ponty writes that phenomenology as a philosophy puts the essences back into the world

and those who study them try to understand the lived experience of them (2002: vii). For this project, the questions are then: what is the essence of the creative process and what is the lived experience of the creative process?

Husserl's early philosophy of phenomenology was interested in the activities of consciousness and the objects that present themselves to consciousness; "it elaborated the notion of intentionality, which is a characteristic of many acts of consciousness" (Giorgi 2012: 9). But as Husserl focused on the qualities of consciousness and its transcendental nature, not necessarily human consciousness, Giorgi explains that he modified and adapted the phenomenological method to center on human consciousness in the realm of psychology (2012: 9-10). Giorgi writes that through his "descriptive phenomenological psychological method," the researcher seeks to understand "the essential psychological insight contained in this moment of the experience" through the descriptive accounts (in words) of that lived experience (2012: 7). Giorgi also adamantly writes that while his approach is from the psychological as he is a psychologist, "[he] want[s] to make clear that the phenomenological method is generic enough to be applied to any human or social science" (2012: 11).

Therefore, I, as one who has a creative practice, intend to approach the study of the creative process (for this project) from a descriptive "creative" phenomenological perspective. This research seeks to explore the creative process through the lived experience and through artist creative outputs and expressions on the subject of the creative process. The written "descriptions" of Giorgi's method will be replaced by the creative outputs and expressions unique to the artists and their processes. It is these that I will be collecting and using to study the creative process for this project. Following after Giorgi, I will attempt, as a researcher, to "reflect on the presented meanings contained in the description and perceive their unity and come up with an understanding of the world of the other" (2012: 7).

Bibliography

Boden, M. *the creative mind: myths and mechanisms*. (2004) London and New York: Routledge, Taylor & Francis Group

Burt, C. (1964) 'Foreword'. in *The Act of Creation.* by Koestler, A., London: Hutchinson & Co. LTD, 13-20

Stermotich-Cappellari, F. (2015) *The Spiritual in Islamic Calligraphy: A Phenomenological Approach to the Contemporary Turkish Calligraphic Tradition* [LLC Works in Progress Seminar, University of Edinburgh] with post-graduate students [4 November, 2015] Edinburgh

Giorgi, A. (2012) 'The Descriptive Phenomenological Psychological Method'. *Journal of Phenomenological Psychology* 43, 3-12

Koestler, A. *The Act of Creation.* (1964) London: Hutchinson & Co. LTD

Merleau-Ponty, M. *Phenomenology of Perception, Translated by Colin Smith.* (2002) London: Routledge Classics, Taylor & Francis Group

PROJECT BRIEF

Title: Expressions of the Creative Process, a pilot study

Organizer: Lisa Naas, PhD Student, Design, Edinburgh College of Art at the University of Edinburgh

Contact: [redacted]

Participants: Emerging artists, designers, musicians, performers and such creatives

Timeframe: Friday, 19 February 2016 – Friday, 15 July 2016

Purpose: To collect a contemporary, varied body of work highlighting artists' perspectives on their own creative processes and the lived experience of them; the collection and dialogue with participating artists are intended to be used as research material for exploring the creative process and seeking insights

Logistics

Release of Brief to Participants:	Friday, 19 February 2016
Participant Work Period:	12 Weeks
Collection of Work no later than:	Friday, 13 May 2016
Analysis and Study of the Work until:	Friday, 15 July 2016

Call to Artists

Seeking artists, designers, musicians, performers, and writers of all creative disciplines to participate in a pilot study on the creative process. (For the purpose of the study participants will be referred to as "artists" or "participants" regardless of discipline or field of creativity).

Express, detail, describe, and/or relay the essence of your creative process in your own unique way. The medium to express yourself is entirely your choice as is the length, depth, and breadth of what you choose to do. The only requirement is that the artist expression offers the artist's authentic, original, and imaginative relaying of his or her creative process.

All "artist expressions" will be due for collection in late May and collection can take place digitally by file/photo/video/audio transfer or by physical collection/shipment of work. (Funding will be offered if physical collection/shipment is necessary). The artist expressions will be included in a research write-up and potentially in a final PhD dissertation. Long term plans for the study include a curated exhibit/installation/performance of the entire body of work.

As an example of an artist expression, I want to offer that I will be participating in the study. I consider myself a conceptual artist in mixed media using glass as my primary medium. For me, when I begin a project or line of creative enquiry, I use wordplay and associations to understand my topic. Essentially, I puzzle over the questions and themes; I use the words as puzzle pieces; I spend a large amount of my time in the project puzzling with all the frustration and reward that comes with traditional and difficult puzzle game play. Essentially I see my creative process as a puzzle. At this point in the project, I believe my artist expression will take some form of me creating a puzzle, using glass and words as my output.

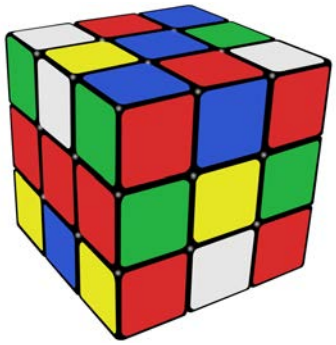
Expressions of the Creative Process: The project brief for my pilot study asks participants to express their creative process in their own unique way.

25 January 2016

I was lying half-awake in bed in the early hours of Saturday morning and I thought about my project brief and I wondered if I should participate...questions immediately followed the initial thought in my mind:

Well, what is my creative process? What does the creative process mean to me? And I realized that my creative process for that project had begun in that moment. As I was half-awake and not distracted or focused on anything else, the thoughts that followed began to answer the questions and I was in dialogue with myself:

it's wordplay and questioning and puzzling; it's seeking to connect and solve



Dave and I had had a brief banter about me being a "puzzle" and a Rubiks cube...the image returned in my half-awake state as I was thinking about the brief.

This morning (25 January) at 5:30am I woke again and as I was falling back to sleep, my mind continued the conversation from Saturday...I turned over the idea of puzzles and wordplay and Rubiks cubes in my mind and remembered the image of one of my early MFA experiments in glass where I produced small glass pieces that had words embedded in them, appearing to come out of the glass. And I began to consider an output of glass/word pieces that could be hinged together as a cube and other various shapes to act like a puzzle.



Today's additional responses to the question of my creative process:

it's translation to the visual, often glass; I look to the qualities/ideas I see embedded in the glass
it's a dialogue with myself...I question and sometimes answer but keep questioning
it's also becomes a dialogue with the medium I choose
it's me looking to the medium to solve the puzzle as well

27 January 2016

If “puzzle” is a key to my creative process, then what are puzzles to me?
-games, riddles, play, words, connect, fit, solve, difficult, ambitious
(So, I identify a key idea, word, or concept, and then question it in relation to myself or the other factors of the brief).

28 January 2016

Koestler: “All coherent thinking is equivalent to playing a game according to a set of rules” p39

Puzzles made by people are games that follow sets of rules in order to be solved and completed

But do my puzzles have sets of rules? Are my puzzles about finding new rules...new patterns perhaps? Are they puzzles of how to break the rules?

If I don’t play a game according to a set of rules, is my thinking not coherent?

Koestler’s matrices are patterns of thought or activity governed by sets of rules...they are equivalent perhaps to Ogle’s “idea-spaces” of the extended mind

When I begin to move forward in my creative process, puzzled and puzzling, am I trying to develop a new matrix? A new idea-space? with a new set of rules?

25 February 2016

But do my puzzles have sets of rules? Are my puzzles about finding new rules...new patterns perhaps? Are they puzzles of how to break the rules?
it’s translation to the visual, often glass; I look to the qualities/ideas I see embedded in the glass
it’s a dialogue with myself...I question and sometimes answer but keep questioning
it’s also becomes a dialogue with the medium I choose
it’s me looking to the medium to solve the puzzle as well
I was in dialogue with myself:
it’s wordplay and questioning and puzzling; it’s seeking to connect and solve

puzzled, puzzling, puzzle

18 glass strips with words to form a shape? 6 faces of a cube

In dialogue with myself
half-awake banter
I was falling back to sleep
my mind continued the conversation
breaking the rules
hinged together
unhinged visuals
seeking to connect
I question
medium translation

? My lyric inquiry ?
In dialogue with myself my mind continued the conversation. A puzzle? I question. Puzzled, I wonder. What puzzling translation. I was falling back to sleep seeking to connect unhinged visuals bantered by half-awake memories. Like garlic and sapphires in the mud. Embedded. Hinged together breaking the rules.

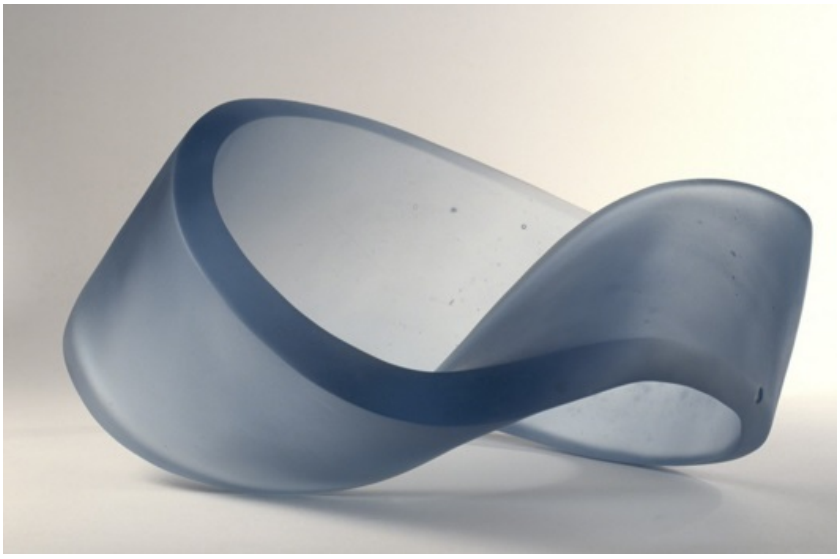
1. In dialogue with myself



2. my mind's conversation
3. A puzzle
4. I question
5. Puzzled
6. I wonder
7. What puzzling
8. Translation
9. Asleep seeking
10. To connect
11. Unhinged visuals
12. Bantered by
13. Half-awake Memories
14. Like garlic and sapphires
15. In the mud
16. Embedded
17. Hinged together
18. Breaking rules.

I don't know that word strips hinged together to form a cube will work...words can't be read in various ways once the cube shape comes together because they are sideways and such:

A mobius strip then? But it's already been done… (Christine Cathie 2004)



How would my words look on a paper page as prose?

In dialogue with myself
My mind continued the conversation.
A puzzle?
I question.
Puzzled, I wonder.
What puzzling translation.
I was falling asleep
Seeking to connect
Unhinged visuals bantered by half-awake memories.
Like garlic and sapphires in the mud.
Embedded.
Hinged together
Breaking the rules.

In dialogue with myself my mind continued the conversation. The words ushered forth.
A puzzle? I question. Puzzled, I wonder. What puzzling translation...
I was falling asleep seeking to connect unhinged visuals bantered by half-awake memories
Like "garlic and sapphires in the mud".
Embedded. Hinged together. Breaking the rules.

for the object output, the words need to be in conversation with themselves

Maybe incorporating different firings to show the words in memory and pushing forward from the glass? Maybe the blank slate of glass...a single sheet, with the words playing in view...maybe the puzzle is as much about seeing and finding the words as about

28 February

When words converse
When my words play with your words

“For lyric thought, the foundations of meaning lie in the world, and in human experience of the world, unconditioned by language” Jan Zwicky

creating, idea making, artistic expression, innovative designing...a phenomena of human brilliance...the making/the work is of the world, for the world, about the world, reflected in and by the world...it happens consciously, unconsciously, as part of the extended mind, with implements without implements, uniquely human experiences, uniquely human work, we struggle with language to pin it down and encompass the process of these things…

a lyric inquiry coupled with a phenomenological approach seems well suited

If “metaphor is the linguistic expression of the results of focused analogical thinking” (zwicky) and analogical thinking is the mode necessary or inherent to creativity and innovation (Holyoak and Thagard, and de Bono and etc) then to understand creativity and the creative process, it could be most useful to employ metaphor while exploring the subject if I am to remain true to my project and study the thing through the thing itself (like ritual through ritual) (like expressing my creative process by creating my creative process as an expression/output) (like understanding association by associating)

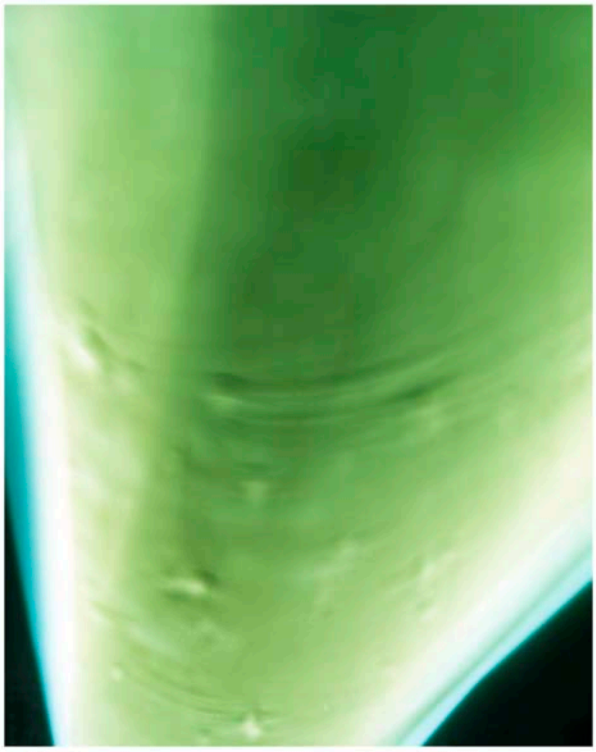
Charles Simic: “Metaphor is a part of the not-knowing aspect of art, and yet I’m firmly convinced that it is the supreme way of searching for truth”

Could a larger output of my work make a case for workshops on metaphor to be incorporated into design and art curriculum?

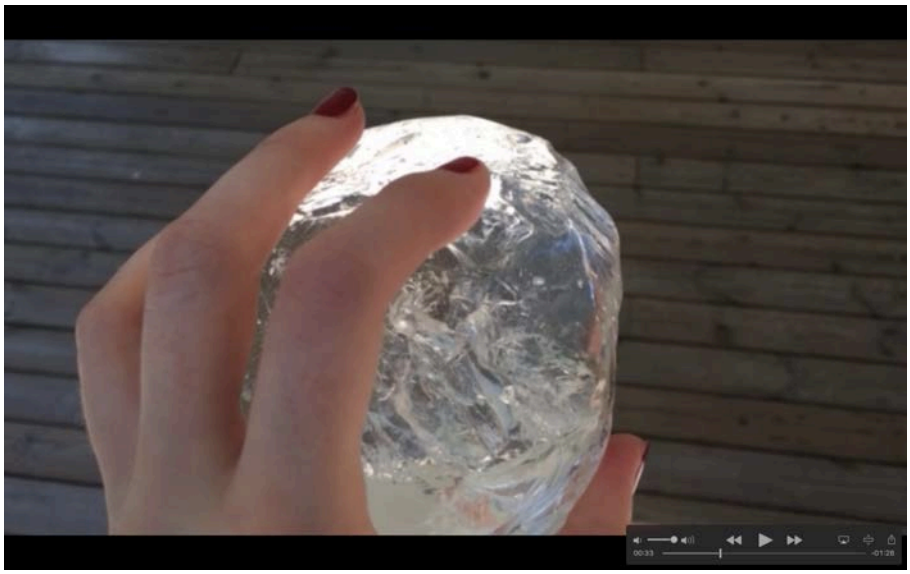
Participant Expressions

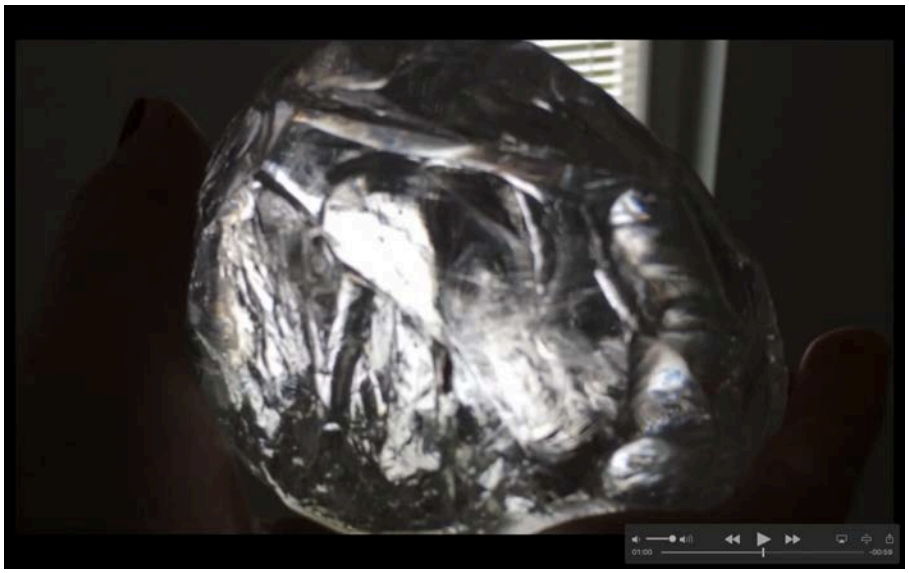
Alex Hall, photographer
Title: *Unravelled*

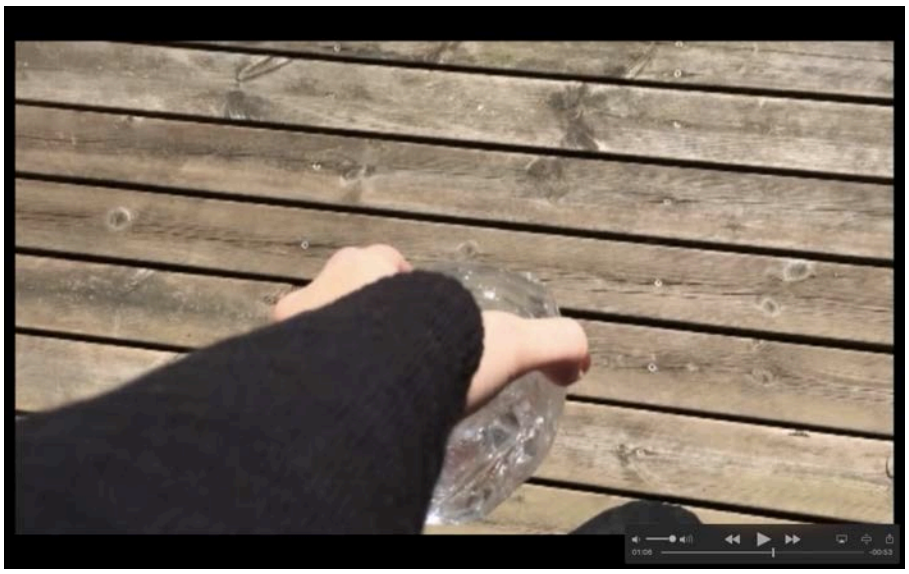




Riikka Haapasaari, filmmaker and glass artist
Untitled (Below are film stills from her video)





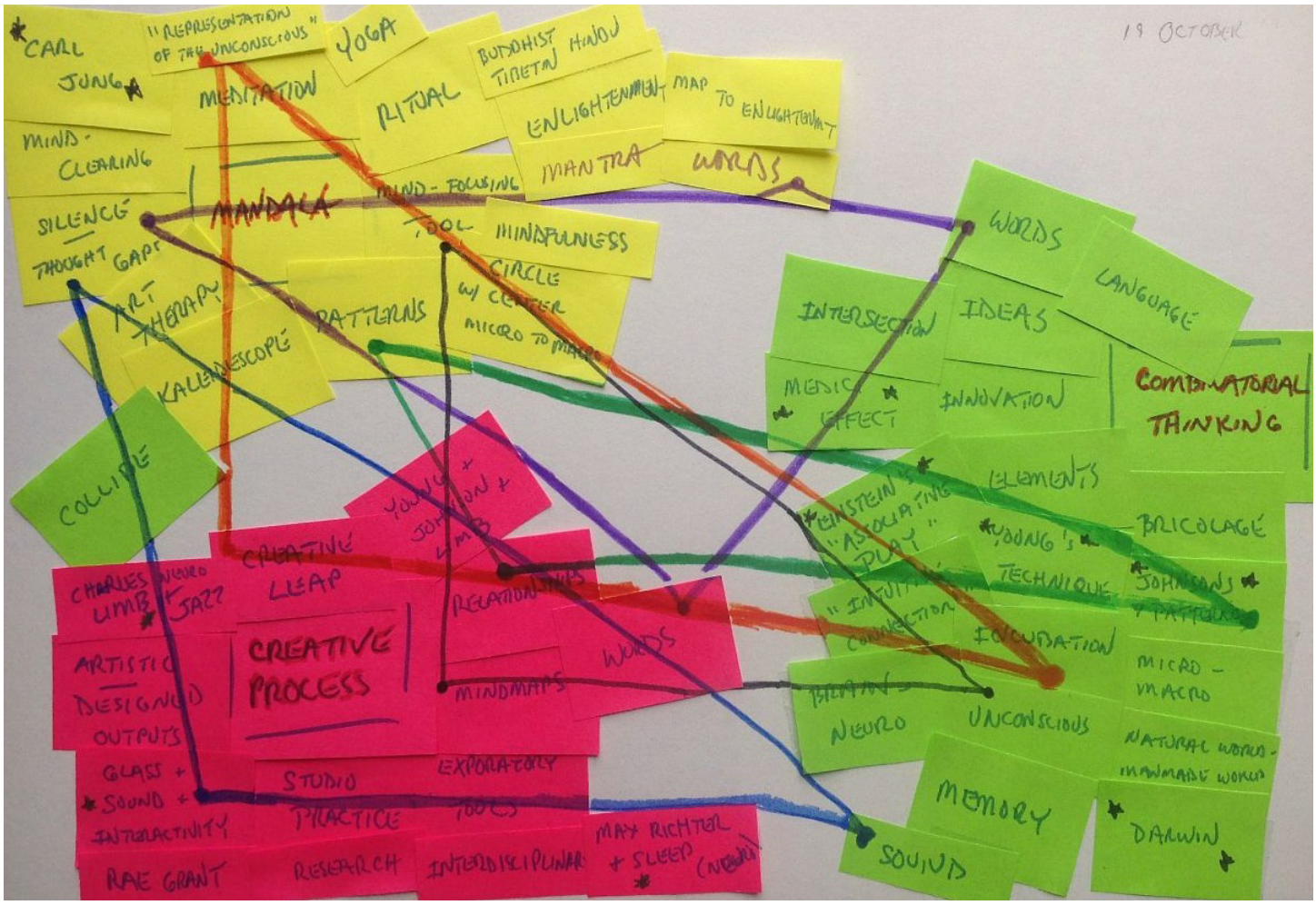


Aimee McCulloch, stained glass artist
Untitled



Appendix D.
From Working Notes to Lyric Assimilation

4 April working notes… Lyric Inquiry: Triangulation



The following quotes me and my studio mandala document that I was keeping while I was developing Triangulation:

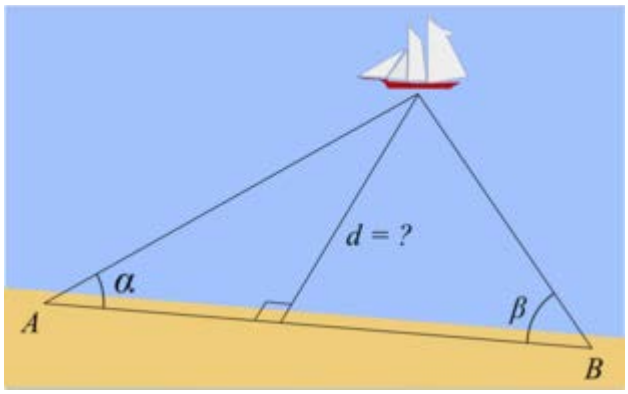
> *"Triangulation-Bermuda Triangle-What is lost in the middle of the triangles?-Hypotenuses- Is there a formula here?"*

Wikipedia: Pythagorean theorem, which states that the square of the length of the hypotenuse equals the sum of the squares of the lengths of the other two sides.

> *"Geolocating or pinpointing on a map" -me*

Wikipedia…In trigonometry and geometry, **triangulation** is the process of determining the location of a point by measuring angles to it from known points at either end of a fixed baseline, rather than measuring distances to the point directly (trilateration). The point can then be fixed as the third point of a triangle with one known side and two known angles.

Wikipedia: Triangulation may be used to calculate thecoordinates and distance from the shore to the ship. The observer at *A* measures the angle *α* between the shore and the ship, and the observer at *B* does likewise for *β* . With the distance between *A* and *B* or the coordinates of*A* and *B* known, then the law of sines can be applied to find the coordinates of the ship and the distance *d*.



> *"Islands of thought, outliers of thought on the periphery" -me*

4 April. The first territorial charting as I can remember it.

Through a sea of colored words, floating as buoys on the page, I drew lines to anchor us at three points. The bubbling waters had given rise to a new species, half-formed. It swam near me, among the words, feeding from them and growing. It brushed against our vessel, but I couldn't quite see it…the waters were murky and the fog had grown dense with too many thoughts, obscuring my view. I worried I would be lost in a Bermuda triangle of my own making.

It was then that I remembered my geometry classes… Pythagorean theory… Hypotenuses… Triangulation. Old-fashioned methods for ship to shore geolocation.

A map developed as the air cleared. Land masses of words replaced the buoys while the anchor lines still defined the related territories. Dotting the periphery were islands of memories, sketches of views, phonetic responses, and a net's worth of these partial creatures. We noted the birth of a volcano in one outlier. It generated a flow critical to the environment and therefore it seems worthy of further investigation…perhaps the key to this unusual area?

(5 April working notes: The sea of the prose above and its bubbling waters reminded me of my October word sketch of raindrops on windowpanes.)

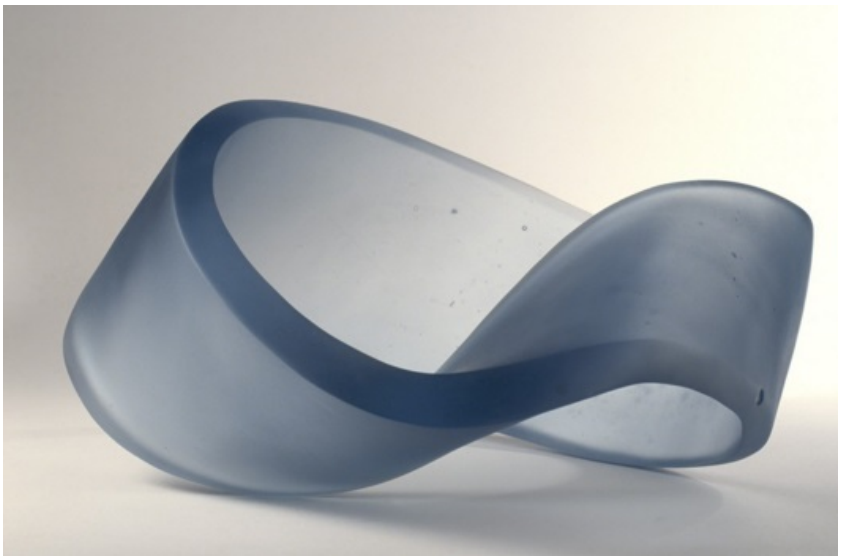


10 April. Raindrops on Windowpanes

I think the creative process works like raindrops on windowpanes. It is a radial, colliding process that grows outwardly until it becomes heavy or stable enough to move in a singular direction. The elements of ideas—facts, memories, experiences, thoughts—move into each other in the fluid space of the mind, in much the same way that droplets hit the pane and flow into each other through gravity, chance, and motility. These idea elements form hunches, which grow as they feed upon new, relatable bits of information. Momentum, collision, or intersection with another hunch moves the partial idea forward, just like when the droplets become so fully engorged with rainwater they begin to stream. The good idea has these same running legs.

---

11 April working notes: Möbius Strip taken from my google docs



Cast Glass (Christine Cathie 2004)

Quoting from my google docs: “my words in dialogue” and “words in conversation with themselves”, “puzzles”

Möbius Strip: mathematical topology….is a one-sided nonorientable surface obtained by cutting a closed band into a single strip, giving one of the two ends thus produced a half twist, and then reattaching the two ends (Mathworld) http://mathworld.wolfram.com/MoebiusStrip.html

> Parker J. Palmer: “If you take your index finger and trace what *seems* to be the outside surface, you suddenly find yourself on what *seems* to be the inside surface. Continue along what *seems* to be the inside surface, and you suddenly find yourself on what*seems* to be the outside surface.
>
> I need to keep saying “what *seems* to be” because the Möbius strip has only one side! What look like its inner and outer surfaces flow into each other seamlessly, co-creating the whole. The first time I saw a Möbius strip, I thought, “Amazing! That’s exactly how life works!”
>
> Whatever is inside of us continually flows outward, helping to form or deform the world — depending on what we send out. Whatever is outside us continually flows inward, helping to form or deform us — depending on how we take it in. Bit by bit, we and our world are endlessly re-made in this eternal inner-outer exchange.”

http://www.onbeing.org/blog/parker-palmer-life-on-the-mobius-strip/8426

Dave Faleris describing canons and crab canons:

> “Canon…compositional device where a line of music or a melody begins in different voices at different times”
>
> Crab canon… “one voice starts from the beginning and one voice starts from the end…two musical lines, one line reads forward in one voice, the second line is the same musical line but played backwards. One line of music that reads the same backwards and forwards similar to but not exactly like a palindrome (word or phrase that reads the same backward or forward)
>
> The lines always meet and pass each other in the middle”
>
> “When you play the line backwards it works in harmony with the line forward”

http://www.openculture.com/2013/02/the_genius_of_js_bachs_crab_canon_visualized_on_a_mobius_strip.html

11 April. Like a Möbius Strip

The Cast

Creator/writer/student/me……journeyman/explorer/adventurer/wanderer
Creative process/PhD dissertation work……journey/adventure/exploration
Studio mandalas/tools……..gateways to the journey
Triangulation/method……journey map
Mindfulness/awareness……experiencing with an open mind, watching
Lateral thinking……...sidetrips/daytrips/excursions on the journey
Analogical thinking/lyric inquiry……language on the journey
Tweets……digital postcards
Elements of association/combination (facts/experiences/memories)……intersections and encounters along the way
Metaphor/Idea/Discovery/Art……destination
Creative leaps……crossing boundaries and borders, unaware
Möbius Strip……journey path/type of journey/shape of journey

What kind of journey is it?

reflective, toward enlightenment, generative, a feedback loop, traveling forward, continuous, “knowing the place for the first time”…. Eliot: "We shall not cease from exploration, and the end of all our exploring will be to arrive where we started and know the place for the first time." (Little Gidding)

The printed PhD dissertation book could be structured to read analytically one way and lyrically another…two voices in harmony that developed simultaneously, describing the same thing, arising from the same research. A little like a Möbius Strip and a Crab Canon. The back cover is not a back cover but a front cover when the book is flipped.

Appendix E.

Thingness: To Know the Unknown

Thingness

January 29. To understand the Thing, I will research the Thing through the Thing itself, trying to embodying its Thingness and peering at the Thing through the lens of the Thing.

Analogical thinking requires mental leaps and lyric writing utilizes associative leaps within its structures. If I am to study creative leaps through creative leaping, then I should adopt analogical thinking and lyric writing.

What if I juxtaposed a PhD dissertation with two voices that are both mine throughout? The analytical and the lyric? The breaking apart and the viewing as a whole? Can there be a dialogue of sorts?

Use the analytical language to discuss the parts and the lyric approach to discuss the whole?

A book that opens as usual right to left and reads with academic analytics but flip the book and when it is read from the back cover, it reads lyrically and considers the same topics from the analytical discussion. They meet somewhere in the middle? With images and photos and sketches? The lyric side would need to make sense right to left and left to right in reading

Our digital age offers 140 characters for communication in texts and in tweets…what would happen if I tweeted all the thoughts/work as I went along? Ichats? If I incorporate the digital as I write by including the tweets, readers could then find the archived bits to see how things developed. These thoughts came from thinking in terms of the short text that can be written on postcards…it was a jump from the Postcards from the edge. It's language (texts, ichats, tweets, that literally travels digitally…will the language still be out there exploring and interacting and developing by itself after the project is over? Can a text/tweet be lyrical? Or is it a modern day Dialogue with the tweeter being "Lyric" personified? A modern day Allegory Incorporate the digital tweet links into the dissertation itself LyricMe It will also create a dialogue between the traditional and the digital…what if I personify the dissertation itself and give it a handle? Soooooo,

The body/analytical of the PhD is what I initially proposed…interspersed with diary entries of lyric text along with date stamped tweets. Text travels by hyperlink and by tweets. Text explores in the virtual world…gets lost and found. Twitter allows for multiple voices by the same author. Could explore and question with Lyric handle and begin by inconcert dialoguing. Tweets are like postcards…short texts. several things will have been created… the process in a type of reflective, lyric journal that could be read in various ways. Potentially extended poems? Stories? The tweets will do their own thing? Will they have a following? Words will be personified…they will play, explore, associate, travel, question…if humans do the same with each other the

intersections will be even more profound. Throughout I would use my word technique when I struggled or got lost…what will the outliers be?

I am employing a creative process as I make my PhD

Metaphors encountered in regard to creative process, its aspects, as well as the PhD:
Mapping, mapmaking, wayfinding, exploring, journey, wandering, getting lost, seeking, finding, traveling
Postcards from the Edge?? Might stem from the idea of the PhD as a suitcase example

I have a child like theme going on in the one poem, but the lyric additions to “When my words converse” fragment are all written as diary or journal entries…could highlight the reflective journal this way for artists

Knowing the Unknown in Metaphor: *A Writing Fragment*
by Lisa Naas, PhD Student, Design
13 April – 18 April, 2016

Introduction to Metaphor

14 September 2015. *An e-mail arrived today. It was from the Institute of Academic Development telling me of the journey I had embarked upon as a new PhD student. It listed tools and training available to help me prepare to seek new knowledge. I stared at the message on my desktop and considered the arduous travels of the ten steps I would take every day from my bed to reach my computer. Sans suitcase.*

We speak and write in metaphors on such a regular basis that we often do not even realize that we are using them in our language. For instance, the passage above contains at least six metaphorical phrases. Metaphors pervade our world through this linguistic and lyrical device. We use metaphor to understand the unfamiliar, the strange, and the foreign. We use it within the creative process to build the new and produce the original. Once the "new" and strange becomes familiar, it is then possible to use metaphor to understand the next "new". Metaphor upon metaphor upon metaphor, we build and create our world.

In *I Is an Other*, writer James Greary puts forth arguments based on historical evidence and linguistics for the metaphor being the basic building block to communication, comprehension, invention, and discovery. The book describes how it is a primary means for us to understand the world and how the history of metaphor is extensive, with evidence of it in our language dating back to our earliest times in civilization. In his opening pages, Greary describes the metaphor first by offering its definition through its origin, writing that the metaphor "derived from the Greek roots *meta* (over, across, or beyond) and *phor* (to carry), the literal meaning of metaphor is "to carry across" (2011: 18). He explains that "a metaphor carries across a name from the source to the target" and "juxtaposes two different things and then skews our point of view so unexpected similarities emerge" (2011:19).

Metaphor is both a literary device of description and poetics, and the tool through which we can relate to the unknown. Greary writes that the primary purpose of the metaphor is "to carry over existing names or descriptions to things that are either so new that they haven't been named or so abstract that they cannot otherwise be explained" (2011:29). Metaphors compare one thing with another through this naming process; all of the associations with the name/word of the one thing, carry over to the other. In the passage above, several of the metaphorical phrases suggest that the work I will do as a PhD student at my computer will be epic, filled with adventure and the unexpected, because these are associations made with "journey". As such, the metaphor exhibits how the two things resemble each other while simultaneously acknowledging that they are not the same by the very definition of metaphor. Ten steps from bed to

computer do not equal a commute, much less "arduous travels". The one is not the other but the new student can understand the unknown, looming PhD studies in terms of a journey.

As a literary device, metaphor features prominently within lyric writing. Lorri Neilsen, an author, teacher, and scholar, explains in "Lyric Inquiry", that lyric writing is aesthetic writing, which includes such forms as letters, poems, fiction, anecdotes, and other newer, formats which cross genres (2008: 4-5). She writes that the "lyric" has features which include "liminality, ineffability, metaphorical thinking, embodied understanding, and personal evocations" (2008: 4). Jan Zwicky's more developed "Lyric Philosophy" offers "lyric inquiry" as an alternative to the analytical for researching and seeking understanding. She claims that what the "lyric" achieves "if its medium is words, is speech that integrates various human modes of understanding-emotional, logical, physical, among others" (2013: 18).

> ***15 April 2016.***
> *"To see a World in a Grain of Sand" I argue, is to understand Matter across Time outside of Mathematics.*
> *#wordsondiscovery*

It is important to note that Zwicky discusses the "lyric" and metaphor in terms of language and writing – she is quoted above stating "if its medium is words". Greary posits that metaphors are much more than literary devices or even devices of lyric inquiry, as he states that "metaphorical thinking is the way we make sense of the world, and every individual metaphor is a specific instance of this imaginative process at work" (2011: 20). He asserts that "metaphors are therefore not confined to spoken or written language" (2011: 20).

22 October 2015. *This imaginative process.*



Zwicky would also be in agreement with Greary that metaphors are not confined to words alone; she states that "form and content are inextricably bound up with one another"; lyric writing shows and gestures its meaning through the words themselves and by how they are presented (2013: 17). Metaphor is a hallmark of this gesturing and presentation.

11 April 2016.

"All the World's A Stage": Creative Life as a PhD Student

The Cast

Journeyman/Explorer/Adventurer/Wanderer……Creator/Writer/Student/Me
Journey/Adventure/Exploration/Wandering……Creative process/PhD Dissertation Writing/Research
Gateways to the Journey……Studio mandalas/Tools
Journey map……Triangulation Method
Sidetrips/Daytrips/Excursions……Lateral thinking
Language on the Journey……Analogical thinking/Lyric inquiry
Experiencing through a Local's Perspective……Mindfulness/Awareness/Conscious Embedding
Postcards……Tweets
Intersections/Encounters along the way……...Elements of Association/Combination (facts/experiences/memories)
Destination ……Metaphor/Idea/Discovery/Art
Crossing Boundaries and Borders.....……..Creative Leaps
Journey Path/Journey Route/Type of Journey……..Möbius Strip

As Zwicky's attention is on lyric writing and inquiry, she centers on the linguistic, stating that "metaphor is the linguistic expression of the results of focused analogical thinking" (2013:19). However, she acknowledges that metaphor plays a much larger role in our understanding of the world when she underscores this idea in her theory by quoting poet Charles Simic: "Metaphor is a part of the not-knowing aspect of art, and yet I'm firmly convinced that it is the supreme way of searching for truth" (2013: 21).

Recent work in cognitive science by Keith J. Holyoak and Paul Thagard examines how the larger framework of analogical thinking enables people to communicate, to generate new ideas, to produce inventions, and even to make decisions about war and peace (1999: 6). In *Mental Leaps: Analogy in Creative Thought,* the authors Holyoak and Thagard discuss metaphor or analogy, as "model-building in the mind to understand something in the world" (1999: 5). They explain that carrying over associations from the source analog (the known domain with familiar, learned patterns) to the target analog (the relatively unfamiliar domain we are trying to understand) is the essence of analogical thinking (1999: 2). Just as Greary describes metaphor, Holyoak and Thagard also write how this "carrying over" develops a systematic set of correspondences between the source and the target so that we can see the one thing as if it were another, "creating a tension between two perspectives: the thing as itself and the thing as something else" (1999: 9). Most interestingly, they write that analogy by "its very nature freely oversteps the traditional boundaries between knowledge domains, making it possible to use ideas from one domain to achieve insights in another" (1999: ix-x). They

argue that analogy allows our minds to form ideas that are "beyond sensory experience" and "out of our realm of understanding" (1999: 10). In other words, through analogical thinking, we can understand the unknown. Holyoak and Thagard build upon Koestler's and Boden's work to "present a general theory of how a mind can use analogy as a way to extend knowledge of everyday and creative thinking" and gain insights into the creative process (1999: 15-16).

3 March 2016. *I have a theory.*

If

as Zwicky writes,

"metaphor is the linguistic expression of the results of focused analogical thinking", characteristic of the lyric (2013:19)

And

analogical thinking is the mode necessary or inherent to creativity and innovation,

as Holyoak and Thagard (1999), Boden (2004), and de Bono (1988) have theorized,

Then

the lyric is the language of creativity.

Practical Applications of Metaphor in Researching the Creative Process

Based on earlier work by Koestler and Boden and this more recent research by Holyoak and Thagard, it is understood that the unconscious mind and the conscious mind are key players in the creative process. Given this, the "descriptive phenomenological psychological method" as detailed by Amedeo Giorgi holds potential as an approach to modify for use in studying the process. The method takes from Edmund Husserl's philosophy of phenomenology and his early work on consciousness but is based in psychology, a field concerned with both the conscious and unconscious mind. Philosopher Maurice Merleau-Ponty, who was influenced by Husserl, explains phenomenology as "the study of essences; and according to it, all problems amount to finding definitions of essences" (2002: vii). Merleau-Ponty writes that phenomenology as a philosophy puts the essences back into the world and those who study them try to understand the lived experience of them (2002: vii). Within this PhD project then, I seek to understand the essence of the creative process and the lived experience of it.

Husserl's early philosophy of phenomenology was interested in the activities of consciousness and the objects that present themselves to consciousness; "it elaborated the notion of intentionality, which is a characteristic of many acts of consciousness" (Giorgi 2012: 9). But as Husserl focused on the qualities of consciousness and its transcendental nature, not necessarily human consciousness, Giorgi modified and

adapted the phenomenological method to center on human consciousness in the realm of psychology (2012: 9-10). Giorgi writes that through his "descriptive phenomenological psychological method," the researcher seeks to understand "the essential psychological insight contained in this moment of the experience" through the descriptive accounts (in words) of that lived experience (2012: 7). Giorgi also adamantly writes that while his approach is from the psychological as he is a psychologist, "[he] want[s] to make clear that the phenomenological method is generic enough to be applied to any human or social science" (2012: 11).

Therefore, I, as one who has a creative practice, intend to approach the study of the creative process (for this project) from a descriptive "creative" phenomenological perspective using lyric inquiry and writing. This research seeks to explore the creative process through my lived experience and through other artists creative outputs and expressions on the subject of their creative process and their own lived experiences. The written "descriptions" of Giorgi's method will be replaced by the creative outputs and expressions unique to the artists and their processes. I will be collecting and using these outputs to study the creative process for this project and am curious if the artists will use metaphors within their work. Following after Giorgi, I will attempt, as a researcher, to "reflect on the presented meanings contained in the description and perceive their unity and come up with an understanding of the world of the other" (2012: 7). As metaphor is both a linguistic device and the result of analogical thinking in order to understand the unknown, metaphor might factor well into my reflections to understand this "other".

4 April 2016. *Triangulation: the first territorial charting as I can remember it.*

Through a sea of colored words, floating as buoys on the page, I drew lines to anchor us at three points. The bubbling waters had given rise to a new species, half-formed. It swam near me, among the words, feeding from them and growing. It brushed against our vessel, but I couldn't quite see it…the waters were murky and the fog had grown dense with too many thoughts, obscuring my view. I worried I would be lost in a Bermuda triangle of my own making.



It was then that I remembered my geometry classes… Pythagorean theory… Hypotenuses… Triangulation. Old-fashioned methods for ship to shore geolocation.

A map developed as the air cleared. Land masses of words replaced the buoys while the anchor lines still defined the related territories. Dotting the periphery were islands of memories, sketches of views, phonetic responses, and a net's worth of these partial creatures. We noted the birth of a volcano in one outlier. It generated a flow critical to the environment and therefore it seems worthy of further investigation…perhaps the key to this unusual area?

Bibliography

Boden, M. (2004) *The Creative Mind: Myths and Mechanisms*. 2nd edn. London and New York: Routledge, Taylor & Francis Group

De Bono, E. (1988) *Lateral Thinking: A Textbook of Creativity*. London: Penguin Books

Giorgi, A. (2012) 'The Descriptive Phenomenological Psychological Method'. *Journal of Phenomenological Psychology* 43, 3-12

Greary, J. (2011) *I Is an Other: The Secret Life of Metaphor and How it Shapes the Way We See the World*. London and New York: HarperCollins e-books

Holyoak, K. J. and Thagard, P. (1999) *Mental Leaps: Analogy in Creative Thought*. Woburn, Massachusetts: The MIT Press

Koestler, A. *The Act of Creation*. (1964) London: Hutchinson & Co. LTD

Merleau-Ponty, M. *Phenomenology of Perception, Translated by Colin Smith*. (2002) London: Routledge Classics, Taylor & Francis Group

Neilsen, L. (2008) "Lyric Inquiry". *Handbook of the Arts in Qualitative Research: Perspectives, Methodologies, Examples, and Issues* [online] 23 (1), 93-104. available from <http://search.proquest.com.ezproxy.is.ed.ac.uk/docview/19628470?accountid=10673> [30 November 2015]

Zwicky, J. (2013) "What is Lyric Philosophy? An Introduction" [online] *Common Knowledge* 20 (1), 14-27 available from <http://commonknowledge.dukejournals.org.ezproxy.is.ed.ac.uk/content/20/1/14.full.pdf+html> [5 March 2016]

Appendix F.
First Year PhD Report

First Year PhD Report

With Supporting Materials

CONTENTS

Introduction……....1
A Summary/Abstract of the Research to Date……..….. 2
Original Contribution to Knowledge……..3
Potential Impact……....4
Project Title……....4
Research Aims……....5-6
Research Context Summary to Date……...7-10
Research Process to Date……..……...11-15
Key Understandings from the Research…….……..16
Key Findings from the Research to Date…..……16
Ideas/Hunches from the Research…..……...16
Forwarding the Project Using This Year's Research……...17
Expected Outputs……18-19
Dissemination of Research to Date……19
List of Appendices……20
Bibliography……21-23

Submitted by:
Lisa Naas, PhD Student in Design
Edinburgh College of Art
19 August 2016



The creative process works like raindrops on windowpanes. Just as water droplets become so fully engorged with added rainwater that they begin to move and then stream, so do partial ideas grow, moving forward from the momentum provided by collision or intersection with other partial ideas, thoughts, memories, or experiences.

(Theory, Simile, and Image by Lisa Naas)

BLACK BOX

White words seem to glow in this dark space,
Not unlike the painted dancers under spotlights.
Bodies bend to new forms, freed of formal constraint.
Characters take notice of this safe place,
Room for rhyme and roaming, wander and wonder,
Where meanings pivot and plié in experiment.

Words, make your approach daring and bold.
Face your audience, this type is for center stage.
Audience, approach these words that dare you.
Here, close and intimate, judgement on hold,
This is a black box space for word performing,
A concept theater where we perform the words.

A pas de deux, lyric meets academic for rephrase.
Matched in step and strength, in poise and partner,
These forms play new roles together, leaning in,
To learn anew and explore with flirting phrase.
Tradition supports these feats of balance,
Word for word, this adagio is danced for exhibition.

INTRODUCTION

This report offers an update on my original project proposal (Appendix A), by systematically describing its evolution this past year. This report also forwards my research by continuing my practice of incorporating and fusing elements of the creative process into my inquiry, creative work, writing, and presentation. Each page offers project analysis juxtaposed against lyric inquiry. Though non-traditional, this PhD report is no less an academic report despite its uncommon design. Rather, the juxtaposition of my lyric assimilations of my year's work against my more standard, textual synthesis offers complement, enhancement, nuance, emphasis, provocation, varying perspective, and even interaction among the ideas and topics I offer. By writing and presenting this way, I seek to uncover insights to my subject during even this, the reporting phase of the PhD. My research suggests that by breaking reporting patterns and pushing format boundaries, I might do just that. Edward de Bono, developer of lateral thinking, writes that "insight is brought about by alteration in pattern sequence brought about by provocative stimulation" (1988: 44). Through the design of this piece, I aim to express the nature of the lyric alongside the analytical as a balanced duality. Its design is a prototype for my final written dissertation and allows me to exhibit aspects of creativity theories as well as my own hunches about the creative process. Finally, I hope to engage my readers and gently encourage active participation with the concepts in the report through its design. Black box text notes are found in Appendix B. Appendix C (Glossary) is hyperlinked to words in the report to provide details.

A SUMMARY/ABSTRACT OF THE RESEARCH TO DATE

My research aims to identify essential elements of the creative process, at the point just before the creative idea is formed, and to exploit those elements within design and research processes. Specifically, I am designing tools and methods−such as "Word Triangulation" and "Expressions of the Creative Process", explained later in this report−to facilitate creative processes and studio idea production for myself and other students. Through my unique, practice-based method that embeds insights of research back into the research process itself, I employ a lyric inquiry as described by Zwicky (2013) and Neilson (2008), coupled with a scholartist's approach as expressed by Knowles, J., Promislow, S., and Cole, A. (2008). My essay "when my words converse" offers the methodology and details. I also use my newly-designed tools and qualitative research methods (studio testing, questionnaires). From my studies, it appears that association, combination, and analogical thinking are central to the creative process and ideas; words and language are crucial to idea production. As I discuss in the Context section, critical research and theories in this area feature prominently in fields outside of the arts such as psychology and education, (Koestler 1964, de Bono 1988 and 2007, Csikszentmihalyi 2007, Sternberg 1999), business (Johannson 2004), advertising (Young 2003), cognitive science (Boden 2004, Holyoak and Thagard 1999), mathematics (Hadamard 1954, Sriraman 2009), and neuroscience (McPherson and Limb 2013). Designer Nigel Cross has contributed key research as well (2011). I will continue searching in art and design, but it seems most research is being done by observers of the creative industries, so my embedded, practice-based work will fill a gap.

SUMMARILY ABSTRACTED

When my words converse among themselves,
Their chatter is familiar,
Quiet roaming, disquieted by routine
They seek to be noticed but go unseen.

When my words play with your words
Wrested thoughts converge,
A bit mangled they are for the mingling
But happy refreshed, recombobulating.

CHARTING A NEW IDEA SPACE

Through a sea of colored words, floating as buoys on the page, I drew lines to anchor us at three points. The bubbling waters had given rise to a new species, half-formed. It swam near me, among the words, feeding from them and growing. It brushed against our vessel, but I couldn't quite see it...the waters were murky and the fog had grown dense with too many thoughts, obscuring my view. I worried I would be lost in a Bermuda triangle of my own making.

It was then that I remembered my geometry classes... Pythagorean theory... Hypotenuses... Triangulation... Old-fashioned methods for ship to shore geolocation.

ORIGINAL CONTRIBUTION TO KNOWLEDGE

My working method—embedding what I am learning about the creat process and creativity into all aspects of the design research, includin the dissertation—allows me to turn the research process itself into a generative, idea-producing process. With my method, aspects of the research like this report, become process tools, which is an original contribution to the design field. Outputs will also be original and vari The written dissertation will take an innovative form, rather than a traditionally written and structured thesis. This report is one design prototype, though I envision a final form consisting of poem vignette extended metaphors that coordinate with the dissertation chapters or segments in which they are found. For sparking studio idea generati I designed "Word Triangulation" as a new tool/method based on elements of creativity (association, combination, and metaphor). "Wo Triangulation" is both a tool for the design process and my reaction t the use of mind maps in early design process work, as current design run counter to theories of creativity (see "By Association", Appendix I My call out to artists to participate in "Expressions of the Creative Process", a brief that asks for the creative process to be the subject of original artistic expression is a new, complex form of an interview technique (Appendix E). While my literature and context review is ongoing, it would seem that to date, my work might offer a new perspective on theories of creativity and idea production from inside studio practice. As my research has collated various ideas of associati related to studio practice, the creative process, and innovation, the subject of association will form the narrative arc of my dissertation.

POTENTIAL IMPACT

The research process, methodology, and new tools aim at allowing access to studio glass from new perspectives for use as an artist's medium and supporting teaching that incorporates words and writing early in the design process. Potentially, the research could also show that it is beneficial to develop and teach short masterclasses on elements of creativity to design students. The work might provide support for curriculum models that promote open electives in fields outside of design. As such, my work might have an impact on the pedagogy of design education.

Association, Combination, Metaphor, and Other Elements of Creativity within the Research Process: Disrupting Academic Patterns and Traditions.

PROJECT TITLE

Embedding Glass Intersections:

Designing Effective Processes and Tools within a Creative Practice to Cultivate Combinatorial Thinking, to Affect Idea Production, and to Produce Innovative Art and Design

The working title remains as I first wrote it in my application proposal (Appendix A), as it still captures the research. However, my overall research process is becoming more central to the project, but I struggle to articulate the embedded, intertwined method I have been using within a succinct title. Perhaps a title like "Preparing to Produce Creative Ideas: Embedding Essential Elements of the Creative Process throughout a Creative Glass Practice" or "The Research Process as a Creative Process" better suits the work. Perhaps finalizing the title needs to wait until I have settled on a metaphor for the whole project or a name for the process.

#wordsondiscovery

RESEARCH AIMS

I seek to identify and understand essential elements of the creative process in order to use them to design tools and methods to facilitate the creative process in studio (for artists and designers such as myself), to facilitate access to studio glass for interested parties outside the field, and to assist students and professionals in various disciplines with creative idea production. This year's research explored the overarching, primary questions of my initial application proposal (Appendix A):

How might I offer my unique, interdisciplinary approach to glass a a model for a combinatorial approach to the medium itself as well as to idea production within other disciplines? More specifically, how might I design processes and tools — those which lead to new connections within my own practice and new intersections with other disciplines — to facilitate creative idea production and cultivate my associative/combinatorial way of thinking to generate innovative outcomes?

(I made an edit to the second question above, removing "to facilitate optimal creative flow" because the scope of the research would be toc great. I wish to focus on creative idea formation in studio practice, a large enough topic.)

Sub-questions derived from the primary questions were also researched this past year:

- What is this associative, combinatorial thinking approach that is part of my creative practice?
- Is associative/combinatorial thinking an essential element of the creative process and if so, are there other inherent aspects of the creative process in regard to the formulation of the creative ideas?
- Are there patterns evident in the creative process with regard to the formation of creative ideas?
- What are the tools currently used early on in design process for idea generation?
- Would process tools/methods based on designs using these elements and theories of creativity benefit students working in a creative practice?
- What are the various theories of creativity?
- How might I stay true to the project and embed my creative process and the findings of my creativity research into all aspects of the PhD work, including the written dissertation, in order to turn it into a tool and an artwork itself?
- Could the research process itself be a creative process?

A LIMINAL TIME

In dialogue with myself
My mind continued the conversation.
The words ushered forth.
A puzzle? I questioned.
Puzzled, I wondered.
What puzzling translation!
In bed I was falling asleep…seeking to connect
Unhinged visuals bantered by half-awake memories
Like "garlic and sapphires in the mud"
Embedded. Hinged together.

LEAPING DISCIPLINES

Poetically, an associative leap may envision
The quantum leap or leaps of faith.

A well-placed pause and evolving stories jump,
Describing storied jumps of evolution.

And insight is in sight…if one is just aware,
As in the thoughtful gap is the creative leaping.

RESEARCH CONTEXT SUMMARY TO DATE

Creativity Context Overview

My project sub-questions led me to do a wide and varied survey of "creativity" with respect to the creative process, idea generation, and innovation. The creative process (the development of new, innovative original, and imaginative concepts) is a rather contemporary area of interest and research. Centuries-old beliefs that the creative process is through genius, magic, or divinity are still prevalent today (as shown by Elizabeth Gilbert's recent *Big Magic,* 2015). Scientific studies are currently challenging the idea that the process is unknowable. Countering the myth of genius is work like that of neuroscientist Charles J. Limb, a leading, contemporary figure on this topic, who at the time of this writing, is working with artist subjects to analyze thei brain patterns to learn about the creative process as they play, perform, and create within lab environments (2013). Margaret Boden a leading cognitive scientist, is also forwarding the field by studying computers and their capacity for creativity (2004). Recent psychology studies like the one conducted by the University of Kent using Edinburgh College of Art students are centered on artist personalities and character attributes as underlying traits of creativity (2015). Case study research compilations of artist routines, habits, and schedules abound from many perspectives and in many forms including data visualisation (Podio 2016) and biographical books such as Sarah Thornton's *33 Artists in 3 Acts* (2014). Models and theories of the creative process do exist and Bharath Sriraman, a mathematician, has identified and succinctly collated them in "The Characteristics of

Mathematics" (1999) to provide crucial background information on this subject. He used wide-ranging research across many disciplines, as I am doing, but developed his theories specific to mathematics. Nigel Cross's work is important background to this project as well, as the author incorporates many case studies with his analyses, giving attention specifically to the creative process in design (2011).

Combinatorial Association Context Overview

My project is primarily concerned with the point in the creative process just before the creative idea is formed, therefore, texts and studies that offer information about patterns or recurring elements within the creative process itself will be key. I initially sought works discussing association and combination within creativity, basing my search on a hunch driven from my own practice. Steven Johnson's *Where Good Ideas Come From* focuses on the patterns of the spaces and environments in which good ideas develop; the writer and start-up creator posits that seven patterns are inherent to the creation of ideas and high innovation. His "adjacent possible" offers potential combination by association, be it physically, geographically, literally, figuratively, virtually, or intangibly, but is also limited by those same associations (2010: 30-31). It is a critical theory for my work, along with his "exaptation" ideas (2010: 151-74), which I find related to Frans Johannson's "Medici effect". Johannson, a corporate thinker and leadership trainer who uses case studies to support his ideas, states explicitly that innovation requires intersectional ideas which combine concepts from different fields, requiring interaction with diverse groups of people (2004: 73).

CREATIVE FIRMAMENT

This creative firm holds associated principals:

"Bisociation" links and locates connotations.
"Adjacent possible" is quite possibly, adjacent to this.
Neighborly "Exaptation" adapts and adopts.

Metaphor is the mortar of its building.

BY ASSOCIATING

Pivotal for possibility is
by associating on more than one plane,
while getting lost in the unknown
enhances the creative journey.

Look to the writer to produce the wayfinder,
plainly mapping the terrain.

Tackling the spaces and environments of the mind, Arthur Koestler was a professional psychologist, who undertook a major, systematic study of the creative process which he published in 1964 as *The Act of Creation*, centering on his "bisociation" theory. Recognized not only fo his work in psychology but also for his creative work as a novelist and essayist, he is believed to have been the first person with a creative practice to study the creative process (Burt, 1964: 17). He says that the creative act is "linked not only to one associative context but *bisociated* with two" (1964: 35). Koestler argues that when two associative contexts (two frames of reference or two systems of thought) or "two matrices of perception or reasoning interact with each other the result…is either a *collision* ending in laughter, or their *fusion* in a new intellectual synthesis, or their *confrontation* in an aesthetic experience" (1964: 45).

Margaret Boden follows on Koestler's work in her "*the creative mind: myths and mechanisms*" (2004), which will be important to my project as she discusses mental spaces and their transformation, while my design tools try to capture the various thoughts of our mental spaces. Analogical thinking and metaphor show association and combinatior at work for human understanding and therefore is an area where I need to focus more study. Key research is being done by cognitive scientists Holyoak and Thagard, who build upon Koestler's and Boden's work to "present a general theory of how a mind can use analogy as a way to extend knowledge of everyday and creative thinking" and gain insights into the creative process (1999: 15-16).

Writing decades earlier than Johnson and Koestler, advertising expert James Webb Young published *A Technique for Producing Ideas* in the 1940s, which is now considered a classic missive for his industry. In it, he asserts that "the capacity to bring old elements into new combinations depends largely on the ability to see relationships" and this ability is key to producing new ideas (2003: 32). To "see relationships" is to see associations, to see shared traits, commonalities or differences among various elements, and to see links or connections that are possible among them. For Edward de Bono, physician, psychologist, author, and developer of Lateral Thinking, words and wordplay are also at the heart of these associations, as ways to develop new relationships and the lateral thinking perspectives necessary to innovation (1988 and 2007).

My project follows on this work by Koestler, Johnson, Johannson, Holyoak and Thagard, and de Bono, among others, as I am collating their ideas related to association and developing my own: that association is a fundamental element of the creative process from macro associations (as in open plan studios) to micro associations (as in words on a page) to the juxtaposition of associations (as in bisociation and the adjacent possible) to the intersection of associations (as in the Medici effect). I am putting the theories into practice in my studio, into the design of my process tools, within my ongoing research process, and even within the writing of this report.

Pivot words on the axes of grammar and meaning to see their relationships.

Pivot concepts on the axes of function and experience to see their entry points.

Pivot them all in time to access connections in hindsight, to foresee intersections.

THINGNESS

To understand the Thing, I will research the Thing through the Thing itself, trying to embody its Thingness while peering at the Thing through the lens of the Thing.

RESEARCH PROCESS TO DATE

As a scholartist, I have been employing a mixed and intertwined, somewhat cyclical process this past year, using an embedding method to incorporate regularly what I learn from the research into my process and practice.

Literature Review with Autoethnographic, Practitioner Reflection

When I began the literature review described in the above pages, I also began breaking down my creative process through reflection and by reviewing my previous autoethnographic writings. As I began projects, I would pause to reflect and capture thoughts and mental actions early in my process. (A good example can be seen in Appendix F, my studio mandala called "An Expression of My Creative Process"). My literature review informed my reflections in terms of the topics and perspectives, while my reflections helped to guide my contextual search and early hunches. They came together in my lyric writing (the black boxes of this report) and in my academic writing fragments (the first was "By Association", Appendix D).

Emphasizing, Embedding, and "Method Acting"

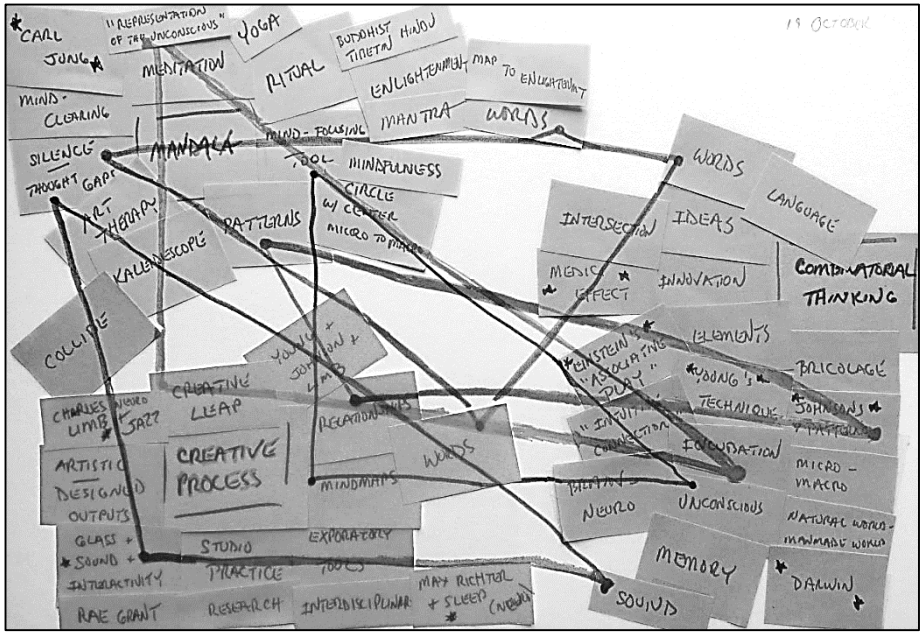
As early indications from my reading and reflections were that association, combination, and words are key to the creative process and my practice, I began emphasizing and embedding all three in my studio work, in my research process, in my reflections, in my writing, within the literature review itself, and even within this first year PhD report. I am calling this a type of "method acting" for lack of terminology. Supervisor Geoff Mann and poet Jane McKie noticed that "Thingness", my lyric description of my embedding method,

reminded them of Martin Heidegger's theory. While I recognized the philosopher, I had not read his work; "Thingness" is my writing. Though I need to read more in depth, Heidegger's "Thingness", as I understand it through G. Harmon's "Technology, objects and things in Heidegger", was centered on things that we understand as having physicality and presence that can be experienced, while also having abstract attributes and realities that are invisible depending on the context (2009). My "Thingness" is focused on abstract concepts like creativity and processes; I attempt to provide them with physicality and tangible attributes to give them presence.

To emphasize and embed the insights of my research into my work, I used what I learned of association, combination, and words by:

- Reading texts in diverse disciplines concurrently (I worked through four or five at a time, rather than reading one book cover to cover) allowing thoughts and ideas to mingle in my mind
- Utilizing my own contemporary, digital "commonplace book" to contain excerpts, quotes, images, notes, links, and work from my practice; this allowed me to view, review, and reflect upon everything together to create essays, arguments, questions, and lyric responses; (Appendix F is also an example of this)
- Allowing lyrical writing and images to "interact" with my analytical writing; I do this by interrupting or juxtaposing the analytical with the lyrical (as in this report and Appendix G)
- Allowing intersections with my practice in glass by collaborating with experts in other disciplines with language new to me; (Appendix H offers an overview of the Glass Whispers project)

"To see a World in a Grain of Sand" I argue, is to understand Mass over Time outside of Mathematics.



- Designing, developing, and testing "Word Triangulation"; I successfully, individually, tested the tool/method within my practice to help generate ideas for collaborative, studio glass work specifically to forward the "Glass Whispers" project (Appendix H2) and this research project. Additionally, I tested it outside of my practice with sixteen individual students in the glass studios as part of an Innovative Learning Week Session that I created and ran (Play with Fire: Glass Concepts, Appendix I and Appendix J)
- Writing two pieces (one lyrical and one analytical) at once, by moving between them and allowing them to inform one another; (an example output is this report)
- Designing "Expressions of the Creative Process" project by trying to contain the embedding or "method acting" within the brief itself (Appendix E); the project is ongoing and is currently yielding interesting, primary source material for upcoming examination: see questionnaires (Appendix E2) and video (Appendix E3) for example

RESEARCH PROCESS CONTINUED

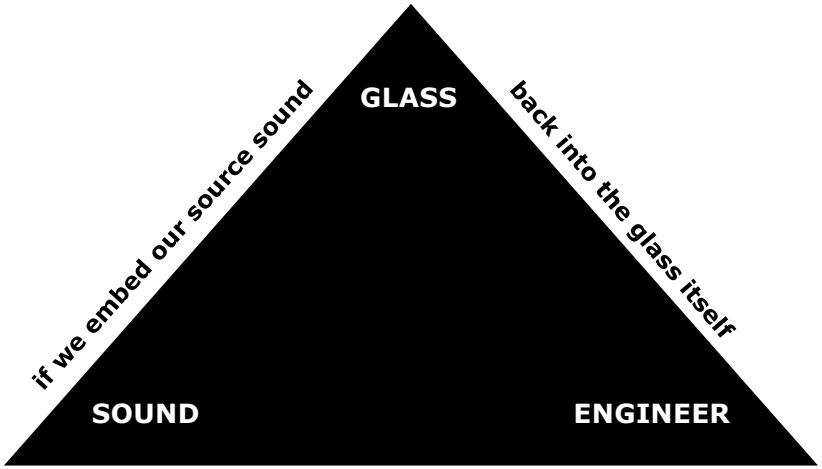
Through these methods and the work above, I have led myself to analogical thinking and metaphor. As this was new material under my umbrella topic of the creative process, I again carried out a literature review on these subjects as they related to creativity and undertook another examination of my own process in regard to them New information again informed my process as I began to research

these subjects; I once again began emphasizing and embedding the ideas into the work. Given this circular way of working, it would seem that my process has been somewhat like Cyclical Action Research in this way, but there are these lateral movements (as with the metaphor) and jumps in the research, my practice, and my process when I make insights. The "action" is also not necessarily a physical action or material test, but a mental action trying to embody research.

I used what I learned of metaphor and analogical thinking by:

- Articulating the development of "Word Triangulation", modeling a theory of creativity, and expressing a potential structure/form for my PhD research (Appendix K)
- Shifting my intended autoethnography to lyric inquiry or creative writing with other lyric forms to describe experiences and develop ideas. I attempted the aphorism form to make observations about how my thoughts connected with various readings. I actively sought to incorporate metaphor into my process and work (which actually led me to articulate my embedding process with metaphorical language by saying it is a type of "method acting")
- Beginning to design the form of my written dissertation by employing various metaphorical structures, a few of which are demonstrated within this report
- Embodying the metaphor through the writing of fictional piece on myself broken into other selves "Voicing Perspective: A Dialogue in Creativity" (Appendix L)

Broken words lost in silence seek connections,
while we listen for the silences in thought gaps.



My creative practice has shifted this year from my explorations with glass material to these explorations in word-working, where I explore through reading, writing, and word structuring as part of the embedding/method-acting, action research. However, as I mentioned above, I have still been carrying out more traditional qualitative action research by using my glass practice as a staging ground for pilot studies as with my newly-designed "Word Triangulation" tool. Within those studio studies as well as the "Expressions of the Creative Process" project, I incorporate traditional questionnaires for participants (Appendices J2, J3, E2).

Changes to my initially proposed Research Process:

I will not be pursuing the Mad Hatter forum any longer, as I had initially offered within my application proposal (Appendix A). I intend to focus on the "Studio Mandala", "Word Triangulation", and my embedded, "method acting" process described throughout the previous two sections. I no longer have plans to do case studies on innovative collaborative contemporaries in my initial proposal (Appendix A), though I may interview a few whom I have found to be embedding elements of the creative process into teaching and learning environments. Rather, I will focus on my own collaborations in practice and the student collaborations that develop while using "Word Triangulation". Lastly, rather than test my new models or tools with only high school age students, I intend to begin with college-age students. I will also connect with writers for advice and guidance on my lyric work and a creative dissertation form.

KEY UNDERSTANDINGS FROM THE RESEARCH

- Association, Combination, and Analogical Thinking are primary elements of the creative process
- Words and Language are key to idea production

KEY FINDINGS FROM THE RESEARCH TO DATE

- 11 of 16 students who used "Word Triangulation" during Innovative Learning Week confirmed that the tool definitely helped them develop ideas and that they would use the method again in their own work
- Analysis of the Innovative Learning Week sessions using "Word Triangulation" revealed that outlying thoughts and thoughts on the periphery might be the keys to new ideas in studio
- Embedding what I find into my work and into the research process has turned the research process itself into a creative, generative process from which I have been learning about the creative process

IDEAS-HUNCHES FROM THE RESEARCH

- Metaphor could be taught and used in studio to assist in collaborative, cross-disciplinary work and idea production
- Using words and writing early in the design process itself might facilitate idea production in studio
- Design students might benefit from workshops on the elements of the creative process

I have a theory.

If

as Zwicky writes, "metaphor is the linguistic expression of the results of focused analogical thinking" and characteristic of the lyric (2013: 19)

And

analogical thinking is the mode necessary or inherent to creativity and innovation as Holyoak and Thagard (1999), Boden (2004), and de Bono (1988) have theorized,

Then

the lyric is the language of creativity;

Therefore

Lyric inquiry and its resulting texts are well-suited to communicate a written PhD dissertation on the subject of the creative process.

UNTITLED

On this journey to the fore
seeking new knowledge,
I will dance with the words
writing along my quest!

Walking thin lines
pressing against boundaries,
I will peer up close at
blurry forms unnamed.

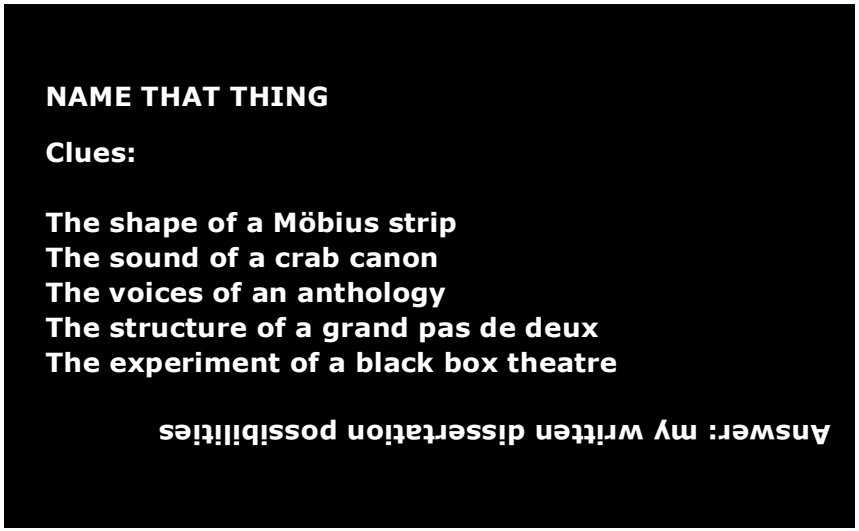
FORWARDING THE PROJECT USING THIS YEAR'S RESEARCH

The foundation of the research is stable with key texts identified, pilo studies initiated, methods articulated, and early findings suggested. To further strengthen and ground the research, while preparing to meet the aims of the project, I intend to hold to my Timeline of Work (Appendix M) and undertake the following:

- Focused reading on association, combination, and metaphor as key elements to the creative process as they relate to design
- Using association, combination, and metaphor to design a form and structure for the written dissertation
- Using association, combination, and metaphor to design a workshop to teach these elements to design students
- Testing "Word Triangulation" collaboratively in my own practice by using it to forward a stalled studio project (called "This Evening's Dance") and work towards its performance
- Testing "Word Triangulation" collaboratively with small student groups to initiate the "after the storm" project (Appendix N) with ECA Glass; the intention is to exhibit the collaborative outputs
- Offering lyric descriptions as a creative practitioner following Giorgi (2012) for new perspective on submissions to the "Expressions of the Creative Process" brief Appendix E
- Connecting with writers for varying viewpoints and guidance
- Examining the role of metaphor in other artists' creative processes by searching such studies as Howard Gardner's (2011) and my own "Expressions of the Creative Process" study for metaphorical language used by the creatives who are/will be participating

EXPECTED OUTPUTS

1. Written Dissertation with a creative form and designed structure (potentially metaphorical) that reflects the research, utilizing both traditional academic writing and lyric writing
   - "By Association" is a potential essay/segment/chapter draft of traditional academic writing I might include (Appendix D)
   - "when my words converse" is written argument supporting a creative dissertation form, incorporating lyric bits (Appendix G)
   - "knowing the unknown through metaphor" is an example of integrated writing and also a potential "segment/chapter" draft (Appendix O)
   - This report is a prototype design for the written dissertation
2. Designed process tools/methods that aid in studio idea creation
   - "Word Triangulation" tool/method (description, development, model for use)
   - Embedding process or "method acting" (description, development, and model for use)
   - Potentially the same for the Studio Mandala
   - Potentially a workshop on "Metaphor" designed for art/design students
3. Demonstration/Analysis of Triangulation in my glass practice
   - Using Triangulation individually: Embedding Sound for the Glass Whispers Ingenious Grant Project, Appendices H, H2 (ongoing)
   - Using Triangulation collaboratively in my glass practice experts in other disciplines to forward a stalled studio project



making the invisible visible and the intangible tangible

4. Studies of my tools/methods in use by student participants
   - "Word Triangulation" in use during Innovative Learning Week (Appendices J J2, J3)
   - Potential exhibition of glass works derived from using "Wor Triangulation" with "after the storm" project student work
5. "Expressions of the Creative Process" project outputs
   - Lyrical descriptions (still to be produced)
   - Analysis of outputs in light of research (still to be produced)
   - Potential online showcase or physical exhibition of all artist work (partial exhibition as presenter at University of Stirling conference, accepted proposal Appendix P)
6. "diaghilev" database prototype or model (still to be produced) based on association theories intended for students seeking creative collaborations as described in my initial application proposal (Appendix A)

DISSEMINATION OF RESEARCH TO DATE

- Submitted "Glass in Translation" Proposal (Appendix Q) to Research Through Design 2017; accepted to Stage 2
- University of Stirling Conference/Exhibition presenter, 2 June 2016; conference report: Appendix P2
- 3 Minute Thesis Participant, ECA Heat, 31 March 2016
- "What Would You Create to Describe Your Creative Process?" (30 October 2015); a lay article for Inciting Sparks: What Would You Create to Describe Your Creative Process?

LIST OF APPENDICES

(Link to all documents here: Appendices Folder)

A. Initial PhD Application Proposal: 2015

B. Notes on "black boxes": artist statements

C. Glossary of hyperlinked words and other terms

D. "By Association": writing fragment on "Word Triangulation"

E. "Expressions of the Creative Process": brief, background

E2. "Expressions of the Creative Process": questionnaires

E3. Output by Expressions Participant: Riikka Haapasaari

F. "An Expression of My Creative Process": studio mandala

G. "when my words converse": argument for creative dissertation

H. "Glass Whispers": Project Overview of Collaborative Work

H2. "Using Triangulation for Glass Whispers": analysis

I. "Play With Fire: Glass Concepts": Accepted Proposal

J. "Play With Fire: Glass Concepts": Early Analysis

J2. "Play With Fire: Glass Concepts": Participant Data 16.2.16

J3. "Play With Fire: Glass Concepts": Participant Data 17.2.16

K. "From working notes to lyric assimilation": lyric development

L. "Voicing Perspective: A Dialogue in Creativity": fictional piece

M. Timeline of Work: PhD Year 2

N. "after the storm" Proposal: written in collaboration with Dr. Kelly

O. "knowing the unknown through metaphor": integrated writing

P. "Process within Product": accepted proposal for University of Stirling Conference/Exhibition as artist presenter

P2. "Process within Product": Stirling conference report for funding

Q. "Glass in Translation": Research Through Design 2017 Proposal

CHARTING A NEW IDEA SPACE (Continued)

As the air cleared, we were able to develop the map. Land masses of words replaced the buoys while the anchor lines still defined the related territories. Dotting the periphery were lush islands of memories, sketches of our views, phonetic scribbles, and a net's worth of partial creatures.

We noted the birth of a volcano in one outlying area. It generated a flow critical to the environment and therefore it seems worthy of further investigation… perhaps it is a key to this unknown place?

"The benefits of literature can emerge only from creative activity on the part of the reader himself."

Rosenblatt, L. (2005: 27)

BIBLIOGRAPHY

Bastién, A.J. (2016) "Hollywood Has Ruined Method Acting". *The Atlantic* [online] available from <http://www.theatlantic.com/entertainment/archive/2016/08/hollywood has-ruined-method-acting/494777/> [12 August 2016]

Boden, M. (2004) *the creative mind: myths and mechanisms.* 2nd edn. London an New York: Routledge, Taylor & Francis Group

Buzan, T. and Buzan, B. (2010) *The Mind Map Book: Unlock your creativity, boost your memory, change your life*. Harlow, England: BBC Active

Csikszentmihalyi, M. (2007) *Creativity: Flow and the Psychology of Discovery and Invention*. Harper-Collins e-book

Cross, N. (2011) *Design Thinking*. London and New York: Bloomsbury Academic

De Bono, E. (2007) *How to Have Creative Ideas: 62 Exercises to Develop the Mind* London: Vermilion

De Bono, E. (1988) *Lateral Thinking: A Textbook of Creativity.* London: Penguin Books

Eliot, T. S. (1971) *Four Quartets.* Orlando: Harcourt, Inc.

Gardner, H. (2011) *Creating Minds: An Anatomy of Creativity seen through the lives of Freud, Einstein, Picasso, Stravinsky, Eliot, Graham, and Gandhi.* New York: Basic Books (Perseus Books Group)

Gilbert, E. (2015) *Big Magic: Creative Living Beyond Fear.* New York: Riverhea Books

Giorgi, A. (2012) 'The Descriptive Phenomenological Psychological Method'. *Journal of Phenomenological Psychology* 43, 3-12

Gray, C. and Malins, J. (2004) *Visualizing Research: a guide to the research process in art and design.* England

Greary, J. (2011) *I Is an Other: The Secret Life of Metaphor and How it Shapes the Way We See the World*. London and New York: HarperCollins e-books

Hadamard, J. (1954) *An Essay on The Psychology of Invention in the Mathematical Field.* USA: Dover Publications, Inc. arranged with Princeton University Press

Harmon, G. (2009) "Technology, objects and things in Heidegger". *Cambridge Journal of Economics* [online] 34(1), 17-25 available from <http://cje.oxfordjournals.org.ezproxy.is.ed.ac.uk/content/34/1/17> [16 August 2016]

Holyoak, K. J. and Thagard, P. (1999) *Mental Leaps: Analogy in Creative Thought*. Woburn, Massachusetts: The MIT Press

Hutchinson, S. (2015) *Mapping your Mind* [Institute of Academic Development Workshop, University of Edinburgh] with post-graduate students [15 October 2015] Edinburgh

Johannson, F. (2004) *The Medici Effect: Breakthrough Insights at the Intersection of Ideas, Concepts and Cultures.* Boston: Harvard Business School Press

Johnson, S. (2010) *Where Good Ideas Come From.* London: Allen Lane, Penguin
Knowles, J., Promislow, S., and Cole, A., eds. (2008) *Creating Scholartistry: Imagining the Arts-informed Thesis or Dissertation.* Halifax, Nova Scotia: Backalong Books

Koestler, A. (1964) *The Act of Creation.* London: Hutchinson & Co. LTD

Legg, B. (2012) *The Materiality of Place: An investigation into the makers approach to material and process as a reflection of place within Northern European contemporary jewellery practice.* Unpublished PhD thesis. Edinburgh: University of Edinburgh

Lys, J. (2009) *J.S. Bach-Crab Canon on a Möbius Strip* [online] available from <https://www.youtube.com/watch?v=xUHQ2ybTejU> [12 August 2016]

MathWorld (2016) *Möbius Strip* [online] available from <http://mathworld.wolfram.com/MoebiusStrip.html> [18 August 2016]

Merleau-Ponty, M. (2002) *Phenomenology of Perception, Translated by Colin Smith.* London: Routledge Classics, Taylor & Francis Group

"...to become a scholartist is to possess a creativity and artfulness about inquiry and scholarship. It is to possess a willingness to take risks and not be bounded by conventions of academic discourse and research while being grounded in them."

Knowles, J. G., Promislow, S., Cole, A. L. (2008: 5)

Neilsen, L. (2008) "Lyric Inquiry". *Handbook of the Arts in Qualitative Research Perspectives, Methodologies, Examples, and Issues* [online] 23 (1), 93-104. available from <http://search.proquest.com.ezproxy.is.ed.ac.uk/docview/199628470?accountid=10673> [30 November 2015]

Podio (2016) *The Daily Routines of Famous Creative People* [online] available from <https://podio.com/site/creative-routines> [18 August 2016]

Popova, M. (2010) *Paula Scher on Combinatorial Creativity* [online] available from <https://www.brainpickings.org/2010/11/19/paula-scher-on-combinatorial-creativity/> [18 August 2016]

Rosenblatt, L. M. (2005) "From *Literature as Exploration* and *The Reader, the Text, the Poem*". *Voices from the Middle* 12 (3), 25-30 available from <http://search.proquest.com.ezproxy.is.ed.ac.uk/docview/213930952?OpenUrlRefId=info:xri/sid:primo&accountid=10673> [5 March 2016]

Stermotich-Cappellari, F. (2015) *The Spiritual in Islamic Calligraphy: A Phenomenological Approach to the Contemporary Turkish Calligraphic Tradition* [LLC Works in Progress Seminar, University of Edinburgh] with post-graduate students [4 November, 2015] Edinburgh

Sriraman, B. (2009) "The characteristics of mathematical creativity". ZDM Mathematics Education 41(1),13-27 available from <http://link.springer.com.ezproxy.is.ed.ac.uk/article/10.1007/s11858-008-0114-z/fulltext.html> [22 May 2016]

Sternberg, R.J. ed. (1999) *Handbook of Creativity*. Cambridge, UK: Cambridge University Press

Thornton, S. (2014) *33 Artists in 3 Acts*. Granta Publications e-book

Turchi, P. (2004) *Maps of the Imagination: the Writer as Cartographer*. San Antonio, Texas: Trinity University Press

Young, J. W. (2003) *A Technique for Producing Ideas*. New York: The McGraw-Hill Companies, Inc.

Zwicky, J. (2013) "What is Lyric Philosophy? An Introduction" [online] *Common Knowledge* 20 (1), 14-27 available from <http://commonknowledge.dukejournals.org.ezproxy.is.ed.ac.uk/content/20/1/14.full.pdf+html> [5 March 2016]

"We shall not cease from exploration, and the end of all our exploring will be to arrive where we started and know the place for the first time."

T. S. Eliot (1971: 59)

Word Count (excluding black boxes if they are considered lyric inserts like images)
5482

Word Count (with black boxes, excluding references)
5734

Word Count total
6405

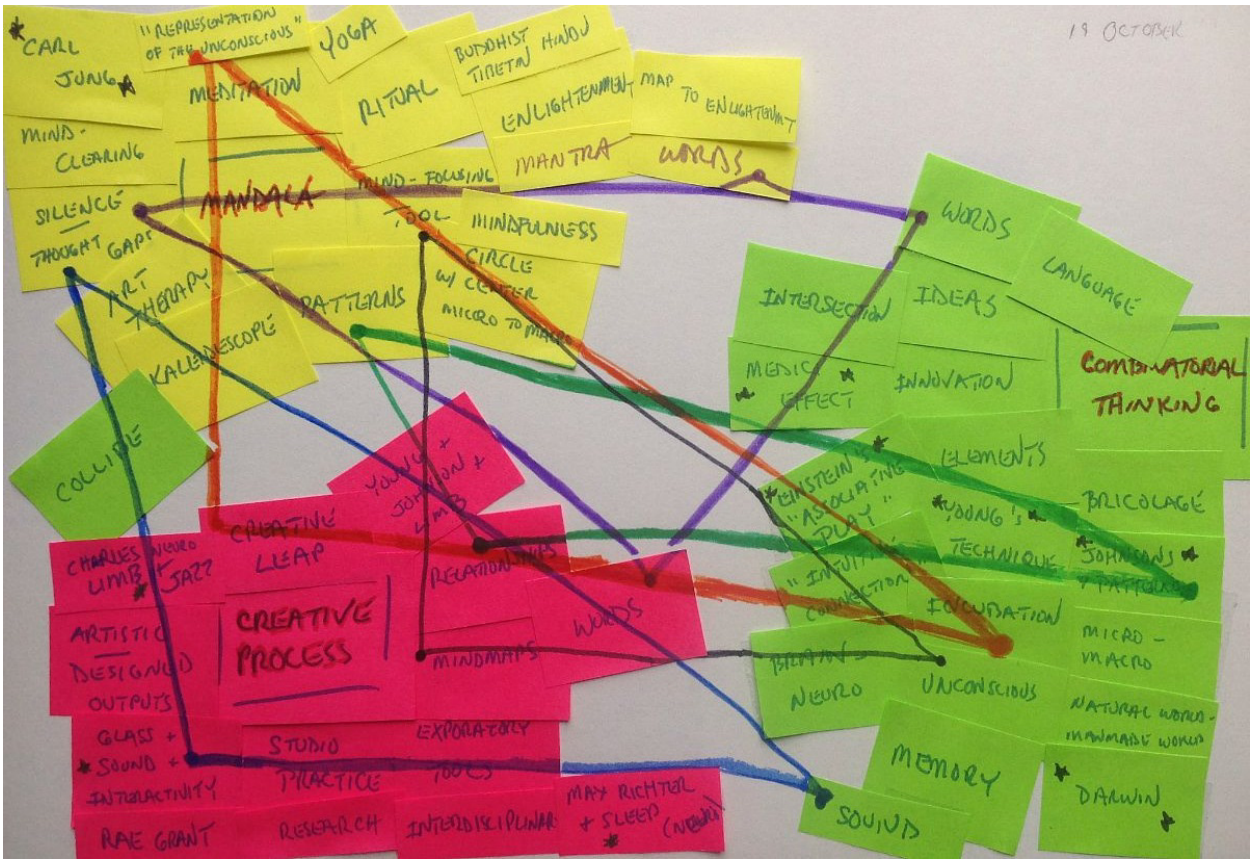
Appendix G.
Attention to Association

Understanding Attention to Association through the Act of Attention to Association
Start date: 27 October 2015

This project is drawn from the work begun with the ICP project **Ritual through Ritual**. Through our ritual project, our group determined that we understood ritual as having four key elements: Repetition, Discipline, Value, Reward. And I found a studio process tool for myself within the personal use of the Google document and through its intersectional/collision opportunities afforded by the platform:
“I realized today that perhaps for me...this Google doc is my "mandala"... my focusing tool for considering ritual in creative practice” -17 November 2014, quoting myself

Overarching questions for this project of **Attention to Association**: Will paying attention consciously and ritualistically to my project associations help me understand how attention (or mindfulness) could have a role in creative practice and development of new ideas? What role does attention/mindfulness have in the creative process or the creative leap? Does the mindfulness of meditation have a role? How would I characterize the methodology/the approach I am using here? The thinking through doing the very thing I am trying to understand? Is this format A New Commonplace Book of the Mandala Variety?

PhD Project: First Associations-Triangulation: Creative Process, Combinatorial Thinking, & Mandalas. This and my short writing “By Association” brought me to this project “Attention to Association”.



28 October 2015

Looking at my association "chart" today, I am focused on the four triangle shapes I see and just had these quick, rapid-fire thoughts in succession:

Triangulation-Bermuda Triangle-What is lost in the middle of the triangles?-Hypotenuses- Is there a formula here?

And now for what I had initially intended to post today before the above tangent... an excerpt from Peter Turchi's **Maps of the Imagination: The Writer as Cartographer:**

> As readers grew accustomed to that use of blanks, writers grew more daring, placing apparently unrelated passages one after the other without explanation but separated by space. In these instances, the blank says, "That bit is over; now, something different," and implies, "but of course, there's a reason for following the one with the other." In this way, fiction writers have borrowed a tool from poets: the associative leap… Like all blanks, associative leaps through space need to be created. We must understand what makes electricity arc through the air. A conscientious reader confronted with a string of unrelated passages separated by blanks will, for a while, dutifully attempt to form bridges from one passage to the next, to discover the writer's logic or pattern, the work's intended accumulation. If no such thing is discernable, however, the reader will eventually, understandably, move on to something else. Such is the risk of communicating through silence. The rewards include the powerful bolt of understanding a leap can create, an understanding that reaches the reader beyond words, beyond rational explanation, and so is more intensely felt. (2004: 54-55)
>
> "Silences and utterance are not alternatives but constituent parts of map language, each necessary for the understanding of the other." (Turchi quoting J.B. Harley 2004: 57)
>
> Significant silences in fiction are easy to find, once we listen for them. 2004: 57

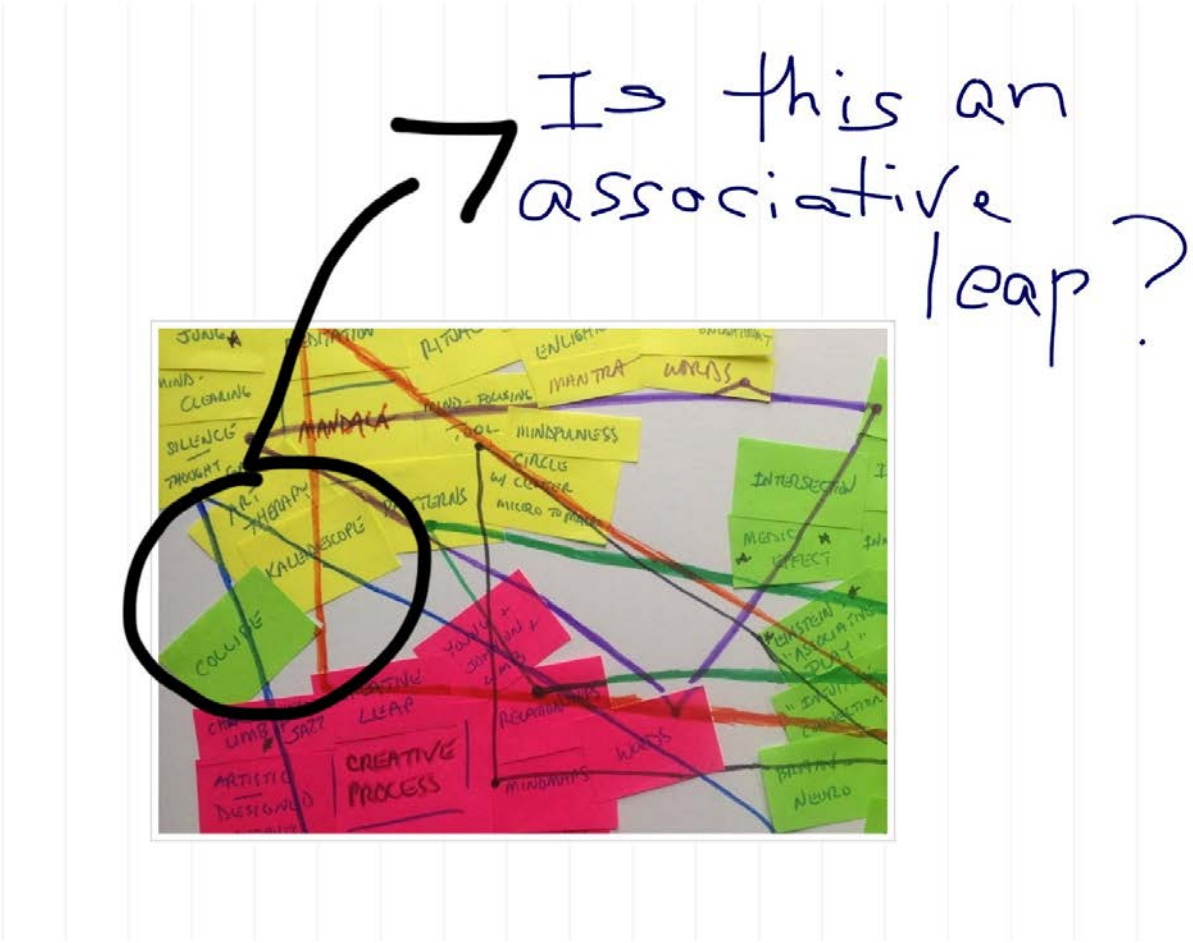
Listen for the silences.
Lost in silence.

What did I just do? I grabbed the "lost" from lost in the Bermuda Triangle and paired it with silence...for the oft used phrase.

"Communicating through silence"...something to think about. The associative leap communicates through silence. Does the creative leap do the same? The associative leap is known though, it is intended, intentional by the author. The creative leap is not known though...we search to make the leap and it often happens without us knowing how or why? An idea comes to us...the Eureka moment...a lightbulb goes on...etc.

Can we apply intention to the creative leap? Intention relates back to meditation. Thought gaps.

29 October 2015



In our meeting yesterday, Geoff asked me if the colors in my diagram of the adjacent possible meant anything. In that diagram, they did not, however, in this chart the colors are attached to the primary word to which they are associated. Yellow is “mandala,” pink is “creative process,” and green is “combinatorial thinking”. But something interesting happened when I associated “collide” with “kaleidoscope”. It was one of the final words I put down on the chart. “Collide” appeared in my mind because phonetically it was similar to the first two syllables of “kaleidoscope,” however, collisions of elements are necessary in combinatorial thinking in order to create ideas. Therefore, I placed the word collide on a green post-it, but applied it to the yellow “kaleidoscope” which helped generate it. I believe there was an associative leap of some sort that took place here. The unspoken thought is that kaleidoscopes also have fractal color patterns which appear to mix or slip into one another...could a tool be designed to utilize the kaleidoscope patterning to facilitate the collision of elements for idea production? Perhaps it could be a tool for young artists/designers...high school or elementary? A physical kaleidoscope or an app??

Coincidentally, kaleidoscopes are made from mirrors… which brings me back to glass!

30 October 2015

Back to the triangles in the chart...

"Combinatorial Thinking"	"Creative Process"	"Mandala"
sound (from memory)	sound (from glass project)	silence (meditation) mantra
sound		
unconscious (from Young)	mindmaps (a tool to braindump)	mind-focusing tool
incubation/unconscious (Young)	creative leap (happens in the mind)	"representation of unconscious"
patterns (Johnson)	relationships (types of patterns)	patterns (in the mandala)
words (words are ideas)	words (part of mapping)	silence/words (through mantra)

31 October 2015

Dissecting the triangles…

The presence of both "silence" and sound is interesting. Remember from above...I am to listen for silences.

In the case of "collide" and "kaleidoscope," did the creative leap happen solely in the mind or unconscious? It happened during the action of thinking through the word placement. Was that a representation of the unconscious?

Should I try a new triangulation? Which words to use?

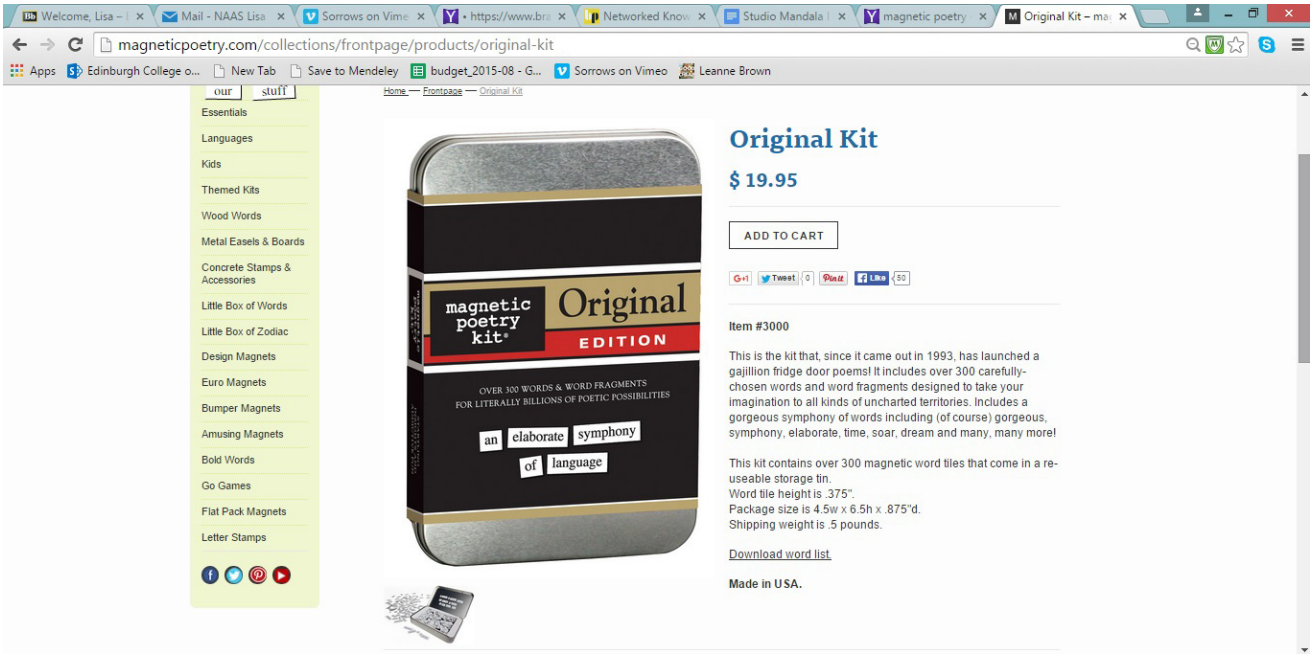
"Combinatorial Thinking" and "Creative Process" were two of my key proposal words. "Mandala" was my hunch.

"Association" and "Attention" are two of my keywords for this project. "Yoga Mat" is my hunch.



"Triangle Pose" I would say that while an associative leap did not occur, something else did. I glanced back and forth between the green group of "attention" and "heightened senses" and the pink group of "association" with "alliance" and came to the word "powerful" between them. This made me consider...if we agree that ideas are made from new

combinations of thoughts, words, elements, and older ideas (the combinations of which expand the adjacent possible), then it should follow that working with groups of words at a time would be more powerful than single words or even three words? Perhaps I should consider the magnetic poetry game again for my words.



1 November 2015



I took the majority of the words from my two “triangulations” and wrote them out onto small, moveable pieces of paper in order to play with combinations. From my first few minutes of playing with them in their new adjacent possible, I came up with:

“silence/mindfulness/ritual collide with studio practice” and “incubation tools”

Both could be descriptors for this “Attention to Association” project.

2 November 2016

Today’s new word combination: “inflammatory elements”

4 November 2016

In lecture today, there was a slide with the phrase “the grammar of ornamentation” and afterward, I picked up a book called “The Language of Pattern”. I think “grammar” is key somehow to my project...grammar indicates structure of words’ language implies communication system.

What am I seeking? A structure for? around? of? a framework for?

I’ll add “grammar” to my mix of words.

After a chat with Dave…

Are there different kinds of artistic creativity? Are creative flow and creative leap independent and not necessarily connected? What about Joey’s “automatic drawing”? The doodling he does when his focus is elsewhere when he isn’t actually paying attention to his drawing? Isn’t this an oxymoron? Something that is automatic or machine-like is not usually associated with creativity. Or is it a type of flow? Is flow more unconscious/less intentional? Is the leap intentional even if the final puzzle piece is found more sub-consciously?

I think intention is key somehow

5 November 2015

This project is about attention to association...trying to understand attention and association through the act of paying attention. Perhaps to understand the creative process, the project needs to be similar...a project about the creative process through the act of creating. The brief could be put out to makers, artists, designers, writers, poets, etc. and request a unique, personal piece in any medium, in any way, shape or form they choose made to describe their creative process or one of their creative processes, or a segment of their creative process or one aspect of it. Ask for certain demographic data and answer a couple of questions about what they made and why they made what they did to describe their creative process, how it relates to their practice.

For me, I think I would create a poem to describe part of my creative process though my film SORROWS does exist to express part of the creative process that went into the installation.

Appendix H.
Word Triangulation: Guidelines and Demonstration

Guidelines for "Word Triangulation" as a creative practice tool and method

-Developed by Lisa Naas, PhD Student in Design

1. **Begin with a large blank sheet of paper**

2. **Set an exploratory statement** for the map-sketch and write it at the top of the page. This could be a question, a design problem, or simply a brief statement of intention for the exercise. Regardless of how you write your statement, this will become the focus of the exercise.

3. **Choose three elements** to act as anchors for the map-sketch (at least two should be words but images or drawings will work as well). These three words or elements should be pivotal to the exploration of your exploratory statement. Two should be words with which you are quite familiar and the third can be a lesser known or a lesser understood word or concept. Put these words down on the paper in some way to indicate that they are the anchors to the map-sketch, to show that they are the focal points. Choose a colour for each of the anchor words.

4. **Focus on just one of the anchor words** to begin your map-sketch. Use sticky notes or other removable bits of paper that are the same colour chosen for the anchor word. **Write your associations on the sticky notes** and put them down on the anchor word of focus. Try to put down all of the associations, connotations, and responses you have to this anchor word. Put down all words that come to mind, even if they seem irrelevant to the project or to the word itself. Or if the association stems from an association word already attached to the anchor word, place the sticky-note on the paper closest to where the word developed in your mind. Put all thoughts down on the paper, try not to stop your map-sketching by judging them. Even if you have a phonetic response or some other thought that seems to make no sense, write it on a sticky note and attach it to the word already on the paper from where it directly developed. If a sound or image or memory comes to mind, try to relay it in words or a doodle drawing.

5. When associations seem to have stopped coming to mind for the first anchor word, **move on to the next anchor word** and change sticky-note colours according to the new anchor word. Continue making associations. Remember to look back at your exploratory statement occasionally to keep it in mind.

6. At this point or at a point very soon, with so many words and concepts mingling, it is likely that you might have an association or thought that is not directly linked to any one word already on the page. Perhaps a memory or an experience or an idea will come to mind from the relationship between or among some of the words on the page. Try to capture this in words or drawings and place this in a different colour nearby to where you think it developed, based on the location of words on your map-sketch. Draw lines to connect ideas if you think this might be helpful.

7. **Continue on to focusing and making associations with the third word** after associations have stopped for the second. Remember to capture all the thoughts no matter how indirect or seemingly unrelated.

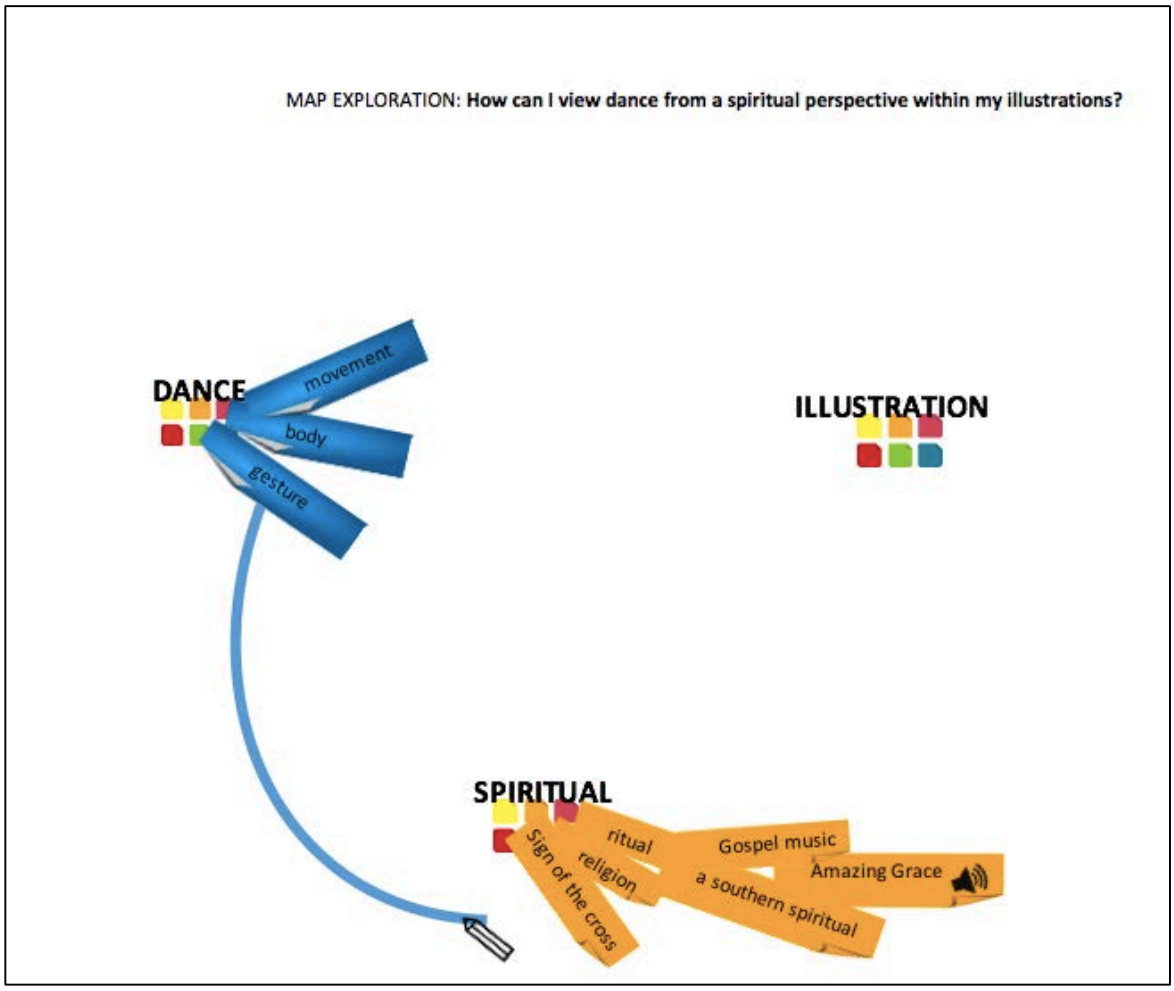
8. If associations have stopped for the third word and you still feel you have not fully explored your statement or have a direction for your project, then **take a break.** Either take a break that means you walk away from or put away your map-sketch and shift your focus, or take a break from the map-sketch but focus on a tangible idea from the sketching. For instance, if you were working with "glass" as an anchor word, you might consider going into the hotshop or taking a look online at some glass pieces or feeling the textures of different glass material that you might have available to you in your studio.

9. After your break, **return to the map-sketch and look at it as a whole, as a fully-formed sketch**. All of the associative words and many of the drawings will be moveable, so play with them if you'd like. Move them around if it makes sense to you. Respond to the work as a whole and get the responses down on the map.

10. Now, try to respond to your initial exploratory statement or question.

Note: This was the drawing printed on the back of the Word Triangulation guidelines hand-out

An Example.

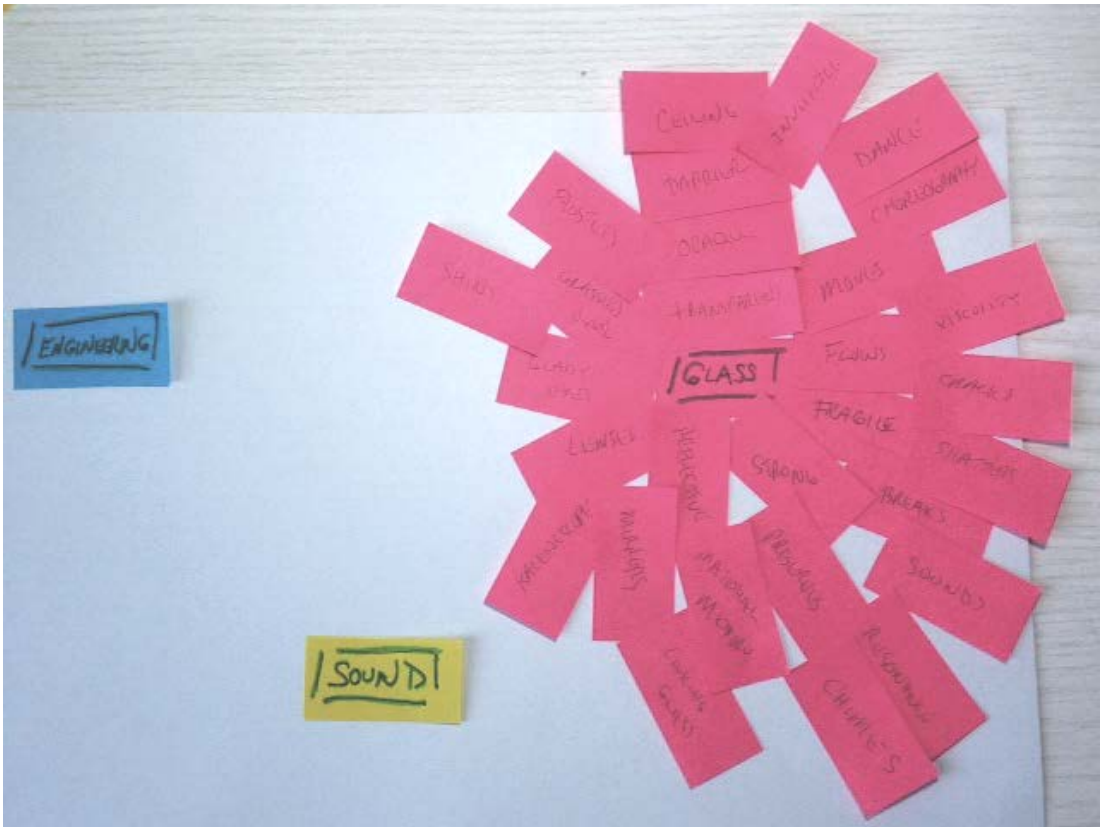


Sequential Photos of the Tool in Use in My Practice
(These were shown in every Word Triangulation presentation that I conducted)

Map Exploration Question: *How can we combine the elements of glass, sound, and engineering to develop interactive art works which engaged the public with engineering?*



anchor words starting point



making associations with “glass” first



making associations with “sound”



associating with “engineering” and experiencing a memory surfacing (in green)



more associating with “engineering” and then
a mingling of thoughts (captured in green, at bottom) to end the session

--Final Map-sketch--

Appendix I.

'Makers Marks: Glass in Translation' Paper

Research Through Design Conference 2017

RTD2017

Proceedings of the 3rd Biennial
Research Through Design Conference

CC BY

Makers Marks: Glass in Translation

Lisa Naas on behalf of the Makers Marks Collaborative

Naas, L. 2017. 'Makers Marks: Glass in Translation'. In: Proceedings of the 3rd Biennial Research Through Design Conference, 22-24 March 2017, Edinburgh, UK, Article 05, pp. 65-81. DOI: 10.6084/m9.figshare.4746943.

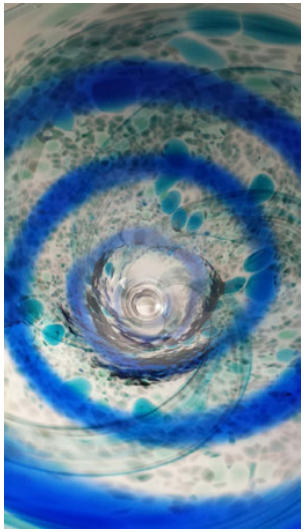


Image credit: Lisa Naas.

Makers Marks: Glass in Translation

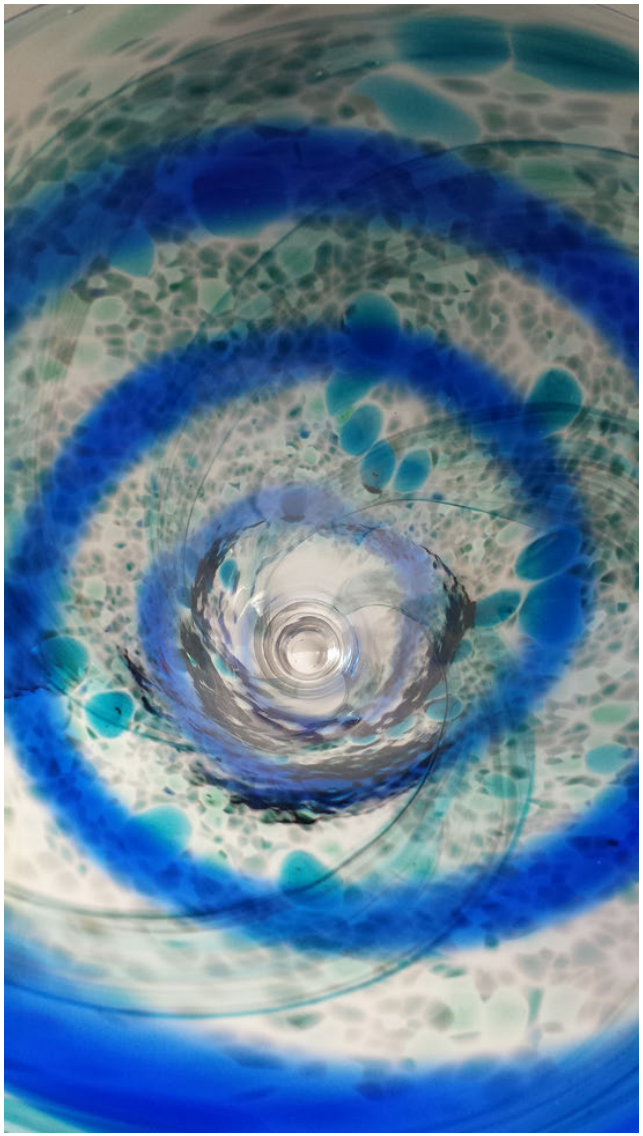
Lisa Naas on behalf of the Makers Marks Collaborative

Edinburgh College of Art at the University of Edinburgh, Edinburgh, UK

[redacted]

Keywords: glass and sound; creative process; translation; metaphor; visual language

Abstract: Metaphorical language uses association and combination of concepts to aid in human understanding of the new and unfamiliar. This is often true for artists' articulation of original work developed through creative processes. "Glass in Translation" brings together artists/designers working in the craft medium of glass with composers/ sound designers focused on digital technologies. Examining our creative processes, we question the nature of glass and its characteristics through dialogue between media and conversation between the artists. Musicians sometimes use visual language to describe sounds in colour, texture, shape, and weight. The project exploits this metaphorical language of the visual in the aural, through creation of new works in sound and glass, based on sounds of glassmaking itself. The project premise was to extract sounds of glassmaking to isolate them for examination and manipulation, and then to put these sounds back into glass forms. "Glass in Translation" speaks to the Research Through Design 2017 themes "Material: Fluidity in Knowledge", as we question where the knowledge of glass is in the process, and "Finishing: States of Completion", as we reverse our process, incorporating the sound back into glass. The project process, outcomes, and reflections suggest that metaphor is a useful tool for interdisciplinary collaboration.



Naas | Makers Whirlpool Detail

Introduction

Makers Marks is an ongoing collaborative project which brings together glass artists, sound designers, and engineers. We question the nature of glass through dialogue between media and conversation among team members. The overarching goals of the work are to bridge the gap between art object and audience through sound and engineering, as well as to preserve and share the sounds of traditional glassmaking in distinctive ways. *Makers Marks* is currently comprised of several works which seek to embed the sounds of the glassmaking back into the glass itself. This paper will focus on one of the projects, "Glass in Translation", which is a series of glass objects developed by our glass artists in response to the words and new sounds created by our sound designers.

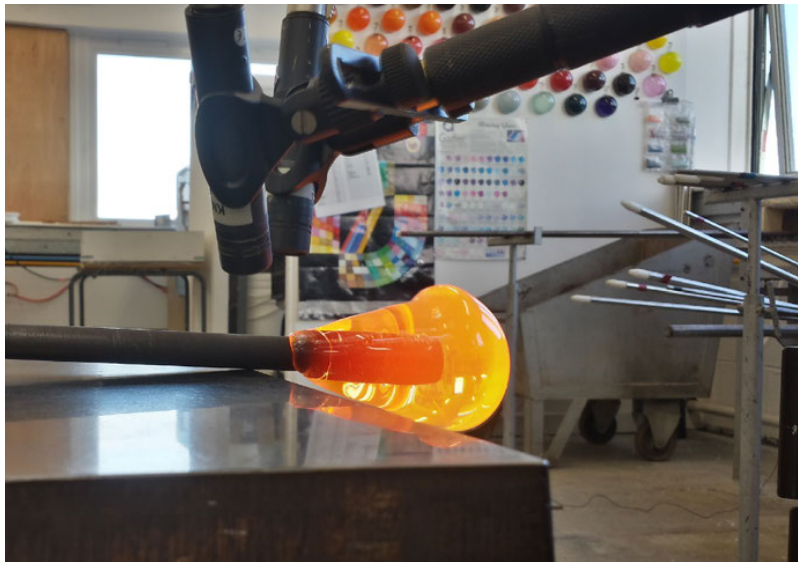


Figure 1. Recording the Process of Glass Marvering. Photo: David Faleris. The hotshop and cold-working studios of the Edinburgh College of Art Glass Department were the targets for capturing the source sounds of the project. In this image, the shaping process called "marvering" is recorded.

As a material, glass has played host to a variety of functions and innovation over the centuries but only recently in the past few decades has been used regularly as a studio medium within artistic practices. From its ancient use in function ware and decoration, to its architectural use as windows, to modern digital screens and fiber optics, glass has been at the forefront of innovation. The making process in studio has not significantly changed in centuries; glassblowers still use pipes and traditionally-made tools to work the hot glass, eliciting sounds that are exclusive to the material, the process, and the studios. Our team sought to record these unique sounds and use them in conjunction with contemporary digital technologies to share them with the public through new art works. As is often the case with new artistic work or innovation though, articulation of the intangible concept or vision, the process and techniques, or even the new output itself can be challenging. Metaphorical language however, is a tool we use to understand and describe the unfamiliar, the strange, and the foreign. Artists use it within the creative process to build the new and produce the original. This paper offers the metaphor as a way of studying and communicating the intangible artistic visions or processes of interdisciplinary collaborations.

Aims

"Glass in Translation" aims to examine the use of the metaphorical language and analogies found in the dialogue among our team members, as we worked to articulate our artistic visions and processes during the collaboration. The project aims to exploit the visual in the aural and to study the creative process through metaphors that take the form of new works in sound and glass, based on our glassmaking recordings. Specifically in regard to making, the project goal is to use new sounds developed from the recordings in the glass studios (see Figures 1 and 2) in conjunction with written descriptions of those new sounds for translation into new works in glass.



Figure 2. Recording the Sound of Grinding on a Coldworking Flat Bed. Photo: David Faleris. The team recorded the making processes and environment sounds in both the hotshop and coldworking glass studios for source audio.

Context

The metaphor is most widely recognised as a literary device, featuring prominently in such lyric writing as poetry and fiction. In using it, the writer desribes 'x' as 'y', implying that associations with 'y' can be carried over to 'x' to offer a deeper understanding of 'x'. Jan Zwicky, author of *Lyric Philosophy* and developer of lyric inquiry, describes the metaphor as 'the linguistic expression of the results of focused analogical thinking' (2013: 19). She explains that lyric writing shows and gestures its meaning through the words themselves and by how they are presented (2013: 17). Metaphor is a hallmark of this gesturing and presentation. She offers her lyric inquiry with its metaphors and various writing forms as as an alternative to the analytical for researching and seeking understanding. She claims that what the 'lyric' achieves 'if its medium is words, is speech that integrates various human modes of understanding-emotional, logical, physical, among others' (2013: 18).

As Zwicky is an author, she focuses on the writing, however, she acknowledges that metaphor plays a much larger role in our understanding of the world when she underscores this idea in her theory by quoting poet Charles Simic: 'Metaphor is a part of the not-knowing aspect of art, and yet I'm firmly convinced that it is the supreme way of searching for truth' (2013: 21). In *I Is an Other*, writer James Greary puts forth arguments based on historical evidence and linguistics for the metaphor being the basic building block to communication, comprehension, invention, and discovery (2011). The book describes how it is a primary means for us to understand the world and how the history of metaphor is extensive, with evidence of it in our language dating back to our earliest times in civilisation. Greary posits that metaphors are much more than literary devices or even devices of lyric inquiry, as he states that 'metaphorical thinking is the way we make sense of the world, and every individual metaphor is a specific instance of this imaginative process at work' (2011: 20). He asserts that 'metaphors are therefore not confined to spoken or written language' (2011: 20).

Work in cognitive science by Keith J. Holyoak and Paul Thagard examines how the larger framework of analogical thinking enables people to communicate, to generate new ideas, to produce inventions, and even to make decisions about war and peace (1999: 6). In *Mental Leaps: Analogy in Creative Thought*, the authors discuss metaphor or analogy, as 'model-building in the mind to understand something in the world' (1999: 5).

They explain that carrying over associations from the source analog (the known domain with familiar, learned patterns) to the target analog (the relatively unfamiliar domain we are trying to understand) is the essence of analogical thinking (1999: 2). Just as Greary describes metaphor, Holyoak and Thagard also write how this 'carrying over' develops a systematic set of correspondences between the source and the target so that we can see the one thing as if it were another, 'creating a tension between two perspectives: the thing as itself and the thing as something else' (1999: 9). Most interestingly, they write that analogy by 'its very nature freely oversteps the traditional boundaries between knowledge domains, making it possible to use ideas from one domain to achieve insights in another' (1999: ix-x). They argue that analogy allows our minds to form ideas that are 'beyond sensory experience' and 'out of our realm of understanding' (1999: 10). In other words, through analogical thinking, we can understand the unknown, the unfamiliar, and the new.

Edward de Bono, physician, psychologist, and author, developed 'lateral thinking' to attend to the new. He explains that lateral thinking is an 'insight tool' and is 'the process of using information to bring about creativity and insight restructuring' (1988: 7-10). Lateral thinking is concerned with restructuring patterns and provoking new ones (1988: 13). Edward de Bono writes that 'language itself is the most obvious code system with the words themselves as triggers' (1988: 26). Breaking patterns of familiarity or restructuring systems like language can open up

possibility for new associations. He suggests using the metaphor as a tool for restructuring patterns and gaining new insights.

So, metaphors are literary devices, linguistic expressions, and tools for human understanding. They are also techniques used within the creative process. Howard Gardner, a psychologist who has been researching human development for decades and more recently the creative process, published a study with Shira Lee Katz that examined twenty-four New Music composers and the ways in which they write music (2011). They describe two main strategies used by the group for composing: 'Within-Domain processes' inspired by the musical materials themselves and 'Beyond Domain processes' which use mostly metaphors and associations outside the music discipline (2011: 2).

Additionally musicians sometimes use visual language to describe sounds in 'colour, texture, shape, and weight', and the terms are in standard, contemporary use for notation and discussion of musical compositions (Faleris 2016). This is a metaphorical way to communicate the information; it is commonplace and no longer so obvious as a metaphor, but it is visual language found within the aural. This visual in the aural is an intersection point between music and the visual arts.

"Glass in Translation" is a study of the creative process. The work exploits this metaphorical language of the visual in the aural through the creation of new works in sound and glass, based on sounds of glassmaking itself.

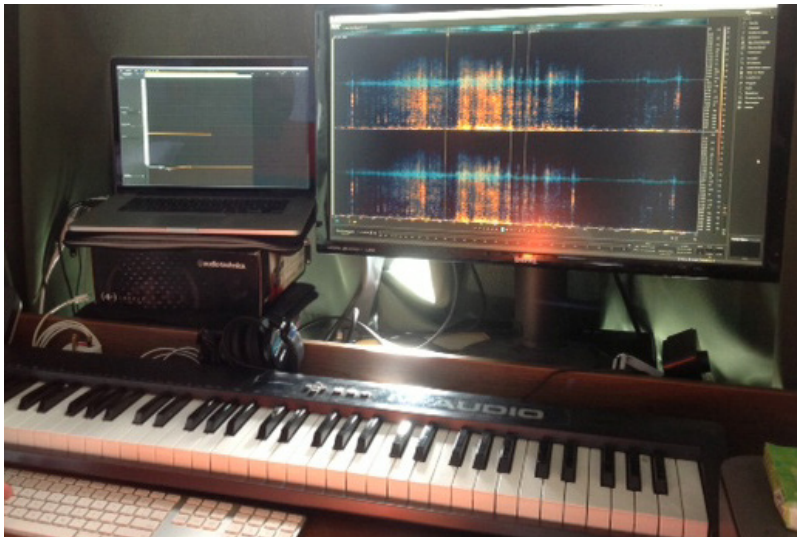


Figure 3. Developing New Sounds from Glassmaking Source Audio. Photo: David Faleris.

Glass is a rather unique medium that changes states from a viscous form to a solid as it is worked by artists. It is material that can be hot or cold, opaque or translucent, shiny or dull, coloured or black and white, paper thin or meters thick; it can preserve, frame, and keep safe, or break, shatter, and do damage. It is a hotbed for innovation but also mundane in its daily, taken-for-granted functions in society. Glass, with its unique blend of physical properties as well as these intangible qualities and various uses, is well-suited for use as a visual metaphor for helping to describe the new.



Figure 4. Glass Artists and Author (right) Making "Ewok Machine". Photo: David Faleris. The team is creating the interior details that can be seen in Figures 6 and 7.

Process

Our team collaborated across disciplines with the foundation of the project based in the recordings of the glass studios. Our recording engineer Marcin Pietruszewski captured sounds of the glassmaking process by glass artists (Figures 1 and 2). He cleaned and isolated the sounds, formatting them digitally. He processed many of the recordings through new Auditory Scene Analysis software in development in Informatics at the University of Edinburgh (Pietruszewski 2016). We then offered these sounds as a library for our composer/sound designer team to develop. The source audio can be found in *Library Sets 1—4* on our project website: http://www.inconcertwithglass.com/makers-suite. The sound designers transformed these source sounds into working virtual instruments. These can now be used to create musical compositions, soundscapes, and sound effects for visual media.

As the glass designer for this project, I asked the sound designers and composers to choose some of the new virtual instrument sounds and describe them to me in writing. I requested they use the visual language and terms common to both of our disciplines: colour, shape, texture, and weight. As I am a practitioner of lyric inquiry in my own work, I was keenly interested in hearing their words. Several composers responded and offered unsolicited feedback on the process of writing and utilising this language. These were not synesthetic reactions from the composers; rather they were thoughtful, considered responses about their new sounds as they indicated the difficulty of writing the descriptions (Bali and Faleris, 2016).

Based on their written descriptions and my own experience listening to the new sounds, I then created sketches for new glass pieces. I took these drawings, along with the composer words and sounds, to our glass technicians/artists. We first discussed various techniques and approaches for realising the sketches in glass and then produced a plan for each piece. Together as a team, we created each piece (see Figure 4).

Project Outputs

Three newly developed sounds from the glassmaking source audio are the current focal points for "Glass in Translation": "Ewok Machine" (see page 8), "Makers Whirlpool" (see page 9), and "Italian Nightmares" (see page 10). Our glassmaking team attempted each new sound in glass at least twice. The pieces are named after the new sound titles.



Figure 5. Two CGI Sketches by Lisa Naas for “Ewok Machine”. Photo: Lisa Naas.



Figure 6. Interior View “Ewok Machine I”. Photo: Lisa Naas. Blown glass.



Figure 7. Exterior Detail of “Ewok Machine I”. Photo: Lisa Naas. Blown glass measuring 6cm diameter x 31cm high.

“Ewok Machine”

Composer Antriksh Bali writes that his new sound has the shape of a ‘deformed cylinder (broken up from the inside)’ and is ‘purple/white, sharp/grainy, [with] irregular fragments of transparent material’ (Bali and Faleris, 2016). Bali created the new sound from splicing numerous source sounds and working with a composite. The new sound can be heard at: http://www.inconcertwithglass.com/glass-in-translation.

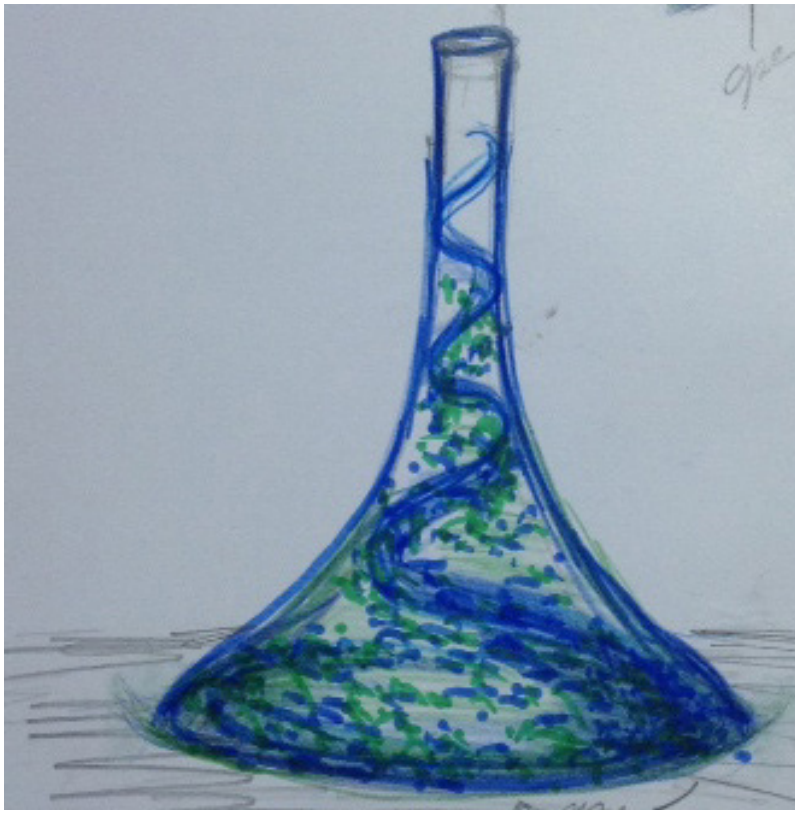


Figure 8. Lisa Naas Pen Sketch for "Makers Whirlpool". Photo: Lisa Naas.

"Makers Whirlpool"

Composer David Faleris used several of the source sounds recorded from the glassmaking to create his new sound which can be heard at: http://www.inconcertwithglass.com/glass-in-translation. He describes his sound with the following written description: *'Funnel or cone shape, wide base...perfectly round, perhaps slightly distorted or static-y in texture, but solid and strong. Comes up to a hollow and thin vertical pipe shape on top, clean and free of distortion/static.'* He continued with *'The color also moves from dark at the base to light on top. Dark blue/green on up to something more transparent and light. A small sweeping gesture of color runs through for one moment in the middle... not parallel nor perpendicular, but at an angle, as if being sucked towards the top but in a circular motion.... almost like a reverse whirlpool or black hole'* (Faleris 2016).



Figure 9. "Makers Whirlpool I & II". Photo: Lisa Naas. Blown glass measuring 24.5cm diameter x 19cm high (left) and 25.5cm diameter x 33cm high (right).

See Figure 8 for the sketch and Figure 9 for the two finished glass pieces.



Figure 10. Lisa Naas CGI Sketch for "Italian Nightmares". Photo: Lisa Naas.



Figure 11. "Italian Nightmares I". Photo: Lisa Naas. Blown glass measuring 47cm long x 15cm wide x 10.5cm high.

"Italian Nightmares"

Composer Alessandro Mastroianni developed his new sound from our recording of the glassmaking process which uses wet newspaper to shape hot glass. He writes that it is '*a very heavy looking sound. Despite its weight though, it doesn't have any snapping quality, telling me that [it] is, again, rather smooth than sharp. The color of this one is a transparent, dark grey'* (Mastroianni and Faleris, 2016). His new sound can be heard at: http://www.inconcertwithglass.com/glass-in-translation.



Figure 12. "Italian Nightmares II". Photo: Lisa Naas. Blown glass measuring 27.5cm long x 15cm wide x 30cm high.



Figure 13. Glass Technician/Artists Meg McGregor and Ingrid Phillips Sculpting the "Italian Nightmares I". Photo: David Faleris.

Challenges & Team Responses

Two issues—communication and traditional studio practices—repeatedly challenged our team throughout our work on the *Makers Marks* project, and specifically during the making of "Glass in Translation". Working across disciplines required all of us to have basic knowledge of terms and language used by the group members. This was necessary in order to have productive conversations about the various processes and techniques we were using. It meant withholding assumptions and asking many questions. Additionally, as we were working with 'new' works in sound, we needed to push away from the traditional in the glassmaking process. This was new, frustrating, and exciting for everyone involved. Most interestingly, we instinctively turned to simile and metaphor in our conversation to respond to the challenges. "Italian Nightmares" offers a good example and some evidence to support how we used analogy as a tool within the process of creating this work.

Composer Mastroianni's new sound and description was the most difficult for the visual team to understand. The lack of a definitive shape

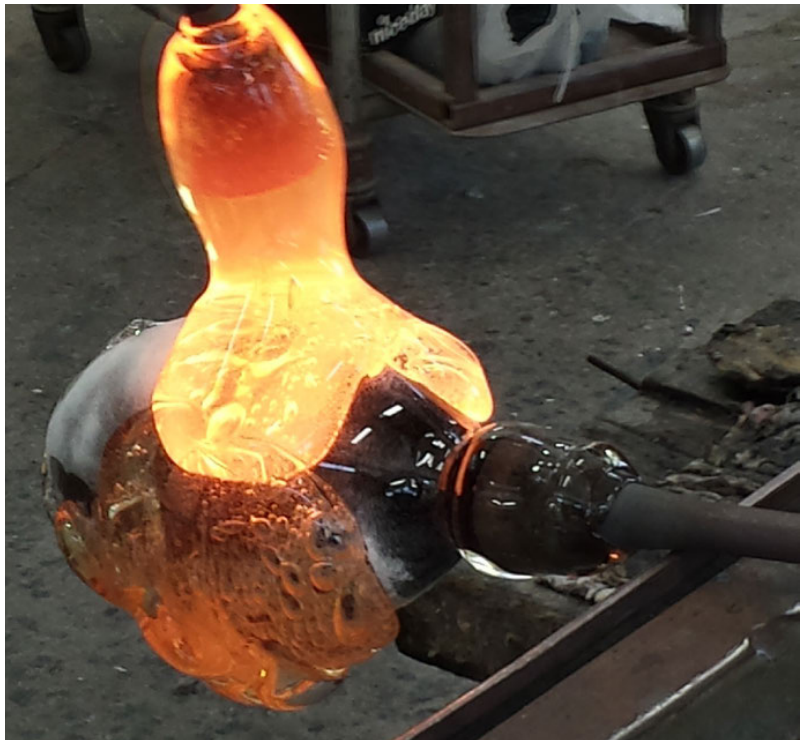


Figure 14. Studio Glass Test for “Italian Nightmares”. Photo: David Faleris.

was the most puzzling to work out technically. After listening to the sound and reading the composer’s description, my immediate response was to associate with the words ‘roiling’, ‘patterns in boiling’, and ‘bubbles from boiling’. I tried to explain this and my sketch (Figure 10) to the glass technicians assisting me. I asked for creative input on how to trap air within the piece. We used a reaction between bicarbonate soda and the hot glass to create bubbles as we pulled and twisted the material into a sculpture (Figure 13). The result though (Figure 11) was missing an intangible quality we all heard in the sound and struggled to articulate.

Prior to the next attempt at making “Italian Nightmares” we returned to talking about what we heard in the sound and what that might look like in glass, while still maintaining the visuals offered by the composer words. I talked to composer David Faleris about the sound for his fresh ears and words. He said that Mastroianni’s sound ‘sounded like a growing virus or an infection’ (Faleris 2016). Faleris’s simile gave me what I needed to redesign the glass piece and attempt the work again with the technicians. I pushed hard for us to break out of what was traditional with the glass and to exploit the material in the same way we were trying to exploit the language and the source sounds. Faleris and I discussed this idea of ‘virus’ and ‘infection’ with the technicians. I explained that in glass, I thought Faleris’s ‘virus’ was akin to my ‘roiling bubbles’ overtaking the glass. We used an inordinate amount of bicarbonate soda to create the second piece and actually ended up contaminating the whole furnace pot of glass, making for major cleanup work at the end.

In traditional glassmaking, bubbles are often considered flaws. In fact, a single bubble is sometimes enough to ruin a work. Glassmaking has a deep tradition in Italy and given that the sound piece was titled “Italian Nightmares”, it fit the project to reconsider these bubbles that are often seen as a glassmaker’s nightmare. “Italian Nightmares II” highlights the bubble growth on the smooth body of the traditionally formed glass vessel (see Figure 12) and is a play on words with the title.

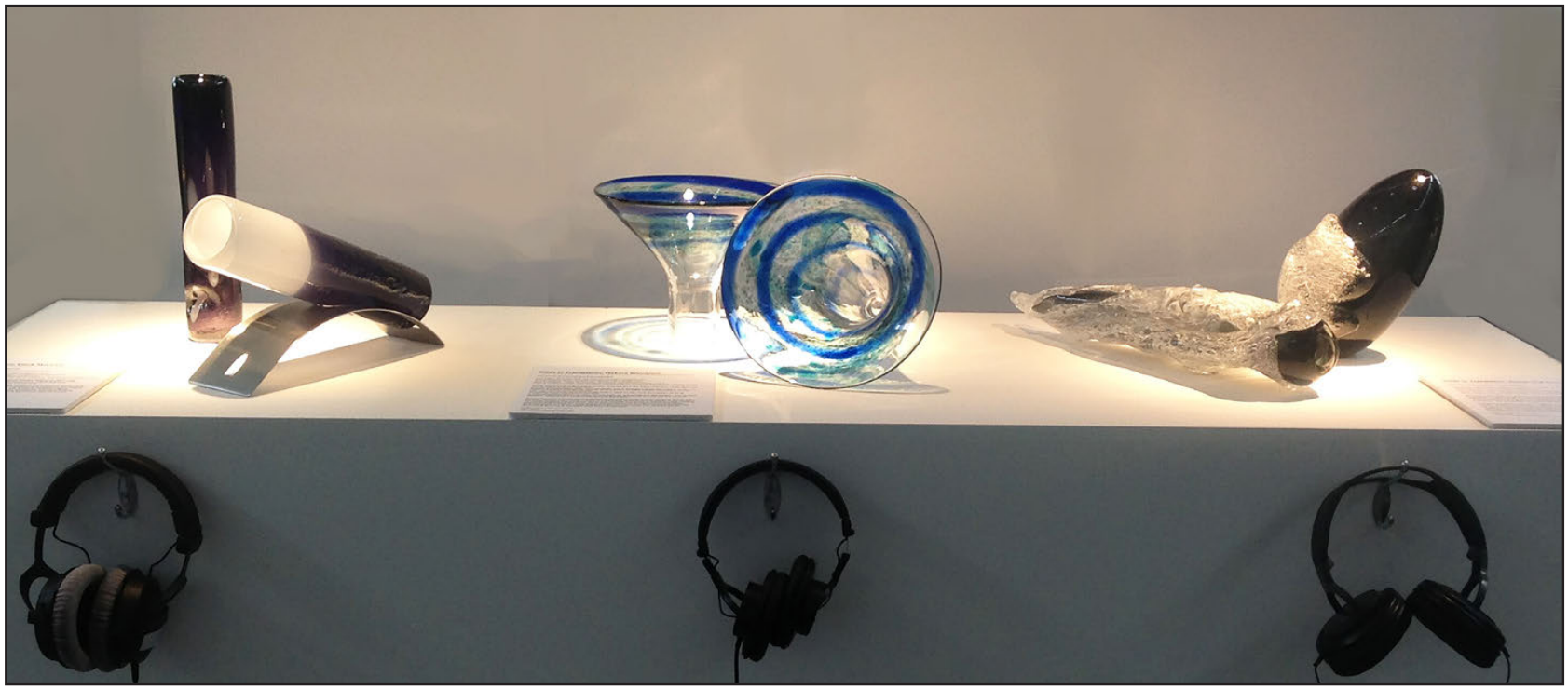


Figure 15. “Glass in Translation” Displayed for Open Studio Day. Photo: Lisa Naas. (Left to Right) Ewok Machine I & II, Makers Whirlpool I & II, Italian Nightmares I & II.

“Glass in Translation” Artefact Display

For over a year we had been working on the project in segments and pieces. To gain a new perspective on “Glass in Translation” and to show the work to an audience, we exhibited all of the final glass pieces on a long plinth with headsets attached to small MP3 players. The headsets featured the corresponding translated sounds. Alongside the objects, the audio creators’ written descriptions of their new sounds were posted for the visitors to read as they listened and viewed the objects. This exhibition design (Figure 15) was tested during an open studio display in October 2016 and a networking event in November 2016; it seemed enticing to many age groups (see Figures 16 and 17). We also used the exhibition display opportunities to film our Makers Marks Collaborative in conversation over the glass and sound. It was a chance to reflect on the project together and view the glass and sound artefacts as a body of work.



Figure 16. Visitors Interacting with "Glass in Translation". Photo: Alex Hall. The body of work was displayed for an open studio day at Edinburgh College of Art in October 2016.

Collaborative Participant Feedback

During our film interviews with the team, we discussed the translation process and visual metaphors. We considered aloud the challenges of language among us and our difficulties in articulating our processes across disciplines. We realised that we used analogies regularly throughout our collaboration: in e-mail explanations, in descriptions of processes, pointedly in "Glass in Translation", and instinctively as a way to try to solve language barriers. The engineers specifically provided positive feedback in regard to the metaphorical approach of the project.

Al Bennett, engineer for the *Makers Marks* "Sounding Glass" project, explained that when he first saw "Makers Whirlpool" and read Faleris's description alongside the sound and glasswork, he understood a bit more how the composer thinks. Faleris and Bennett are working closely on "Sounding Glass" (http://www.inconcertwithglass.com/sounding-glass). Bennett described Faleris's emails as visually descriptive of the sound work that Bennett needed to consider during his engineering work. Bennett said that he and Faleris "come at things from opposite ends of the spectrum but we have managed to find a way of explaining things to each other that works" (Naas and Terzi, 2016).

Faleris noted that our recording engineer Marcin Pietruszewski found a visual way to explain his cutting edge process that isolates sounds (Naas and Terzi, 2016). Pietruszewski uses visual metaphors in his language such as sound "objects" and "masking" to describe his Binaural Auditory Scene Re-synthesis technique: *'it's a very similar process to what happens in vision. If you think about the virtual processes which try to model how we perceive the world visually... the software analyzing a photo must be able to distinguish which edges of an object belong to the same object even if two objects are standing in a line or something is masking [the edge]. Basically it's a masking effect and the same phenomena occurs in our auditory perception. That we hear so many different noises but we are able to separate them into individual streams*' (Naas and Terzi, 2016). He explained that his process tries to 'unmask' the sound objects.

Conclusion

Metaphor was a communication bridge for our group members; it allowed us to articulate the new and the unfamiliar and to relay our processes to those outside of our disciplines. In retrospect, we realised we use many more analogies in our work than we had even intended.

"Glass in Translation" is ongoing; our questioning of glass and material knowledge continues. We have recruited a photographer and a filmmaker to translate the new sounds, composer words, and glass pieces into their media, while considering the nature of glass. Additionally, we are still working with our source sounds for new translation pieces. "Glass in Translation" fits within our larger body of work that includes participatory, interactive glass, and soundscapes (http://www.inconcertwithglass.com/). We hope to push this participatory aspect of *Makers Marks*, getting audience and lay members involved with translation to further bridge the gap with the art works. Going forward, our continued research will pointedly use, document, and analyse metaphors in our working studio language and processes.

Our early work suggests that metaphor could be a useful tool for interdisciplinary, collaborative work in studio, to relay processes and visions, as well as to communicate across fields. Our research raises the question: 'Is metaphor an inherent element of the creative process?'



Figure 17. Visitors Interacting with "Glass in Translation" at a Summerhall Network Event. Photo: Alex Hall. November 2016.

Acknowledgements

Many thanks to our international Makers Marks Collaborative for their contributions, collaboration, and generous giving of time, skills, and knowledge to the project. We are grateful for the support of the Ingenious Grant awarded by the Royal Academy of Engineering. We acknowledge and thank Edinburgh College of Art, the Glass Department for project assistance, Geoff Mann for departmental grant support, and Dr. Sophia Lycouris, Dr. Jessamy Kelly.

The Makers Marks Collaborative is comprised of many artists, designers, musicians, and engineers: Lisa Naas, David Faleris, Marcin Pietruszewski, Al Bennett, Ingrid Phillips, Alan Horsley, Alkisti Terzi, Meg McGregor, Alessandro Mastroianni, Antriksh Bali, XueRan Chen, Laura Reed, Zuzana Michlerová, George Karpasitis, Alberto Vásquez, and Cara Clay.

References

Bali, A. and Faleris, D. (2016) *Ewok Machine* [e-mail] [29 April 2016].

De Bono, E. (1988). Lateral Thinking: A Textbook of Creativity. London: Penguin Books.

Faleris, D. (2016) *Makers Whirlpool* [e-mail] [10 June 2016].

Greary, J. (2011) *I Is an Other: The Secret Life of Metaphor and How it Shapes the Way We See the World*. London and New York: HarperCollins e-books.

Holyoak, K. J. and Thagard, P. (1999) *Mental Leaps: Analogy in Creative Thought*. Woburn, Massachusetts: The MIT Press.

Katz, S. L. and Gardner, H. (2011) *Musical Imaginations: Multidisciplinary perspectives on creativity, performance and perception.* Oxford Scholarship Online.

Mastroianni, A. and Faleris, D. (2016) *Italian Nightmares* [e-mail] [13 April 2016].

Naas, L. (2016) *In Concert With Glass* [online] available from <http://inconcertwithglass.com> [Accessed 16 January 2017].

Naas, L. (2016) *Music Terminology Conversation* [in person] with David Faleris [2 January 2014].

Naas, L. and Terzi, A. (2016) *Makers Marks Collaborative: In Conversation* [interview audio] with Makers Marks Collaborative [18 October 2016].

Pietruszewski, M. (2016) *Binaural Auditory Scene Re-synthesis* [in person conversation] with Marcin Pietruszewski [18 February 2016].

Zwicky, J. (2013) 'What is Lyric Philosophy? An Introduction'. *Common Knowledge* [online] available from <http://commonknowledge.dukejournals.org.ezproxy.is.ed.ac.uk/content/20/1/14.full.pdf+html> [Accessed: 5 March 2016].

Appendix J.

‘Makers Marks: Capturing, Preserving, and Sharing the Sounds of Glassmaking’

MDPI Journal Article in *Arts 2019*

arts

MDPI

Article

Makers Marks: Capturing, Preserving, and Sharing the Sounds of Glassmaking

Lisa Naas [1,*] and David Faleris [2]

[1] School of Design, Edinburgh College of Art, University of Edinburgh, Edinburgh EH3 9DF, UK
[2] Independent Composer, Glasgow G12 9SW, UK; [redacted]
* Correspondence: [redacted]

Received: 30 November 2018; Accepted: 24 January 2019; Published: 30 January 2019



Abstract: The Makers Marks Collaborative, an international team of glass artists, visual designers, composers, and engineers, embarked on a project together from 2015–2016 to use the glassmaking studio as a staging ground for interdisciplinary, collaborative making. The team aimed to capture and preserve the sounds of traditional studio glassmaking, and then to share them outside the workshop domain through digital technologies and glass art objects. The goal was also to fulfill a public engagement grant from the Royal Academy of Engineering to highlight the engineering through the art and the engineers' vision within the art making. The team recorded and isolated the unique sounds of the glassblowing process and its studio environment, and then used the resulting digital sound collection as the foundation for developing artistic outputs: a virtual instrument library, a glass object-instrument of performance, a series of glass objects translating selected virtual instruments, and a music composition. They questioned the nature and materiality of glass through dialogue between media and conversation among team members, while exploring the practice-based research question: "How can we embed our recorded sounds of the glassmaking process back into the glass itself?" This paper focuses on the collaborative, interdisciplinary making process of the team, the project outputs, and the metaphorical language that was a key process facilitation tool.

Keywords: glassmaking; glassblowing; sound design; engineering in art; interdisciplinary collaboration; research through design; metaphorical language; craft heritage; public engagement

1. Introduction

The sounds of traditional making processes in artist and designer studios are not easily accessible by the general public, as they are unique to the material practices of the studios. Even those public studios and museums, which offer free making demonstrations, are few and scattered, and sometimes difficult to reach[1]. The sounds of the making are elusive as well, due to the specialized environments, processes, and tools. Often, they are heard only by the makers themselves, and even then, they can sometimes be masked by other studio equipment noise. One of the most exclusive and ancient making processes which produces unique sounds is that of glassblowing. As a material, glass has played host to a variety of functions and innovation over the centuries, but only recently, in the past few decades, has been used regularly as a studio medium within artistic practices (Klein 2001, p. 6). Aspects of the making process, however, have not significantly changed in centuries. For instance, glassblowers today are still inflating hot glass with their breath by using pipes and traditionally-made tools to work the material, just as they did centuries ago.

[1] For instance, the National Glass Centre (2013) in Sunderland offers daily, free admission and demonstrations, but has no direct, public transport option from major cities like Glasgow.

The history of glassblowing and the specific making processes involved have been well-documented with books covering centuries of glassmaking (Vávra 1954; Klein and Lloyd 1991) and museums such as the Museo del Vetro (2019) in Murano and the Corning Museum of Glass (2002a) in New York dedicated to the history, making, and collection of glass. Videos demonstrating the making processes are numerous with the Corning Museum of Glass (2002b) even offering regular live streaming, however, the sounds—a major output of the making process—have been relatively understudied. The sounds are both evidence of the making process and remains of the process, in much the same way as is the discarded glass, cast off in the workshop bins. Yet, the sounds are as inherent to the making as the intense heat of the furnace and the smells of burning wood and paper tools used to shape the glass. The glass studios are filled with sounds: the makers' tools working the glass in various heated states, the breath of the makers inflating the glass, the glass itself under various stresses, and the heating/cooling equipment used in the processes. Glassblowers, especially beginners, even rely on the sounds of their tools on the glass to indicate material heating/cooling levels as they learn. Listening to the glass is often orally taught, but sociologist and glassmaker Erin O'Connor (O'Connor 2007, pp. 63, 71) indicates its importance in her writing. Understanding sound becomes part of the makers' tacit knowledge as they listen to the glass to identify possible stressors while they work the material. The sounds of the glass studios are an integral part of the cultural and craft heritage of glassmaking.

1.1. Aims and Objectives

The aims of Makers Marks were to capture, isolate, and preserve the sounds of the making processes in the glassblowing and coldworking studios, and then to share them with the public through digital technologies and glass art objects, using the captured sounds as foundational design elements. The project was interdisciplinary at its core, requiring collaborative expertise in glass, sound, and engineering. Based in Edinburgh, the lead visual designer recruited an international team of glass artists and technicians, audio engineers and composers, and electrical and computer engineers to carry out the aims and fulfill the 2015 Ingenious Award funding the work under the title of "Glass Whispers: Audio and Electrical Engineering Meets Studio Glass for Interactive, Personal Art Experiences". This grant is part of a public engagement scheme developed by the Royal Academy of Engineering to "stimulate engineers to share their stories, passion, and expertise in innovative ways with wider audiences; to develop engineers' communication and engagement skills; and to create debate between engineers and people of all ages to raise awareness of the diversity, nature and impact of engineering" (Royal Academy of Engineering 2019). The public engagement nature of the grant influenced the glass object design and vehicles through which the team ultimately shared the studio sounds.

1.2. Contribution to Knowledge

The project's output of a digital sound collection is the only free, publicly accessible library of glassmaking sounds that have been recorded, isolated, and processed through Binaural Auditory Scene Re-synthesis. The virtual instruments developed from the recorded glassmaking sounds are also new, as is the eight-minute, music composition derived entirely from the sounds of the making process. Additionally, the team's use of metaphorical language as a studio process facilitation tool provides insight on successful communication for interdisciplinary, collaborative practices.

2. Recording and Isolating the Sounds of Studio Glassmaking

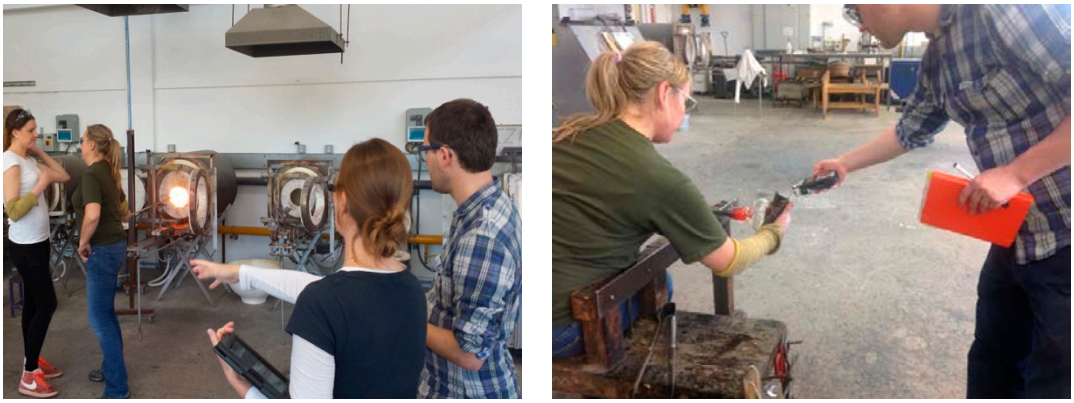
The hotshop and coldworking studios of the Edinburgh College of Art Glass Department were the host environments for recording the sounds of this project (Figure 1).



Figure 1. Panorama of the Edinburgh College of Art hotshop, the primary site for the recordings (Image: David Faleris 2015).

2.1. Observation Day

Before the formal recording session, the lead visual designer, the glass technician and her assistant, along with the lead audio/recording engineer and lead composer, held an "observation day" in the studios. This day served multiple purposes as it was a chance for the recording team to learn about health, safety, and protocol within the studios, to observe the making processes and test sound levels on their field recorders (Figure 2), to ask questions, and to experience a hands-on trial of working the material with the glass technician's assistance. The engineer and composer also experimented with how to maneuver themselves and their equipment around the studio without disrupting the glass workers. For the lead designer and glass technicians, the day was an opportunity to map out the formal recording session and plan the work and techniques to be recorded.



(**a**) (**b**)

Figure 2. Observation day: (**a**) Shows the lead designer planning with the recording engineer on the right and the glass workers setting up a demonstration (Image: David Faleris); and (**b**) shows the lead recording/audio engineer recording and testing the sound levels as the glass technician shapes the glass with wet newspaper (Image: David Faleris 2015).

2.2. Recording Session

The recording engineer and composer employed a stereo pair of condenser microphones (Figure 3a) to capture the majority of the glassmaking sounds in high fidelity. A tiny, lavalier microphone (Figure 3b), often worn on a lapel or collar for picking up voice on stage, was also chosen to record selected techniques and environment sounds where its small size and flexible cable were beneficial.



(**a**) (**b**)

Figure 3. Recording session images highlight the two microphones: (**a**) Shows the much larger pair of condenser microphones on a boom, capturing the sound of hot glass flashed in water to create a crackled surface texture (Image: David Faleris 2015); and (**b**) depicts a tiny, lavalier microphone shown embedded in the bin where discarded, unwanted hot glass cools (Image: Lisa Naas 2015).

During the recording session, the team focused on capturing the sounds emitted by the glass, as well as the sounds of the traditional tools and techniques, with which the artists used to manipulate and shape the material in its various stages of heating and forming (Figure 4). Studio environment sounds, including equipment for heating and cooling, were also recorded (Figure 5).

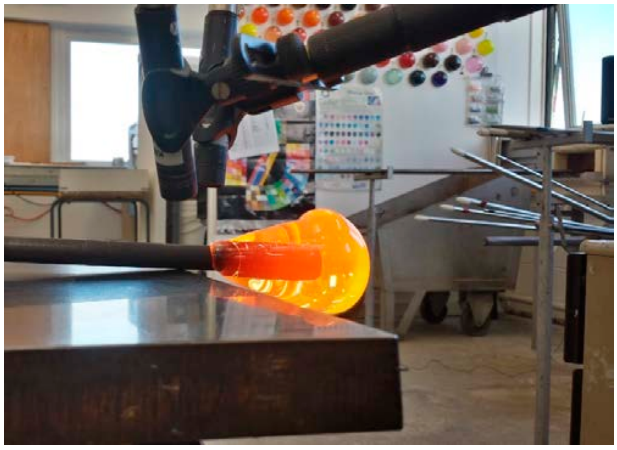


Figure 4. Capturing sounds of the glass "marvering" shaping technique (Image: David Faleris 2015).



Figure 5. Recording the sound of the furnace, where the glassmakers gather the hot glass on the ends of the pipes (Image: David Faleris 2015).

When the recording session ended, the team had captured over a hundred files of digital sound clips. All files recorded the ambient environment, but only in some did the team intentionally embrace the heavy machinery and unpredictable pops of cracking and breaking glass. Most of the recording attempts were intended to focus up close on the sounds emitted by the glass material and tools used during the making processes. Given this, the next step for the team was to clean the files of such extraneous sounds to better isolate the targets.

2.3. Cleaning and Constructing the Digital Sound Files

The audio engineer cleaned and isolated the target sounds from the original source audio recordings, using Auditory Scene Analysis software in development within the Informatics Department at the University of Edinburgh. As the descriptions of this technology and his process were filled with technical jargon, he found a way to explain his work to the project team by using visual metaphors, likening the auditory software to photo editing software. He used words such as sound "objects" and "masking" to describe his Binaural Auditory Scene Re-synthesis technique. Essentially, he worked with "grains" of sound in the same way that photo editor's work with pixels of colour. In a video clip from the Makers Marks (2016) documentary film for the project, Marcin Pietruszewski explains his technique this way:

> It's a very similar process to what happens in vision. If you think about the virtual processes which try to model how we perceive the world visually . . . the software analyzing a photo must be able to distinguish which edges of an object belong to the same object even if two objects are standing in a line or something is masking [the edge]. Basically it's a masking effect and the same phenomena occurs in our auditory perception. That we hear so many different noises but we are able to separate them into individual streams.

The challenge for him was when environmental sound obscured the target sound in the same way that an object might obscure a portion of another object in an image. In these cases, he had to add in the grains of sound that were obscured or missing, in order to achieve a full construction of the isolated source sound. He explained that his process tries to 'unmask' the sound objects.

3. Developing Raw Sound Material

After the audio engineer had completed his cleaning and any necessary reconstruction of the digital source sounds, the lead composer offered these sounds to an eight-member, audio engineering/sound design[2] team to develop. Using digital audio workstations (DAWs) such as Logic Pro (Apple, Cupertino, CA, USA), Live (Ableton, Berlin, Germany), and Pro Tools (Avid Technology, Burlington, MA, USA), the sound designers manipulated various qualities of the source audio—ranging from the basic parameters of time, pitch, and volume, to more complex characteristics of sound, such as colour and timbre (see Figure 6). The team members approached the design of their new sounds in personal ways. Some took advantage of the percussive elements of the source audio samples to create drum kits, while others played with granular synthesis to generate glitchy, electronic synths. Some created ever-evolving soundscapes using just one source audio file, while others manipulated several different files before layering them into short, complex loops. The sound designers, working independently in various countries, returned their new sounds to the lead composer, who compiled them into a virtual instrument library. A virtual instrument, in a broad sense, is one or more audio files and/or software itself, digitally engineered to be played or programmed to serve as one sonic component of a larger music work (Jones 2017). While the cleaned source audio clips can also be used as parts of sonic works or sound effects within digital media[3], these

---

[2] In this paper, "audio engineer" and "sound designer" to identify specific team members are used interchangeably as some people held dual roles during the project or certain tasks required both expertise from the same person.

[3] "Digital media" includes film, television, animation, video games, mobile apps, etc.

newly developed sounds within the virtual instrument library were explicitly developed with music making in mind.

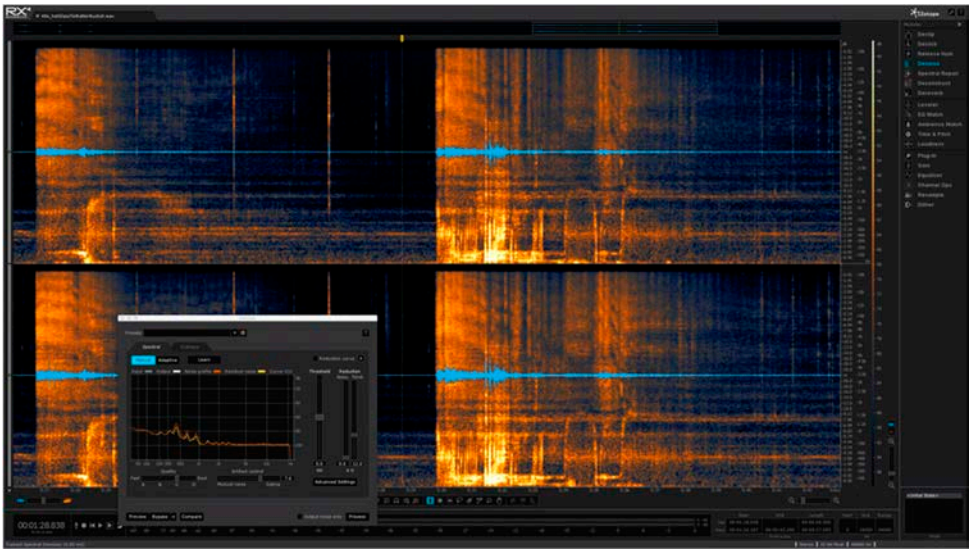


Figure 6. This is a screenshot image of RX (iZotope, Cambridge, MA, USA), one of many audio post-production tools used in audio manipulation by the sound design team (Image: David Faleris 2016).

4. Sharing the Sounds of Glassmaking through Digital Technologies

Glass has a more recent history of being used for sound design and special effects in digital media, as its material properties and ubiquitous nature enable sounds associated with tinkling, cracking, shattering, breaking, and scratching. The Makers Marks sound collection adds to the breadth of audio material available for use in digital media with these and additional associations. Each source audio sound and virtual instrument in the project's library collection can be used as it is for the creation of sonic works or can be further tweaked and developed by new users. There are glass sound collections and a few virtual instrument "glass" libraries available by other developers; the one created by this project team fits within that niche. For instance, United Studio Effects (2012) produced an album of glassmaking sound effects in 2012, and while open to the public and easily accessed on Amazon Music and other music websites, it is not free and does not contain engineered virtual instruments like the Makers Marks collection. Related virtual instrument libraries, such as "Glass Instruments" by the Vienna Symphonic Library (2018) and Soniccouture (2018) "Glass-Works" offer the sounds of the cold glass outputs—the final products of the glassmaking—recorded as they were played or broken or used as percussion. The Makers Marks sound collection and virtual instrument library is a new contribution to knowledge as it focuses on the sounds of the glassmaking process and is the only such open access, public library comprised of these sounds, processed with Binaural Auditory Scene Re-Synthesis.

As this Makers Marks project was underway in 2015, two other related projects were also in development: one in the United States and one in Italy. In the United States, the Wheaton Arts and Cultural Center, known for its focus on the glass medium, commissioned a new sound artwork from British installation artist Luke Jerram (Jerram 2019). The outcome was a four-minute work, titled "Keep on Turning", that features snippets of glassmaker interviews mixed with live-recorded sounds from the hotshop (Jerram 2019). The recorded sounds appear to focus on dropped, broken, and smashed glass and there is no development of virtual instruments from the original source audio recordings. Jerram also does not make any of his live-recorded sounds available, as the sole output was the commissioned sound artwork. Meanwhile, Max Casacci, the Italian composer known as Vaghe Stelle, was also recording the sounds of glass being made and broken in the furnaces of Berengo Studio on Murano (Casacci and Mana 2018; Fondazione Berengo 2018). These recordings involved

sounds of the glassmaking process and the source audio recordings were heavily manipulated to serve a musical output. Casacci collaborated with electronic music artist Daniele Mana to produce "Glasstress", an eight-track digital album released in 2016 (Casacci and Mana 2018). Each music track uses the glass recordings as musically-developed source audio alongside a variety of synthesizers, strings, keyboards, guitars, and voice sample. While similar to Jerram, Casacci did not offer any of his glass studio recordings for purchase or open access.

The Makers Marks lead composer also created a musical output derived from sounds of the hotshop, but this output was built entirely from the sounds of glassmaking and ensuing virtual instrument development. "Makers Suite" is a complete, eight–minute, music work with every sonic element traceable back to a source audio recording of the glassmaking process. Created to mark the occasion of the project's first exhibition in October 2016, the piece can now be heard on the project's website at http://www.inconcertwithglass.com/makers-suite.

Thus, while making sound effects and music from glass and glassmaking audio recordings is not wholly original and new to the field, "Makers Suite" is a new contribution in that it is a music composition derived entirely from glassmaking sounds. The audio library created from the Makers Marks project contains the only open access collection of glassmaking sounds processed with Binaural Auditory Scene Re-Synthesis, which works with sound isolation at the granular level. Additionally, the source audio and resulting virtual instruments developed during this project can now be used by other artists and designers to create standalone sonic artworks or complementary audio for visual media. The library is available for download on the project website also at http://www.inconcertwithglass.com/makers-suite: Library Sets 1–4 hold the source audio files of glassmaking sounds and Library Set 5 contains the new virtual instruments created from the source audio.

The project website is designed to appeal to a wide public of all ages and backgrounds. It uses clear text, many images, and the downloadable files are in a .wav format that most computers can easily open. The site is populated with the key words of "glass", "sound", "design", "art", "engineering", and "composing" for an audience in the creative industries. Additionally, younger high school and elementary students researching various topics, or hobbyists, might also come across it and find it useful. To further the project, safeguard the work, and continue to expand the audience, the team is currently searching for a larger, more established, digital repository with which to give the sound files. Perhaps the University of Edinburgh where the project is founded would be the first place to store the files for open access, scholarly, research purposes. The team is considering cataloguing the files from both the glass perspective and the sound perspective, while also offering the files in various formats to enable the study of the sounds in different ways.

Recording, preserving, and sharing the sounds of the glassmaking process through this digital, online library collection was a goal for the team, but the group also worked to expand its reach specifically within the Edinburgh community of its host institution to engage the public with the audio engineering and engineers' stories using glass art objects as vehicles in exhibition. Creating the audio library set the foundation for the interdisciplinary, collaborative research that followed to make the objects.

5. Sharing the Sounds of Glassmaking through Glass Art Objects

The team regrouped once a month after the recording session for discussion about the next steps for the project. They met in the glass studios, the recording studios, and over lunch outside of the workshop spaces. During these meetings, the lead visual designer pushed the members to find common ground among the interests and disciplines represented within the team: art/design, music/sound, and engineering. The team members each had different, specific interests in the project. For instance, after working with the sounds to clean them, the lead recording/audio engineer found it sonically interesting to separate form from frequency and discussed wanting to take his model of resonance and put it in different spaces. The lead visual designer, on the other hand, was most interested in the sound material that was left as remains of the glassmaking. There were, however, shared and overlapping

interests of the group that were noted in February 2016 meeting minutes as "interested in gesture . . . the performance of working the glass". The team members also agreed that they wanted to bring the source audio and new virtual instrument sounds back to the glass itself. To organize themselves and their work around that thought, they developed the team-unifying, practice-based research question: "How can we embed our recorded sounds of the glassmaking process back into the glass itself?" The team could not come to agreement on one approach to frame a single response because the team leaders interpreted the question in different ways. Instead, the group agreed to work concurrently on two glass projects, with both taking into consideration the need to fulfill the public engagement grant by highlighting the engineering or the engineers' stories within the art. The end result was a cohesive body of work, but the differing interpretations of the research question sent the art works in separate directions, which will be discussed in each of the output descriptions. Both research outputs incorporate digital technologies, glass objects, and highlight the engineering, but the "Sounding Glass" project, a glass object/musical instrument, approached the question rather literally, while "Glass in Translation", a series of glass objects paired with sounds, investigated it more abstractly.

5.1. "Sounding Glass": A Literal Approach to Embed the Sounds into Glass through Engineering

"Sounding Glass" is a glass object (see Figure 7) that allows the audience to explore sounds of glassmaking by touching and handling the glass piece itself. In the average user's hands, it is a performing object that can lead the audience on a pleasant sonic adventure, while in a trained musician's hands, it can also become a calculated, musical instrument-object of performance. As such, "Sounding Glass" follows in the long tradition of musical instruments created from glass and played by hand. Musical singing glasses were known in Persia as early as the 14th century (Apel 1972). These glasses, which were often wine glasses filled with water to various levels to generate specific pitches, were played by running wet fingers along the rims. In the mid-1700s Benjamin Franklin invented the glass armonica, a musical instrument of glass bowls tuned to notes by their varying size, fitted one inside the next with cork, and played by hand with moistened fingers (The Franklin Institute 2018). Even today, orchestras and musicians such as Robert Tiso (Tiso 2018) and DuoGlass (2018) continue to showcase singing glasses and glass harps in their performances. Contemporary glass artist Carrie Fertig takes glass musical instrument making to a new, live level with her Torcher Chamber Arkestra (Fertig 2018). In Torcher Chamber performances, Fertig creates glass percussion instruments with her torch working in front of live audiences and collaborates with professional musicians, who play them as she finishes making them.



Figure 7. "Sounding Glass" is a blown glass piece with a hollow interior housing copper strips and electronics. It measures 20 cm high × 30 cm diameter. (Image: Lisa Naas 2016).

"Sounding Glass", while related to these other instruments, differs significantly in that the physical glass of the object is not the emitter of the instrument's musical sounds. Rather, it is an

engineered, silent agent through which embedded sounds of the glassmaking are conveyed to the audience. The object's physical form (a convex, shallow vessel with dimples) is designed to directly reference the musical Hang or handpan, a metal instrument requiring both engineering and sonic sculpting in its making (Venuti 2018). Referencing the handpan with the object form is intended to alert the audience that the piece is played by hand. Handlers play "Sounding Glass" through touch and gesture, initiating the project's source audio recordings and/or the new virtual instrument sounds. These sounds were carefully selected and orchestrated together, sonically, to operate as one cohesive instrument of performance. The physical contact of hand on glass sends digital signals to a computer program that outputs sound to the audience through headphones (see Figure 8). In exhibition[4], the computer program that mediates the sound is displayed alongside the glass object so that the audience can also examine its audio engineering and programming, as its numbers and meters visually fluctuate during user interaction (also Figure 8).

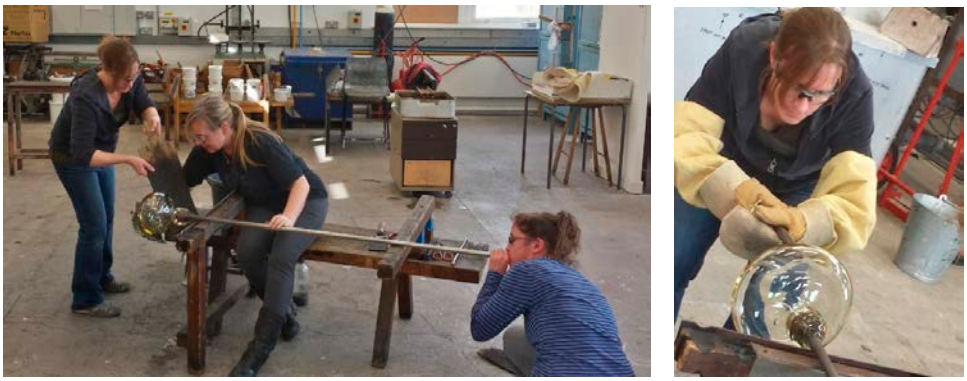


Figure 8. "Sounding Glass" played by a visitor to an open studio day in 2016 (Image: Alex Hall 2016).

5.1.1. Making the Glass for "Sounding Glass"

The lead designer, the lead composer, three glass artists, and one electrical engineer/computer programmer comprised the team that created "Sounding Glass". Tasks to develop the piece were initially divided according to fields of expertise, but ultimately, it took additional interdisciplinary subgroups working collaboratively to complete the work. Two prototypes were necessary before the final piece was created, but all work began in the glass studios with the artist subgroup creating the glass (Figure 9).

[4] "Sounding Glass" was exhibited three times for the local Edinburgh community in 2016: (1) as part of the Contemporary Glass Society's "Time to Share" workshop at the North Lands Creative Glass Conference hosted at Edinburgh College of Art in September, (2) with the Makers Marks open studio exhibition during the Edinburgh College of Art October Open Days, and (3) in November at Summerhall in a joint networking/exhibition/public engagement event with Edinburgh Hacklab and ASCUS Art & Science.



(**a**) (**b**)

Figure 9. Developing a "Sounding Glass" prototype: (**a**) Shows the team shaping the overall glass vessel form (Image: David Faleris 2016); and (**b**) shows the detail work of forming the dimples on the surface. (Image: David Faleris 2016).

5.1.2. Designing the Sound Touch Points for "Sounding Glass"

The composer, with the lead designer, mapped out where they wanted the touch points to be located on the glass object (Figure 10). To identify the touch points, they handled the prototype and discussed how a visitor might approach the glass form. The four prominent dimples on the glass object were both visual and physical focus points, cues like those of a Hang/handpan (Venuti 2018). The pair decided that these should be markedly different from the other touch points. Each dimple would end up being mapped to trigger different, active and dynamic source sounds of the glassmaking process (e.g., marvering, flashing hot glass in water). The remaining topside of "Sounding Glass" was linked to various passive and static source sounds from the hotshop, such as the steady running furnace, while the underside of the object was set up to trigger selected virtual instrument sounds created by the sound design team.

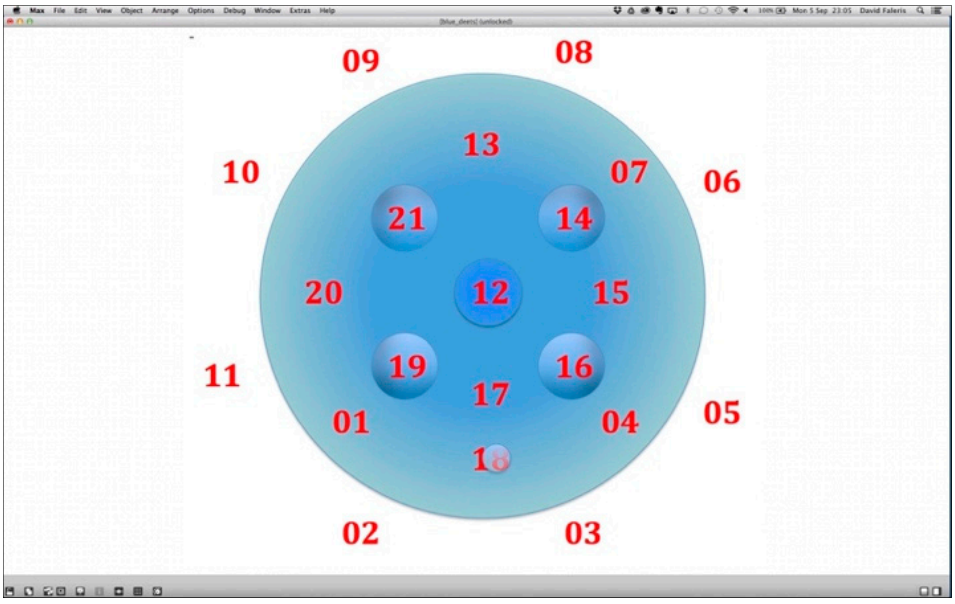


Figure 10. The composer's drawing shows the glass object from an aerial perspective and indicates the 21 touch points linked to sensors attached within the glass hollow inside. (Image: David Faleris 2016).

Every sound mapped to the object was carefully curated to ensure a harmonious playing experience. All sound volumes were adjusted to match one another, and all audio files were prepared as seamless loops so the user could hold a hand to the object without the sound ever breaking.

5.1.3. Making "Sounding Glass" Sound

"Sounding Glass" works because the electrical engineer and the composer combined their skills to allow touch to trigger and alter sound. The hollow interior of "Sounding Glass" is a complex scheme of Arduino boards and electronics that use copper strips attached to the interior glass surface to conduct human capacitance—natural human electrical charge (Figure 11).



(**a**) (**b**)

Figure 11. Prototyping "Sounding Glass" and testing copper strip capacitance: (**a**) Prototype II showing the entire glass piece (Image: Lisa Naas 2016); and (**b**) prototype I showing a close-up of a copper strip (Image: Lisa Naas 2016).

The engineer programmed "Sounding Glass" so that, when one turns it on, it reads the sensors and calibrates according to the first person that touches it and sets parameters based on that first handling. Once activated and calibrated, the capacitance drives the Max/MSP program (Figure 12), custom-built by the lead composer to run on a computer attached to the object. User touch is not pressure-sensitive; pushing harder will not make the sound louder. Rather, the amount of the copper strip covered by the user's fingers or hand directly correlates to the playback volume. The programming also includes support for common user gestures such as swiping, which further alters the handler's sound experience.

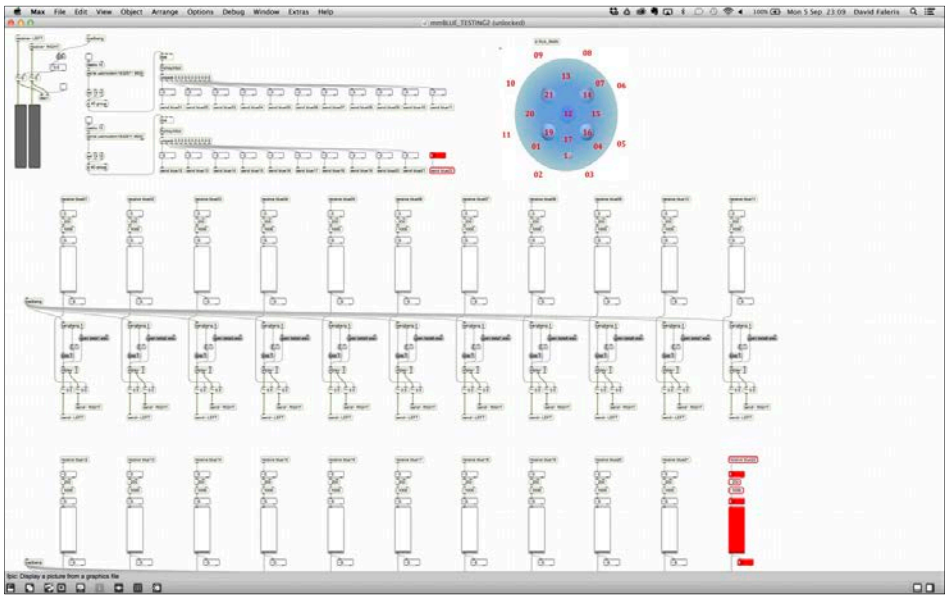


Figure 12. Max/MSP (Cycling '74, San Francisco, USA) screenshot showing real-time capacitance levels for each copper strip sensor, determining which sound files play back at correlating volumes (Image: David Faleris 2016).

5.2. "Glass in Translation": Abstractly Embedding the Sounds and Audio Engineering into the Glass

"Glass in Translation" developed concurrent to "Sounding Glass", with its team interpreting the research question more loosely as a catalyst for a conceptual artwork. Academic philosophers Peter Goldie and Elisabeth Schellekens debate "concept" in art within their introduction to *Philosophy and Conceptual Art* and argue that if approached philosophically and inclusively, "conceptual art" has certain characteristics in common, including an emphasis on ideas (Goldie and Schellekens 2009, p. xii). Schellekens goes as far as to say that the idea is the art and that the idea is the material of the art work, relying on similar words used by conceptual artist Sol LeWitt in 1967 to develop her argument (Schellekens 2009, p. 74). Philosopher Wesley D. Cray (Cray 2014, p. 235) acknowledges that the academic consensus is that "conceptual art" is about ideas, but challenges Schellekens' more extreme view, positing instead that "conceptual artworks are not ideas but art[e]facts imbued with ideas". For "Glass in Translation", the question of "embedding" was less about literal placement of the sound in glass and more about bringing the idea of the sound back to the glass material, from where it originated. During its making, the "Glass in Translation" subproject provoked the team to question and debate the idea and nature of sound and of glass, while the final work is offered to the audience to consider the same: Is the sound in the glass? Is the glass the sound?

For "Glass in Translation" three newly developed virtual instruments from the glassmaking source audio were the focal points. The team that worked on "Glass in Translation" included the lead designer, the lead composer, three glass artists, and two audio engineers/sound designers. The project aimed to highlight the use of the metaphorical language and analogies found in the dialogue among the team members, especially that of the audio engineers as they worked to articulate their design and processes during the collaboration. The lead composer and the audio engineers each provided one of their own newly developed virtual instruments to the lead visual designer. The instruments were each delivered as a single audio file, along with a title, and a written description of the sound. The lead designer considered these her raw materials, containing the idea of the sounds, which she was to return to the glass as designed objects. Based on her personal reading, listening, and understanding of these materials, she translated all of them into sketches, using pen, paper, and Photoshop (Adobe, San Jose, CA, USA). Working collaboratively in the hotshop, she and the glass artists then realized the sketches as objects, putting the idea of the sounds back into the glass. The glass, the audio, and the written descriptions of the sounds are all displayed together when in exhibition[5], with each set of glass objects corresponding to a new virtual instrument sound (Figure 13).

Musicians, composers, and audio engineers sometimes describe sound using visual language in terms such as "colour", "texture", "shape", "weight", and others (Feeney 2016), while some go as far as to refer to entire compositions as sound paintings (Levitin 2007, p. 55). This is a metaphorical way to communicate the information and is particularly useful in discussing abstract sonic concepts. It is commonplace and no longer so obvious as a metaphor, but it is visual language found within the aural. This visual language was quite common within the conversation among the team members, especially as the audio engineers and composer discussed the sounds with members from other disciplines. This visual in the aural is an intersection point between music and visual art and was the focus of this second subproject.

---

[5] "Glass in Translation" was exhibited three times for the Edinburgh community for public engagement with engineering: (1) as part of the studio showing for the Edinburgh College of Art Open Days in October 2016, (2) in exhibition for the Summerhall networking event with Hacklab and ASCUS Art & Science in November 2016, and (3) in the National Museum of Scotland for the 2017 Research Through Design Conference.



Figure 13. The full collection of glass objects that comprise "Glass in Translation". From left to right: "Italian Nightmares", "Makers Whirlpool", and "Ewok Machine". (Image: Alkistis Terzi 2016).

The metaphor is most widely recognized as a literary device, featuring prominently in such lyric writing as poetry and fiction. In using it, the writer describes 'x' as 'y', implying that associations with 'y' can be carried over to 'x' to offer a deeper understanding of 'x'. Jan Zwicky (Zwicky 2013, p. 1), author of *Lyric Philosophy* and developer of lyric inquiry, describes the metaphor as "the linguistic expression of the results of focused analogical thinking". In *I Is an Other*, writer James Greary (2011) puts forth arguments based on historical evidence and linguistics for the metaphor being the basic building block to communication, comprehension, invention, and discovery. Greary (2011, p. 20) posits that metaphors are much more than literary devices or even devices of lyric inquiry, as he states that "metaphorical thinking is the way we make sense of the world, and every individual metaphor is a specific instance of this imaginative process at work". He asserts that "metaphors are therefore not confined to spoken or written language" (Greary 2011, p. 20). In *Mental Leaps: Analogy in Creative Thought*, the cognitive scientists Holyoak and Thagard (1999, p. 5) discuss metaphor or analogy, as "model-building in the mind to understand something in the world". They explain that carrying over associations from the source analog (the known domain with familiar, learned patterns) to the target analog (the relatively unfamiliar domain) is the essence of analogical thinking (Holyoak and Thagard 1999, p. 2). Just as Greary describes metaphor, Holyoak and Thagard (1999, p. 9) also write how this 'carrying over' develops a systematic set of correspondences between the source and the target so that one can see the thing as if it were another, "creating a tension between two perspectives: the thing as itself and the thing as something else". Most interestingly, they write that analogy by "its very nature freely oversteps the traditional boundaries between knowledge domains, making it possible to use ideas from one domain to achieve insights in another" (Holyoak and Thagard 1999, pp. ix–x). They argue that analogy allows our minds to form ideas that are "beyond sensory experience" and "out of our realm of understanding" (Holyoak and Thagard 1999, p. 10). In other words, through analogical thinking, we can understand the unknown, the unfamiliar, and the new.

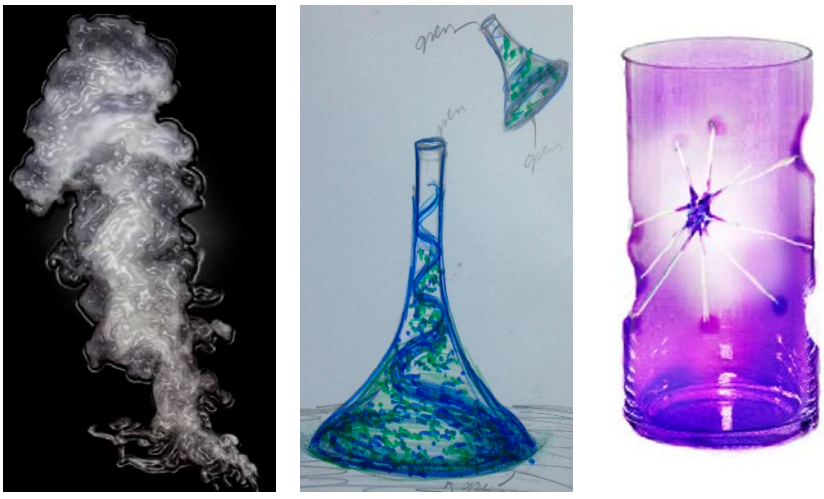
Thus, metaphors are literary devices, linguistic expressions, and tools for human understanding. They are also techniques used within the creative process. Glass, with its unique blend of physical properties as well as intangible qualities and various functions in society, is well-suited for use as a visual metaphor material to help describe the new. In the case of "Glass in Translation", the virtual instruments were the new and unknown.

5.2.1. Describing New Virtual Instrument Sounds

The lead visual designer requested that the sound designers and composer each choose one of their own new virtual instrument sounds and describe them to her in writing. She requested that they use the visual language and terms common to both disciplines, such as colour, shape, texture, and weight. They responded, not with synesthetic reactions[6], but with thoughtful, considered responses about their new sounds. The lead composer offered the following description of his new sound as:

> Funnel or cone shape, wide base . . . perfectly round, perhaps slightly distorted or static-y in texture, but solid and strong. Comes up to a hollow and thin vertical pipe shape on top, clean and free of distortion/static. The color also moves from dark at the base to light on top. Dark blue/green on up to something more transparent and light. A small sweeping gesture of color runs through for one moment in the middle . . . not parallel nor perpendicular, but at an angle, as if being sucked towards the top but in a circular motion . . . almost like a reverse whirlpool or black hole. (Faleris 2016)

He had used several of the source sounds recorded from the glassmaking to create his new virtual instrument, which he titled "Makers Whirlpool". The composer and sound designers provided no other explanation to the lead designer and no other discussion of the new sounds took place. The lead designer spent time listening to each sound with headphones when she had the written descriptions to accompany them. Then, using the composer's and sound designers' written descriptions like the one above, along with her own experience listening to the new sounds, the visual designer created sketches for new glass pieces (Figure 14). She took these drawings, along with the words and sounds, to the glass technicians/artist team. Together, they listened to the audio files, discussed the written words as well as the sounds they were hearing, and debated how to visualize each in glass. Then they proposed and considered various techniques and approaches for realizing the sketches in glass, producing a plan for each piece before the studio work began. For each of the three sounds, they made two attempts in glass. Together these six pieces along with the three sounds comprise "Glass in Translation" (Figure 13). The glass pieces have the same titles as what the composer and sound designers offered.



(**a**) (**b**) (**c**)

Figure 14. Sketches based on new sounds and their written descriptions: (**a**) Computer generated sketch for "Italian Nightmares" sound (Image: Lisa Naas 2016); (**b**) pencil/pen sketch for "Makers Whirlpool" (Image: Lisa Naas 2016); and (**c**) computer generated sketch for "Ewok Machine" (Image: Lisa Naas 2016).

[6] Discussion among the team members confirmed this after the project.

5.2.2. Challenges and Team Responses

Two issues—communication and traditional studio practices—repeatedly challenged the team throughout the work on the Makers Marks project, and specifically during the making of "Glass in Translation". Working across disciplines required all members to have basic knowledge of terms and language used by the group members. This was necessary in order to have productive conversations about the various processes and techniques they were using. It meant withholding assumptions and asking many questions. Additionally, as the team was working with new works in sound, the lead designer felt that it was important for the team to push away from the traditional within the glassmaking process. This was new, frustrating, and exciting for everyone involved. Most interestingly, the team instinctively turned to simile and metaphor in the conversation to respond to the challenges. "Italian Nightmares" offers a good example and some evidence to support how the team used analogy as a tool within the process of creating this work.

Sound designer Alessandro Mastroianni's description of his new virtual instrument, which was based on the source audio of wet newspaper shaping hot glass, was the most difficult for the visual team to understand:

> a very heavy looking sound. Despite its weight though, it doesn't have any snapping quality, telling me that [it] is, again, rather smooth than sharp. The color of this one is a transparent, dark grey. (Mastroianni 2016)

The lack of a definitive shape was the most puzzling to work out technically. After listening to the sound and reading the composer's description, the lead designer's immediate response was to associate with the words "roiling", "patterns in boiling", and "bubbles from boiling". She tried to explain this and her sketch (Figure 14a) to the glass technicians assisting her. She asked for creative input on how to trap air within the piece. The lead glass technician suggested using a reaction between bicarbonate soda and the hot glass by sprinkling the bicarbonate soda over the piece to create bubbles as they pulled and twisted the material into a sculpture (Figure 15).



Figure 15. Two of the glass team members pulling and twisting the hot glass during the first attempt to make "Italian Nightmares" (Image: David Faleris 2016).

The result, however (shown in Figure 16), was missing an intangible quality that the team all heard in the sound, but struggled to articulate.



Figure 16. The glass output from the first attempt at creating "Italian Nightmares" (Image: Lisa Naas 2016).

Prior to the next attempt at making "Italian Nightmares", the visual team returned to talking about what they had heard in the sound and what that might look like in glass, while still maintaining the visuals and idea of the sound offered by the composer words. The lead designer conferred with the lead composer about the sound for his fresh ears and words. He said that Mastroianni's sound "sounded like a growing virus or an infection". His simile gave the lead designer what she needed to redesign the glass piece and attempt the work again with the technicians. She pushed hard for the group to break out of what was traditional with the glass and to exploit the material in the same way they were trying to exploit the language and the source sounds. The composer and lead designer discussed this idea of "virus" and "infection" with the technicians. The designer explained that, in glass, she thought the composer's "virus" was akin to her "roiling bubbles" overtaking the glass.

On the second setup, the glass team used an inordinate amount of bicarbonate soda to create the piece (Figure 17) and actually ended up contaminating the whole furnace pot of glass, making for major clean-up work at the end. In traditional glassmaking, bubbles are often considered as flaws. In fact, a single bubble is sometimes enough to ruin a work. Glassmaking has a deep tradition in Italy and given that the virtual instrument was entitled "Italian Nightmares", it fit the project to reconsider the bubbles that are often seen as a glassmaker's nightmare. "Italian Nightmares II" highlights the bubble growth on the smooth body of the traditionally formed glass vessel (see Figure 18) and is a play on words with the title.



Figure 17. Making "Italian Nightmares II"; the white colour is the bicarbonate soda on the glass (Image: David Faleris 2016).



Figure 18. Portrait of "Italian Nightmares II" (Image: Alex Hall 2016).

6. In Exhibition

While the Makers Marks project offers images of "Sounding Glass" and "Glass in Translation", the physical object outputs are best viewed and handled in person for a full experience. During the period of the Ingenious Award, the team collaborated with a number of organisations in a variety of settings to engage the local, diverse Edinburgh community with the project and the engineering behind the artworks (see Footnotes 4 and 5, on pages 9 and 13 respectively). At all of the events, lead team members were available to discuss the project and the engineering with the visitors. Niche conferences like the 2016 North Lands Creative Glass Conference and the 2017 Research Through Design Conference drew specific audiences that were primarily academic in nature and geared toward specific themes, but other opportunities allowed more general access. Prospective arts students, parents, and staff toured the hotshop with the Makers Marks objects in exhibition at Edinburgh College of Art during its Open Days. At Summerhall, a networking event (Figure 19) in collaboration with the Edinburgh Hacklab and the ASCUS Art & Science organisation enticed a crowd of all ages with artists, engineers, academics, scientists, students, and hobbyists in the audience. The events allowed the team members to present the work from differing perspectives based on the audience or theme, while highlighting various aspects of the multi-pronged project.



Figure 19. Audience members interacting with the Makers Marks objects in exhibition at the November 2016 Summerhall networking event, presented by the Makers Marks Collaborative in conjunction with Edinburgh Hacklab and ASCUS Art & Science (Image: Alex Hall 2016).

7. Conclusions

The interdisciplinary, collaborative project pushed the investigation, preservation, and dissemination of the sounds of the glassmaking process further than has been done before, as evidenced in the project's open access sound collection, processed with Binaural Auditory Scene Re-Synthesis, and the resulting virtual instruments and "Makers Suite" music composition. By sharing the sounds through digital technologies and art objects, the project reaches out to a wide, public audience. "Sounding Glass" and "Glass in Translation" convey the audio engineering and the engineers' visions as part of the glass art works, engaging the audience with the making process. Removing the sounds so completely from the glass workshop setting, and using them in these other forms, enabled study of them as sound data and sound art material in their own right. The project elevated the sounds, initially only the remains and exertion of the glass making process, and placed them before the team and audiences to consider as more than just makers marks.

Throughout the project, the team questioned the nature of glass, sound, blurred design roles, and the marks of the makers process. Instinctively and purposefully, the team members used metaphor as a communication bridge, both in language and in visuals. This allowed the group to articulate the new and the unfamiliar and to relay artistic processes to those outside of the disciplines. In retrospect, the team members realized that they used many more analogies in the work than had even been intended. This early work suggests that metaphor could be a useful tool for interdisciplinary, collaborative work in the studio to relay processes and visions, as well as to communicate across fields. More research, such as a design protocol study, is needed to document pointedly the use of metaphor, similes, and signs of analogical thinking during art and design, interdisciplinary, collaborative projects. Perhaps there are patterns of use that indicate the potential for working groups to succeed at their aims or to innovate.

The glass workshops also proved to be an ideal staging ground for the interdisciplinary work of the project. The versatile, ubiquitous material of glass, with its various physical properties and states, enabled associations across disciplines. Through these associations, commonalities among the team members were identified, which facilitated communication and ultimately, collaboration.

Author Contributions: Funding acquisition, project administration, supervision, writing—original draft: L.N.; software: D.F.; conceptualization, data curation, formal analysis, investigation, methodology, resources, visualization, writing—review and editing: L.N. and D.F.

Funding: This research was funded by a 2015 Ingenious Award from the Royal Academy of Engineering, grant number ING1415\9\228.

Acknowledgments: The Makers Marks Collaborative is a multi-disciplinary team comprised of artists and engineers of various stripes, some of whom played numerous roles throughout the project work for the audio library, "Sounding Glass", and "Glass in Translation". For the purposes of this article, specific names were not attached to various subprojects and tasks, so as to highlight the roles rather than the individuals. Thank you to the entire team for your contributions to the project, and for your creativity, your patience, and your willingness to experiment! We would like to acknowledge each team member here: Lisa Naas (conceptualization, funding acquisition & management, lead visual designer), David Faleris (lead composer/sound designer/computer programmer), Marcin Pietruszewski (lead recording/audio engineer), Al Bennett (lead electrical engineer/computer programmer), Ingrid Phillips (glass technician and artist), Alan Horsley (glass artist), Alkistis Terzi (photographer, videographer), Meg McGregor (glass assistant), Alessandro Mastroianni (sound designer/engineer), Antriksh Bali (sound designer/engineer), Xueran Chen (sound designer/engineer), Laura Reed (glass assistant), Zuzana Michlerová (sound designer/engineer), George Karpasitis (sound designer/engineer), Alberto Vásquez (sound designer/engineer), Cara Clay (sound designer/engineer), and Alex Hall (photographer). We are most grateful to the Royal Academy of Engineering for the Ingenious Award which enabled the project and public engagement with the engineering of our artworks. We would like to thank the Edinburgh College of Art for its generous hosting and support of this project, with special thanks to the Glass Department.

Conflicts of Interest: The authors declare no conflict of interest.

References

Apel, Willi. 1972. Glass Harmonica. In *Harvard Dictionary of Music*. Cambridge: Harvard University Press, pp. 347–48.

Casacci, Max, and Daniele Mana. 2018. Glasstress. Available online: https://badpandarecords.bandcamp.com/album/max-casacci-daniele-mana-glasstress (accessed on 29 November 2018).

Corning Museum of Glass. 2002a. About Us. Available online: https://www.cmog.org/about (accessed on 14 January 2019).

Corning Museum of Glass. 2002b. Live Streaming. Available online: https://www.cmog.org/programs/live-streaming (accessed on 14 January 2019).

Cray, Wesley D. 2014. Conceptual Art, Ideas, and Ontology. *The Journal of Aesthetics and Art Criticism* 72: 235–45. [CrossRef]

DuoGlass. 2018. GlassDuo: Crystal Clear Music. Available online: http://glassduo.com/en/ (accessed on 14 January 2019).

Faleris, David. 2016. Makers Whirlpool. e-mail to Lisa Naas. June 10.

Feeney, Shawn. 2016. The Common Language of Visual and Musical Art. Available online: http://www.shawnfeeney.com/2016/03/the-common-language-of-visual-and-musical-art/ (accessed on 14 January 2019).

Fertig, Carrie. 2018. Torcher Chamber Arkestra. Available online: http://www.carriefertig.com/torcher-chamber-arkestra (accessed on 29 November 2018).

Fondazione Berengo. 2018. Glass Fever. Contemporary Art in Glass. Available online: http://www.fondazioneberengo.org/ (accessed on 5 March 2016).

Goldie, Peter, and Elisabeth Schellekens. 2009. *Philosophy and Conceptual Art*. Oxford and New York: Oxford University Press.

Greary, James. 2011. *I Is an Other: The Secret Life of Metaphor and How It Shapes the Way We See the World*. London and New York: HarperCollins e-books.

Holyoak, Keith, and Paul Thagard. 1999. *Mental Leaps: Analogy in Creative Thought*. Woburn: The MIT Press.

Jerram, Luke. 2019. Keep on Turning. Available online: https://www.lukejerram.com/keep-on-turning/ (accessed on 14 January 2019).

Jones, Andy. 2017. The Essential Guide to Virtual Instruments. Available online: https://www.musictech.net/2017/08/essential-guide-virtual-instruments/ (accessed on 12 January 2019).

Klein, Dan. 2001. *Artists in Glass*. London: Mitchell Beazley.

Klein, Dan, and Ward Lloyd. 1991. *The History of Glass*. London: Black Cat.

Levitin, Daniel. 2007. *This Is Your Brain on Music*. London: Atlantic Books.

Makers Marks. 2016. In Conversation with Makers Marks. Available online: http://www.inconcertwithglass.com/single-post/2019/01/29/In-Conversation-with-Makers-Marks/ (accessed on 29 January 2019).

Mastroianni, Alessandro. 2016. Italian Nightmares e-mail to Lisa Naas via David Faleris. April 13.

Museo del Vetro. 2019. The Museum. Available online: http://museovetro.visitmuve.it/en/il-museo/museum/ (accessed on 14 January 2019).

National Glass Centre. 2013. Free Glass Blowing Demos. Available online: http://www.nationalglasscentre.com/visit/onyourvisit/freeglassblowingdemonstrations/ (accessed on 14 January 2019).

O'Connor, Erin. 2007. Hot Glass: The Calorific imagination of glassblowing in practice. In *Practicing Cultures*. Edited by Craig Calhoun and Richard Sennett. London and New York: Routledge.

Royal Academy of Engineering. 2019. Ingenious: Public Engagement Awards. Available online: https://www.raeng.org.uk/grants-and-prizes/ingenious-grant/ (accessed on 29 January 2019).

Schellekens, Elisabeth. 2009. The Aesthetic Value of Ideas. In *Philosophy and Conceptual Art*. Edited by Peter Goldie and Elisabeth Schellekens. Oxford and New York: Oxford University Press.

Soniccouture. 2018. Glass/Works. Available online: http://www.soniccouture.com/en/products/28-rare-and-experimental/g14-glass-works/ (accessed on 29 November 2018).

The Franklin Institute. 2018. Franklin's Glass Armonica. Available online: https://www.fi.edu/history-resources/franklins-glass-armonica (accessed on 25 April 2018).

Tiso, Robert. 2018. Robert Tiso. Available online: http://www.roberttiso.com/ (accessed on 14 January 2019).

United Studio Effects. 2012. Sound Effects, Vol. 7. Available online: https://www.amazon.com/Glass-Blower-Flame-Sounds-Igniting/dp/B008MIJS14 (accessed on 13 January 2019).

Vávra, Jaroslav Raimund. 1954. *5000 Years of Glass-Making: The History of Glass*. Prague: Artia.

Venuti, Matt. 2018. The Hang Instrument. Available online: http://www.mattvenuti.com/hang-instrument/ (accessed on 14 January 2019).

Vienna Symphonic Library. 2018. Glass Instruments. Available online: https://www.vsl.co.at/en/Elements/Glass_instruments (accessed on 29 November 2018).

Zwicky, Jan. 2013. What is Lyric Philosophy? An Introduction. *Common Knowledge*. Available online: http://commonknowledge.dukejournals.org.ezproxy.is.ed.ac.uk/content/20/1/14.full.pdf+html (accessed on 5 March 2016).



© 2019 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (http://creativecommons.org/licenses/by/4.0/).

Appendix K.

‘Play with Fire: Glass Concepts’

Edinburgh Innovative Learning Week, 2016

FESTIVAL + FUNDING APPLICATION FORM

Complete this application form to include your event in the Innovative Learning Week programme from 15-19 February, 2016. Further guidance is provided in the Event Submission section of the ILW Handbook available online at www.ed.ac.uk/innovative-learning.

Please complete the pink boxes. Applications are due by 5pm on November 4 and details for submission are at the end of this document.

YOUR DETAILS

Full name. *This will be the main contact for the application*	Lisa Naas, PhD Student, Design		
Contact email	[redacted]		
Contact phone number	[redacted]		
School | Department | Support Service | Society | Other	ECA Glass Department, School of Design		
Staff UUN			
Student UUN	[redacted]		
Are there any other people involved?	Name	School | Department | Support Service | Society | Other	Email
	Ingrid Phillips	ECA Glass Technician	[redacted]
	ECA alums	Glass artists	TBD

YOUR EVENT PROPOSAL

Event title	Play with Fire: Glass Concepts
Type of event. *Refer to page 25 of the ILW Handbook for a list of formats.*	An interdisciplinary, hands-on, exploratory, multi-day workshop
Brief event summary. *If successful, this could be used in publicity.*	Join us in the ECA Hotshop for a hands-on experience with glass! Are you a poet? A musician? An anthropologist? An engineer? A physicist? A fashion designer? Meet students from around the University to consider "glass" from the lens of your discipline. First, participate in a round-table discussion about "glass" and sketch, write, or construct ideas. Then experience the heat and excitement of the hotshop with a demonstration and beginner skills session. Watch selected sketches be brought to life by skilled glass artists and technicians and contribute to ongoing research about the production of ideas at the intersection of disciplines.

Proposal outline. *Describe your event in greater detail including core aims and impact.*	This workshop aims to introduce participants to glass, to the hotshop, and to associative, creative thinking. It seeks to explore the following questions: What might happen to creative outputs if new-to-glass participants approach glass from a conceptual perspective, viewing it through the lens of their personal disciplines? What pre-conceptions exist about studio glass and glass-making among those not familiar with the medium? How might outputs differ among those approaching glass conceptually first versus those introduced to the medium and its tradition first? The workshop seeks to create a hands-on learning environment that fosters creative thinking in an interdisciplinary group setting to encourage idea production. Groups A and B will be created from the list of students who sign up for the workshop and will be divided to create smaller, mixed-discipline units. Group A will meet in the Glass Department Seminar room first to have a conceptual conversation about "glass," considering it through the lenses of their disciplines. Then they will sketch ideas about glass…in words, in images, in constructions as a group and individually. After a brief overview, Group A will then have a hotshop introduction with demonstration and will have the opportunity to do beginner exercises with glass. Group B will follow a similar schedule but will be given the overview of the tradition of glass before discussing glass through their disciplines and before they sketch. After, they will have a hotshop demonstration and beginner skills session. Both A and B groups will be invited to watch selected sketches from the seminars be "brought to life". Together we will discuss how concepts and interdisciplinary discussions of "glass" may have influenced sketch ideas. Participants will be surveyed to help organizers understand participant experiences and how conceptual discussions around glass might influence creative outputs in the hotshop and engage new audiences.
Describe how your idea ties into the theme of *Ideas in Play* and the values of ILW. *ILW values include openness, collaboration, creativity, experimentation, experiential learning, and celebratory. Refer to the ILW Handbook further information.*	Play is the basis of the workshop! Participants will "play" with the idea of "glass" and the word itself in an associative way. Play with "glass" could lead to an interplay of ideas and creative sparks from various discipline perspectives. To view "glass" conceptually as a word, as an idea, and to consider the associations held within the term itself (before actually approaching the medium) is untraditional, exploratory play in glass practice. As important though is the play and excitement around "handling" hot glass and having a brand new experience with a making tradition rooted in centuries of history.

What are the anticipated learning outcomes for both organisers and audience members? *Refer to page 27 of the Handbook.*	Participants: Creatively thinking about glass from their disciplines could open up new avenues within their studies or spark a connection with new ideas. Interdisciplinary group dialogue could highlight how different approaches, attitudes, and perspectives shed light on the understanding of a "thing". Participants will learn the basics of glass tradition, hotshop basics, and creative thinking. Organizers: Participants would help teach organizers about communicating "glass" from an interdisciplinary perspective. If conceptual, interdisciplinary discussions around glass influence creative outputs in the hotshop, this could lead to new ways of engaging audiences and introducing glass; the workshop could be a case study.
What would success look like and how might you measure it?	Participants might want to further their experience of glass with elective courses or individual study projects. Word of mouth would spread the news about the glass facilities and open-access to all students. Success would also show out-of-the-box thinking within the participant sketches of "glass" and potentially open up new thoughts around approaching the new medium. Success would be in positive feedback within the surveys. From the organizers' point of view, success would also be in the collection of qualitative data for analysis around creative thinking and idea production.
Please list up to 5 tags for your event. *i.e. media, technology, global issue, skills development, etc*	Glass Concepts, Interdisciplinary, Hands-On, Exploratory, Creative Thinking

AUDIENCE

Who can attend? *Please underline all that apply. Keep in mind that we prioritise events open to a diverse range of groups.*	☐ *Undergraduate students* ☐ *Postgraduate students* ☐ *Academics* ☐ *Professional services & support staff*	☐ *Members of the community* ☐ *Alumni* ☐ *Other*
If attendance is restricted, please explain why.	Access to the hotshop is in high demand by glass students, material practice students, product design students and other design students. The workshop is aimed at other University students and academics who might not have such easy access or a specific project to draw them to the glass studio. The workshop is seeking new-to-glass participants and aims to draw attention to the glass studios and engage new facets of the University. As so few spaces are available, and access is not easy on a regular basis, it is the hope of the organizer that these spaces be given first to students and academics and then to support staff and members of the community and such.	
Estimated max potential attendees for each event you are planning. *Keep in mind that the bigger the event doesn't necessarily mean the better, so don't feel pressure to run a large event*	24 total participants (12 in group A and 12 in group B) (the hotshop can handle only 6 people during one session)	

POTENTIAL VENUE | TIME

Proposed venue or type of venue needed. *This doesn't need to be confirmed just yet and is subject to change.*	The Glass Hotshop and Glass Department Seminar Room of the Hunter Building at ECA
Proposed dates and times. *This doesn't need to be confirmed just yet and is subject to change.* *Please indicate if events are one-off, repeated, series of linked events (where you need to attend all) or a series of drop-in events.*	*Monday, 15 February* 9:00- 10:30 Group A (12 students) meets in the Seminar Room to discuss "glass" and sketch ideas 10:30-12:30 Half of Group A (6 students) meet in the Hotshop for demo and introduction exercises 12:30-1:30 Break 1:30-3:30 2nd Half of Group A meets in Hotshop for demo and exercises *Tuesday, 16 February* 9:00-10:30 Group B (12 students) meets in Seminar Room to discuss "glass" and sketch ideas 10:30-12:30 Half of Group B (6 students) meets in Hotshop for demo and exercises 12:30-1:30 Break 1:30-3:30 2nd Half of Group B (6 students) meets in Hotshop for demo and exercises *Friday, 19 February* Group A meets in the morning to watch a realization of a sketch or two in the Hotshop; Group B meets in the afternoon to see sketches from their session created in the Hotshop.

FUNDING

If you are not applying for ILW funding, you do not have to complete this section. *You will find more guidance on funding in the Handbook but do keep in mind that if you are a student and depending on your School, student-led events may have to be reimbursed for their expenses after the payment is made.*

Please indicate how much you are requesting. *ILW offers up to £300 for events during the week.*	*£300*
Breakdown of requested costs from ILW *Refer to the ILW Handbook for further guidance of what we will fund. To clarify on a point in the Handbook, the maximum you can apply for to cover catering costs is £225 (75% of £300) as opposed to 75% of the total amount requested for your event.*	£35 for sketching supplies (paper, markers, pens, pencils, watercolors, clay, paper, etc.) £200 for glass artists honoraria (two ECA alums will be invited back for the workshops-100/person) The two glass artists are key to the events because glass-making is often very collaborative work. To realize the final sketches and do the demos, a couple artists will be needed. Additionally, for the beginner exercises, it is best that there is a good ratio of teachers to students. As ECA alums from the glass department, they will also be good ambassadors to talk about the facilities and offerings of department and glass in its use with other materials and various projects. £50 GBP for glass supplies £15 for tea and snacks to be offered as part of the Seminar Room discussions

Are you planning on charging ticket prices for your event? *If so, please indicate the cost of the tickets and why you aren't able to make the event free.*	*no*

SUBMISSION CHECKLIST

- ☐ Be in contact with your School Coordinator (if applicable) about your application.
- ☐ Save this application as EventTitle_YourSurname_ILW2016
- ☐ Email to ilw@ed.ac.uk by 5pm on Wednesday, 4 November and CC in your School Coordinator.
- ☐ If you are successful, we will be in touch with you by Friday, 20 November. We will then invite you to a special Event Organiser online Basecamp with further information and dates. You will be asked to attend an ILW Meet-Up on Wednesday, 25 November to proceed onto confirming details about your event. We will need your event in the University Booking System by 7 December when we launch the calendar.
- ☐ If unsuccessful, we will contact you to let you know and offer guidance on other channels of support.

From: LEARNING WEEK Innovative Learn Wk [redacted]
Subject: ILW Application Outcomes
Date: 19 November 2015 at 1:35:29 am GMT
To: [redacted]

Dear Lisa,

Congratulations!

You have been awarded 300£ for your event – Play With Fire: Glass Concepts to take place during Innovative Learning Week from 15-19 February, 2016. After seeking input from our network of School Coordinators and taking your application to the ILW Festival Committee – we agreed that your event not only fit within the ethos of ILW and Ideas in Play, but was worthy of financially supporting. Well done!
We wanted to share with you some key information that you need to know as an event organiser.

Innovative Learning Week Meet-Ups
The ILW Meet-Ups are a great way to gain useful information and meet people running events.

- Wednesday, 25 Nov at 4pm – ILW Meet-up on Logistics. We will have representatives to speak about health & safety, room bookings, and catering to help you work out the details to your event.
- Wednesday, 25 Nov at 1pm – ILW Sustainability Meet-up with Edinburgh Centre for Carbon Innovation & Office for Sustainability and Social Responsibility
- Thursday, 26 Nov at 11am – ILW Art/Science Meet-Up with Ascus, an art science collective
- Monday, 30 Nov at Noon – ILW Student Arts Meet-Up with the Edinburgh Student Arts Festival
- Wednesday, 9 Dec at 4pm – ILW Meet-up onPromotion. Eve from service designer agency Snook will come and talk about her tips about promoting your event.

You can sign up for these events here: http://innovative-learning.eventbrite.com/

Basecamp
To replace the ILW wiki from last year, we are hosting an online Basecamp platform for all event organisers. This is a space to share resources, allow event organisers to connect, and make it easy to ask questions and get answers. We will be sharing hints & tips here and also key deadlines. As an accepted award winner, you get access!

7 December – launch of calendar!
We will be emailing you shortly with information on how to upload your event information to our booking calendar. This needs to be done by 7 December. Catering and room bookings is up to you but we can help if you need.

What's next?
Please confirm that you have received this email. We won't be expecting receipts for your expenses, but we will ask for a brief rundown of expenses after the Festival. If you have any funding leftover, please email us and we can discuss other possibilities further.
We have also CC'ed in your School Coordinator (name of School Coordinator/s) who can offer you guidance on your event on a local level and who will be accepting the funding transfer for your funding. You can always email the ILW team as well for assistance.

Thanks again for all your hard work and we can't wait to work with you this year!

Innovative Learning Week
Ideas in Play
15-19 February, 2016
www.ed.ac.uk/innovative-learning
#ilw16

The University of Edinburgh is a charitable body, registered in Scotland, with registration number SC005336.

INNOVATIVE LEARNING WEEK

16, 17, 19 February

Play with Fire: Glass Concepts

Hunter Building, 3rd FL, R3



www.innovativelearning.ed.ac.uk / #ILW16

15 - 19 FEB

IDEAS IN PLAY

THE UNIVERSITY of EDINBURGH

Informed Consent Form

To: Lisa Naas, PhD Student, Design (ECA)

From (Name):

Address:

Contact number:

Email:

Date: 16 February 2016

Project Title: **Play with Fire: Glass Concepts**

Project Summary: Student participants from various disciplines throughout the University will come together to contribute to ongoing research about the production of ideas at the intersection of disciplines. Students will be asked to consider "glass" from the lens of their discipline by first joining in a round-table discussion about "glass" and then by sketching, writing, or constructing ideas. A new, exploratory method for early idea production will be introduced as part of the discussion and session. Following the workshop, a demonstration and beginner skills session will take place in the ECA hotshop. Skilled glass artists and the ECA glass technician will work together with the students to realize selected workshop sketches in glass.

Objectives

- To introduce participants to glass, to the hotshop, and to associative, creative thinking
- To explore what might happen to creative outputs if new-to-glass participants approach glass from a conceptual perspective, viewing it through the lens of their personal disciplines
- To create a hands-on learning environment that fosters creative thinking in an interdisciplinary group setting to encourage idea production

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution will be recorded for the purpose of inclusion in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of persona data obtained in this study (e.g.: name, age, and occupation).

[redacted]

Lisa Naas

.....

Name of person obtaining consent (Printed)

[redacted]

HEALTH AND SAFETY GUIDELINES

GLASS Department

I hereby confirm that I have read and retained a copy of the department's rules for Health and Safety and agree to follow them.

[redacted]

General:

- Eating, drinking and smoking is forbidden in **ALL** workshops due to the risk of ingestion of toxic materials and dust (with the exception of covered water bottles in the hot shop)
- All accidents must be reported to a member of Staff. All students should familiarise themselves with the first aid team and procedures as displayed in each of the workshops.
- In event of **FIRE**, students will evacuate the building via the main red staircase. **THE LIFT MUST NOT BE USED.**
- Always make sure that there is at least one other person working in the same room as you. **DO NOT WORK ALONE.**
- **NO** student should be working in the workshops when under the influence of alcohol.
- Students must not leave work on work benches or around the workshops. Please clean up after yourself.
- Be respectful of machines, tools and equipment.
- **NO EARPHONES/HEADPHONES ON IN EITHER THE COLD WORKSHOP OR HOT WORKSHOP**
- If you have not received supervised tuition in the use of a particular machine, tool or material you MUST NOT USE IT.
- **Eye protection** must be worn when cutting and grinding glass and when brushing tables clean. It is advisable that you wear protection when glass is being cut near you.
- Dust masks must be worn when applying whiting, when working with dry glass paints and enamels, dry toxic substances and when **sandblasting**.
- Attire: Wear closed-toes shoes, preferably with socks, to guard against shards of glass getting embedded in your feet. It is preferable that your knees are covered.
- Be aware of tiny shards of glass on the cutting table. These should be removed immediately with a dustpan & brush.
- Broken fragments of glass must be placed in the scrap box or appropriate waste buckets. This should be done so all glass lies flat in the bin (cut the glass down, if needed) and **must** be done so that no pieces of glass emerge over the top of the bin.
- Gloves should be worn when handling large sheets of glass.
- Never handle a piece of glass that is too big for you to handle comfortably – ask for help.

Furnace Room/ Studio Rules

- Glasses must be worn at **ALL** times: **Green** when furnace working or **clear** when watching demos
- **TIDY** up after yourself: return all tools and irons
- Sweep up around your working area
- Please re-cycle all clear glass in one cullet chest, and all colour glass in the other

Informed Consent Form

To: Lisa Naas, PhD Student, Design (ECA)

[redacted]

Date: 16 February 2016

Project Title: **Play with Fire: Glass Concepts**

Project Summary: Student participants from various disciplines throughout the University will come together to contribute to ongoing research about the production of ideas at the intersection of disciplines. Students will be asked to consider "glass" from the lens of their discipline by first joining in a round-table discussion about "glass" and then by sketching, writing, or constructing ideas. A new, exploratory method for early idea production will be introduced as part of the discussion and session. Following the workshop, a demonstration and beginner skills session will take place in the ECA hotshop. Skilled glass artists and the ECA glass technician will work together with the students to realize selected workshop sketches in glass.

Objectives

- To introduce participants to glass, to the hotshop, and to associative, creative thinking
- To explore what might happen to creative outputs if new-to-glass participants approach glass from a conceptual perspective, viewing it through the lens of their personal disciplines
- To create a hands-on learning environment that fosters creative thinking in an interdisciplinary group setting to encourage idea production

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution will be recorded for the purpose of inclusion in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of persona data obtained in this study (e.g.: name, age, and occupation).

[redacted]

HEALTH AND SAFETY GUIDELINES

GLASS Department

I hereby confirm that I have read and retained a copy of the department's rules for Health and Safety and agree to follow them

Signed: [redacted] ..... **Date:** 16.02.2016

Name: Zhen Ge [redacted]		
[redacted]	**Department:** Product Design	**Year:** MFA 2

General:

- Eating, drinking and smoking is forbidden in **ALL** workshops due to the risk of ingestion of toxic materials and dust (with the exception of covered water bottles in the hot shop)
- All accidents must be reported to a member of Staff. All students should familiarise themselves with the first aid team and procedures as displayed in each of the workshops.
- In event of **FIRE**, students will evacuate the building via the main red staircase. **THE LIFT MUST NOT BE USED.**
- Always make sure that there is at least one other person working in the same room as you. **DO NOT WORK ALONE.**
- **NO** student should be working in the workshops when under the influence of alcohol.
- Students must not leave work on work benches or around the workshops. Please clean up after yourself.
- Be respectful of machines, tools and equipment.
- **NO EARPHONES/HEADPHONES ON IN EITHER THE COLD WORKSHOP OR HOT WORKSHOP**
- If you have not received supervised tuition in the use of a particular machine, tool or material you MUST NOT USE IT.

- **Eye protection** must be worn when cutting and grinding glass and when brushing tables clean. It is advisable that you wear protection when glass is being cut near you.
- Dust masks must be worn when applying whiting, when working with dry glass paints and enamels, dry toxic substances and when **sandblasting**.
- Attire: Wear closed-toes shoes, preferably with socks, to guard against shards of glass getting embedded in your feet. It is preferable that your knees are covered.
- Be aware of tiny shards of glass on the cutting table. These should be removed immediately with a dustpan & brush.
- Broken fragments of glass must be placed in the scrap box or appropriate waste buckets. This should be done so all glass lies flat in the bin (cut the glass down, if needed) and **must** be done so that no pieces of glass emerge over the top of the bin.
- Gloves should be worn when handling large sheets of glass.
- Never handle a piece of glass that is too big for you to handle comfortably – ask for help.

Furnace Room/ Studio Rules

- Glasses must be worn at **ALL** times: **Green** when furnace working or **clear** when watching demos
- **TIDY** up after yourself: return all tools and irons
- Sweep up around your working area
- Please re-cycle all clear glass in one cullet chest, and all colour glass in the other.

Informed Consent Form

To: Lisa Naas, PhD Student, Design (ECA)

From (Name):

Address:

Contact number:

Email:

Date: 16 February 2016

Project Title: **Play with Fire: Glass Concepts**

Project Summary: Student participants from various disciplines throughout the University will come together to contribute to ongoing research about the production of ideas at the intersection of disciplines. Students will be asked to consider "glass" from the lens of their discipline by first joining in a round-table discussion about "glass" and then by sketching, writing, or constructing ideas. A new, exploratory method for early idea production will be introduced as part of the discussion and session. Following the workshop, a demonstration and beginner skills session will take place in the ECA hotshop. Skilled glass artists and the ECA glass technician will work together with the students to realize selected workshop sketches in glass.

Objectives

- To introduce participants to glass, to the hotshop, and to associative, creative thinking
- To explore what might happen to creative outputs if new-to-glass participants approach glass from a conceptual perspective, viewing it through the lens of their personal disciplines
- To create a hands-on learning environment that fosters creative thinking in an interdisciplinary group setting to encourage idea production

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution will be recorded for the purpose of inclusion in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of persona data obtained in this study (e.g.: name, age, and occupation).

TAMER AL GHUSSEIN

Participant's Name (Printed)

[redacted]

Participant's signature

Lisa Naas

Name of person obtaining consent (Printed)

[redacted]

Signature of person obtaining consent

HEALTH AND SAFETY GUIDELINES

GLASS Department

I hereby confirm that I have read and retained a copy of the department's rules for Health and Safety and agree to follow them

Signed: [redacted] **Date:** 16/02/2016

Name: [redacted]	Email:	Tel:
Matric No: [redacted]	Department: Economics	Year: 4th

General:

- Eating, drinking and smoking is forbidden in **ALL** workshops due to the risk of ingestion of toxic materials and dust (with the exception of covered water bottles in the hot shop)
- All accidents must be reported to a member of Staff. All students should familiarise themselves with the first aid team and procedures as displayed in each of the workshops.
- In event of **FIRE**, students will evacuate the building via the main red staircase. **THE LIFT MUST NOT BE USED.**
- Always make sure that there is at least one other person working in the same room as you. **DO NOT WORK ALONE.**
- **NO** student should be working in the workshops when under the influence of alcohol.
- Students must not leave work on work benches or around the workshops. Please clean up after yourself.
- Be respectful of machines, tools and equipment.
- **NO EARPHONES/HEADPHONES ON IN EITHER THE COLD WORKSHOP OR HOT WORKSHOP**
- If you have not received supervised tuition in the use of a particular machine, tool or material you MUST NOT USE IT.

- **Eye protection** must be worn when cutting and grinding glass and when brushing tables clean. It is advisable that you wear protection when glass is being cut near you.
- Dust masks must be worn when applying whiting, when working with dry glass paints and enamels, dry toxic substances and when **sandblasting**.
- Attire: Wear closed-toes shoes, preferably with socks, to guard against shards of glass getting embedded in your feet. It is preferable that your knees are covered.
- Be aware of tiny shards of glass on the cutting table. These should be removed immediately with a dustpan & brush.
- Broken fragments of glass must be placed in the scrap box or appropriate waste buckets. This should be done so all glass lies flat in the bin (cut the glass down, if needed) and **must** be done so that no pieces of glass emerge over the top of the bin.
- Gloves should be worn when handling large sheets of glass.
- Never handle a piece of glass that is too big for you to handle comfortably – ask for help.

Furnace Room/ Studio Rules

- Glasses must be worn at **ALL** times: **Green** when furnace working or **clear** when watching demos
- **TIDY** up after yourself: return all tools and irons
- Sweep up around your working area
- Please re-cycle all clear glass in one cullet chest, and all colour glass in the other.

Informed Consent Form

To: Lisa Naas, PhD Student, Design (ECA)

From (Name): CEYLAN HAY

[redacted]

Date: 16 February 2016

Project Title: **Play with Fire: Glass Concepts**

Project Summary: Student participants from various disciplines throughout the University will come together to contribute to ongoing research about the production of ideas at the intersection of disciplines. Students will be asked to consider "glass" from the lens of their discipline by first joining in a round-table discussion about "glass" and then by sketching, writing, or constructing ideas. A new, exploratory method for early idea production will be introduced as part of the discussion and session. Following the workshop, a demonstration and beginner skills session will take place in the ECA hotshop. Skilled glass artists and the ECA glass technician will work together with the students to realize selected workshop sketches in glass.

Objectives

- To introduce participants to glass, to the hotshop, and to associative, creative thinking
- To explore what might happen to creative outputs if new-to-glass participants approach glass from a conceptual perspective, viewing it through the lens of their personal disciplines
- To create a hands-on learning environment that fosters creative thinking in an interdisciplinary group setting to encourage idea production

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution will be recorded for the purpose of inclusion in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of persona data obtained in this study (e.g.: name, age, and occupation).

CEYLAN HAY
.....
Participant's Name (Printed)

[redacted]

.....
nted)

.....

HEALTH AND SAFETY GUIDELINES

GLASS Department

I hereby confirm that I have read and retained a copy of the department's rules for Health and Safety and agree to follow them

Signed: [redacted] ..... **Date:** 16/2/16 .....

Name: CEYLAN HAY	[redacted]	
[redacted]	**Department:** MUSIC	**Year:** 2nd

General:

- Eating, drinking and smoking is forbidden in **ALL** workshops due to the risk of ingestion of toxic materials and dust (with the exception of covered water bottles in the hot shop)
- All accidents must be reported to a member of Staff. All students should familiarise themselves with the first aid team and procedures as displayed in each of the workshops.
- In event of **FIRE**, students will evacuate the building via the main red staircase. **THE LIFT MUST NOT BE USED.**
- Always make sure that there is at least one other person working in the same room as you. **DO NOT WORK ALONE.**
- **NO** student should be working in the workshops when under the influence of alcohol.
- Students must not leave work on work benches or around the workshops. Please clean up after yourself.
- Be respectful of machines, tools and equipment.
- **NO EARPHONES/HEADPHONES ON IN EITHER THE COLD WORKSHOP OR HOT WORKSHOP**
- If you have not received supervised tuition in the use of a particular machine, tool or material you MUST NOT USE IT.
- **Eye protection** must be worn when cutting and grinding glass and when brushing tables clean. It is advisable that you wear protection when glass is being cut near you.
- Dust masks must be worn when applying whiting, when working with dry glass paints and enamels, dry toxic substances and when **sandblasting**.
- Attire: Wear closed-toes shoes, preferably with socks, to guard against shards of glass getting embedded in your feet. It is preferable that your knees are covered.
- Be aware of tiny shards of glass on the cutting table. These should be removed immediately with a dustpan & brush.
- Broken fragments of glass must be placed in the scrap box or appropriate waste buckets. This should be done so all glass lies flat in the bin (cut the glass down, if needed) and **must** be done so that no pieces of glass emerge over the top of the bin.
- Gloves should be worn when handling large sheets of glass.
- Never handle a piece of glass that is too big for you to handle comfortably – ask for help.

Furnace Room/ Studio Rules

- Glasses must be worn at **ALL** times: **Green** when furnace working or **clear** when watching demos
- **TIDY** up after yourself: return all tools and irons
- Sweep up around your working area
- Please re-cycle all clear glass in one cullet chest, and all colour glass in the other.

Informed Consent Form

To: Lisa Naas, PhD Student, Design (ECA)

From (Name): Huang Jie

[redacted]

Date: 16 February 2016

Project Title: **Play with Fire: Glass Concepts**

Project Summary: Student participants from various disciplines throughout the University will come together to contribute to ongoing research about the production of ideas at the intersection of disciplines. Students will be asked to consider "glass" from the lens of their discipline by first joining in a round-table discussion about "glass" and then by sketching, writing, or constructing ideas. A new, exploratory method for early idea production will be introduced as part of the discussion and session. Following the workshop, a demonstration and beginner skills session will take place in the ECA hotshop. Skilled glass artists and the ECA glass technician will work together with the students to realize selected workshop sketches in glass.

Objectives

- To introduce participants to glass, to the hotshop, and to associative, creative thinking
- To explore what might happen to creative outputs if new-to-glass participants approach glass from a conceptual perspective, viewing it through the lens of their personal disciplines
- To create a hands-on learning environment that fosters creative thinking in an interdisciplinary group setting to encourage idea production

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution will be recorded for the purpose of inclusion in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of persona data obtained in this study (e.g.: name, age, and occupation).

Huang Jie

.....

Participant's Name (Printed)

[redacted]

.....

Participant's Signature

Lisa Naas

.....

Name of person obtaining consent (Printed)

[redacted]

.....

HEALTH AND SAFETY GUIDELINES

GLASS Department

I hereby confirm that I have read and retained a copy of the department's rules for Health and Safety and agree to follow them

Signed [redacted] ..... **Date:** 16/02/2016

Name: Huang Jie [redacted]		
[redacted]	**Department:** Interior Architecture Design	**Year:** MA

General:

- Eating, drinking and smoking is forbidden in **ALL** workshops due to the risk of ingestion of toxic materials and dust (with the exception of covered water bottles in the hot shop)
- All accidents must be reported to a member of Staff. All students should familiarise themselves with the first aid team and procedures as displayed in each of the workshops.
- In event of **FIRE**, students will evacuate the building via the main red staircase. **THE LIFT MUST NOT BE USED.**
- Always make sure that there is at least one other person working in the same room as you. **DO NOT WORK ALONE.**
- **NO** student should be working in the workshops when under the influence of alcohol.
- Students must not leave work on work benches or around the workshops. Please clean up after yourself.
- Be respectful of machines, tools and equipment.
- **NO EARPHONES/HEADPHONES ON IN EITHER THE COLD WORKSHOP OR HOT WORKSHOP**
- If you have not received supervised tuition in the use of a particular machine, tool or material you MUST NOT USE IT.
- **Eye protection** must be worn when cutting and grinding glass and when brushing tables clean. It is advisable that you wear protection when glass is being cut near you.
- Dust masks must be worn when applying whiting, when working with dry glass paints and enamels, dry toxic substances and when **sandblasting**.
- Attire: Wear closed-toes shoes, preferably with socks, to guard against shards of glass getting embedded in your feet. It is preferable that your knees are covered.
- Be aware of tiny shards of glass on the cutting table. These should be removed immediately with a dustpan & brush.
- Broken fragments of glass must be placed in the scrap box or appropriate waste buckets. This should be done so all glass lies flat in the bin (cut the glass down, if needed) and **must** be done so that no pieces of glass emerge over the top of the bin.
- Gloves should be worn when handling large sheets of glass.
- Never handle a piece of glass that is too big for you to handle comfortably – ask for help.

Furnace Room/ Studio Rules

- Glasses must be worn at **ALL** times: **Green** when furnace working or **clear** when watching demos
- **TIDY** up after yourself: return all tools and irons
- Sweep up around your working area
- Please re-cycle all clear glass in one cullet chest, and all colour glass in the other.

Informed Consent Form

To: Lisa Naas, PhD Student, Design (ECA)

From (Name):

Address:

Contact number:

Email:

Date: 16 February 2016

Project Title: **Play with Fire: Glass Concepts**

Project Summary: Student participants from various disciplines throughout the University will come together to contribute to ongoing research about the production of ideas at the intersection of disciplines. Students will be asked to consider "glass" from the lens of their discipline by first joining in a round-table discussion about "glass" and then by sketching, writing, or constructing ideas. A new, exploratory method for early idea production will be introduced as part of the discussion and session. Following the workshop, a demonstration and beginner skills session will take place in the ECA hotshop. Skilled glass artists and the ECA glass technician will work together with the students to realize selected workshop sketches in glass.

Objectives

- To introduce participants to glass, to the hotshop, and to associative, creative thinking
- To explore what might happen to creative outputs if new-to-glass participants approach glass from a conceptual perspective, viewing it through the lens of their personal disciplines
- To create a hands-on learning environment that fosters creative thinking in an interdisciplinary group setting to encourage idea production

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution will be recorded for the purpose of inclusion in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of persona data obtained in this study (e.g.: name, age, and occupation).

NADIA SALLOUM
Participant's Name (Printed)

[redacted]

Lisa Naas
Name of person obtaining consent (Printed)

[redacted]

HEALTH AND SAFETY GUIDELINES

GLASS Department

I hereby confirm that I have read and retained a copy of the department's rules for Health and Safety and agree to follow them

Signed [redacted] ..... **Date:** 16/02/16

Name: NADIA SALLOUM	[redacted]	
[redacted]	**Department:** MEDICINE/BIOCHEMISTRY	**Year:** 3

General:

- Eating, drinking and smoking is forbidden in **ALL** workshops due to the risk of ingestion of toxic materials and dust (with the exception of covered water bottles in the hot shop)
- All accidents must be reported to a member of Staff. All students should familiarise themselves with the first aid team and procedures as displayed in each of the workshops.
- In event of **FIRE**, students will evacuate the building via the main red staircase. **THE LIFT MUST NOT BE USED.**
- Always make sure that there is at least one other person working in the same room as you. **DO NOT WORK ALONE.**
- **NO** student should be working in the workshops when under the influence of alcohol.
- Students must not leave work on work benches or around the workshops. Please clean up after yourself.
- Be respectful of machines, tools and equipment.
- **NO EARPHONES/HEADPHONES ON IN EITHER THE COLD WORKSHOP OR HOT WORKSHOP**
- If you have not received supervised tuition in the use of a particular machine, tool or material you MUST NOT USE IT.

- **Eye protection** must be worn when cutting and grinding glass and when brushing tables clean. It is advisable that you wear protection when glass is being cut near you.
- Dust masks must be worn when applying whiting, when working with dry glass paints and enamels, dry toxic substances and when **sandblasting**.
- Attire: Wear closed-toes shoes, preferably with socks, to guard against shards of glass getting embedded in your feet. It is preferable that your knees are covered.
- Be aware of tiny shards of glass on the cutting table. These should be removed immediately with a dustpan & brush.
- Broken fragments of glass must be placed in the scrap box or appropriate waste buckets. This should be done so all glass lies flat in the bin (cut the glass down, if needed) and **must** be done so that no pieces of glass emerge over the top of the bin.
- Gloves should be worn when handling large sheets of glass.
- Never handle a piece of glass that is too big for you to handle comfortably – ask for help.

Furnace Room/ Studio Rules

- Glasses must be worn at **ALL** times: **Green** when furnace working or **clear** when watching demos
- **TIDY** up after yourself: return all tools and irons
- Sweep up around your working area
- Please re-cycle all clear glass in one cullet chest, and all colour glass in the other.

Informed Consent Form

To: Lisa Naas, PhD Student, Design (ECA)

From (Name): SERA TAKATA

Add [redacted]

Con

Ema

Date: 16 February 2016

Project Title: **Play with Fire: Glass Concepts**

Project Summary: Student participants from various disciplines throughout the University will come together to contribute to ongoing research about the production of ideas at the intersection of disciplines. Students will be asked to consider "glass" from the lens of their discipline by first joining in a round-table discussion about "glass" and then by sketching, writing, or constructing ideas. A new, exploratory method for early idea production will be introduced as part of the discussion and session. Following the workshop, a demonstration and beginner skills session will take place in the ECA hotshop. Skilled glass artists and the ECA glass technician will work together with the students to realize selected workshop sketches in glass.

Objectives

- To introduce participants to glass, to the hotshop, and to associative, creative thinking
- To explore what might happen to creative outputs if new-to-glass participants approach glass from a conceptual perspective, viewing it through the lens of their personal disciplines
- To create a hands-on learning environment that fosters creative thinking in an interdisciplinary group setting to encourage idea production

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution will be recorded for the purpose of inclusion in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of persona data obtained in this study (e.g.: name, age, and occupation).

SERA TAKATA
.....
Participant's Name (Printed)

[redacted]
Participant's signature

Lisa Naas
.....
Name of person obtaining consent (Printed)

[redacted]
Signature of person obtaining consent

HEALTH AND SAFETY GUIDELINES

GLASS Department

I hereby confirm that I have read and retained a copy of the department's rules for Health and Safety and agree to follow them

Signed:[redacted] **Date:** 16/2/16

Name: Sera Takata	[redacted]	
[redacted]	**Department:** Study Abroad	**Year:** 2016

General:

- Eating, drinking and smoking is forbidden in **ALL** workshops due to the risk of ingestion of toxic materials and dust (with the exception of covered water bottles in the hot shop)
- All accidents must be reported to a member of Staff. All students should familiarise themselves with the first aid team and procedures as displayed in each of the workshops.
- In event of **FIRE**, students will evacuate the building via the main red staircase. **THE LIFT MUST NOT BE USED.**
- Always make sure that there is at least one other person working in the same room as you. **DO NOT WORK ALONE.**
- **NO** student should be working in the workshops when under the influence of alcohol.
- Students must not leave work on work benches or around the workshops. Please clean up after yourself.
- Be respectful of machines, tools and equipment.
- **NO EARPHONES/HEADPHONES ON IN EITHER THE COLD WORKSHOP OR HOT WORKSHOP**
- If you have not received supervised tuition in the use of a particular machine, tool or material you MUST NOT USE IT.

- **Eye protection** must be worn when cutting and grinding glass and when brushing tables clean. It is advisable that you wear protection when glass is being cut near you.
- Dust masks must be worn when applying whiting, when working with dry glass paints and enamels, dry toxic substances and when **sandblasting**.
- Attire: Wear closed-toes shoes, preferably with socks, to guard against shards of glass getting embedded in your feet. It is preferable that your knees are covered.
- Be aware of tiny shards of glass on the cutting table. These should be removed immediately with a dustpan & brush.
- Broken fragments of glass must be placed in the scrap box or appropriate waste buckets. This should be done so all glass lies flat in the bin (cut the glass down, if needed) and **must** be done so that no pieces of glass emerge over the top of the bin.
- Gloves should be worn when handling large sheets of glass.
- Never handle a piece of glass that is too big for you to handle comfortably – ask for help.

Furnace Room/ Studio Rules

- Glasses must be worn at **ALL** times: **Green** when furnace working or **clear** when watching demos
- **TIDY** up after yourself: return all tools and irons
- Sweep up around your working area
- Please re-cycle all clear glass in one cullet chest, and all colour glass in the other.

Informed Consent Form

To: Lisa Naas, PhD Student, Design (ECA)

From (Name): [redacted]

Addr[redacted]

Cont[redacted]

Emai[redacted]

Date: 16 February 2016

Project Title: **Play with Fire: Glass Concepts**

Project Summary: Student participants from various disciplines throughout the University will come together to contribute to ongoing research about the production of ideas at the intersection of disciplines. Students will be asked to consider "glass" from the lens of their discipline by first joining in a round-table discussion about "glass" and then by sketching, writing, or constructing ideas. A new, exploratory method for early idea production will be introduced as part of the discussion and session. Following the workshop, a demonstration and beginner skills session will take place in the ECA hotshop. Skilled glass artists and the ECA glass technician will work together with the students to realize selected workshop sketches in glass.

Objectives

- To introduce participants to glass, to the hotshop, and to associative, creative thinking
- To explore what might happen to creative outputs if new-to-glass participants approach glass from a conceptual perspective, viewing it through the lens of their personal disciplines
- To create a hands-on learning environment that fosters creative thinking in an interdisciplinary group setting to encourage idea production

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution will be recorded for the purpose of inclusion in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of persona data obtained in this study (e.g.: name, age, and occupation).

.....

P[redacted]

Participant's signature

Lisa Naas

.....

[redacted]nted)

.....

Signature of person obtaining consent

HEALTH AND SAFETY GUIDELINES

GLASS Department

I hereby confirm that I have read and retained a copy of the department's rules for Health and Safety and agree to follow them

Signed: [redacted] ..... **Date:** 16.2.16 .....

Name: Rifat Mu	**Email:** [redacted]	
[redacted]	**Department:** Interior Design	**Year:** MA

General:

- Eating, drinking and smoking is forbidden in **ALL** workshops due to the risk of ingestion of toxic materials and dust (with the exception of covered water bottles in the hot shop)
- All accidents must be reported to a member of Staff. All students should familiarise themselves with the first aid team and procedures as displayed in each of the workshops.
- In event of **FIRE**, students will evacuate the building via the main red staircase. **THE LIFT MUST NOT BE USED.**
- Always make sure that there is at least one other person working in the same room as you. **DO NOT WORK ALONE.**
- **NO** student should be working in the workshops when under the influence of alcohol.
- Students must not leave work on work benches or around the workshops. Please clean up after yourself.
- Be respectful of machines, tools and equipment.
- **NO EARPHONES/HEADPHONES ON IN EITHER THE COLD WORKSHOP OR HOT WORKSHOP**
- If you have not received supervised tuition in the use of a particular machine, tool or material you MUST NOT USE IT.
- **Eye protection** must be worn when cutting and grinding glass and when brushing tables clean. It is advisable that you wear protection when glass is being cut near you.
- Dust masks must be worn when applying whiting, when working with dry glass paints and enamels, dry toxic substances and when **sandblasting**.
- Attire: Wear closed-toes shoes, preferably with socks, to guard against shards of glass getting embedded in your feet. It is preferable that your knees are covered.
- Be aware of tiny shards of glass on the cutting table. These should be removed immediately with a dustpan & brush.
- Broken fragments of glass must be placed in the scrap box or appropriate waste buckets. This should be done so all glass lies flat in the bin (cut the glass down, if needed) and **must** be done so that no pieces of glass emerge over the top of the bin.
- Gloves should be worn when handling large sheets of glass.
- Never handle a piece of glass that is too big for you to handle comfortably – ask for help.

Furnace Room/ Studio Rules

- Glasses must be worn at **ALL** times: **Green** when furnace working or **clear** when watching demos
- **TIDY** up after yourself: return all tools and irons.
- Sweep up around your working area
- Please re-cycle all clear glass in one cullet chest, and all colour glass in the other.

Informed Consent Form

To: Lisa Naas, PhD Student, Design (ECA)

From (Name): Nicola Fabian

[redacted]

Date: 17 February 2016

Project Title: **Play with Fire: Glass Concepts**

Project Summary: Student participants from various disciplines throughout the University will come together to contribute to ongoing research about the production of ideas at the intersection of disciplines. Students will be asked to consider "glass" from the lens of their discipline by first joining in a round-table discussion about "glass" and then by sketching, writing, or constructing ideas. A new, exploratory method for early idea production will be introduced as part of the discussion and session. Following the workshop, a demonstration and beginner skills session will take place in the ECA hotshop. Skilled glass artists and the ECA glass technician will work together with the students to realize selected workshop sketches in glass.

Objectives

- To introduce participants to glass, to the hotshop, and to associative, creative thinking
- To explore what might happen to creative outputs if new-to-glass participants approach glass from a conceptual perspective, viewing it through the lens of their personal disciplines
- To create a hands-on learning environment that fosters creative thinking in an interdisciplinary group setting to encourage idea production

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution will be recorded for the purpose of inclusion in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of persona data obtained in this study (e.g.: name, age, and occupation).

Nicola Fabian

[redacted]

Lisa Naas

.....

Name of person obtaining consent (Printed)

[redacted]

Signature of person obtaining consent

HEALTH AND SAFETY GUIDELINES

GLASS Department

I hereby confirm that I have read and retained a copy of the department's rules for Health and Safety and agree to follow them

Signe [redacted] ..... **Date:** 17/2/16.

Name: Nicola Fabian	[redacted]	**Tel:** [redacted]
[redacted]	**Department:** Jewellery + Silversmithing	**Year:** 2nd

General:

- Eating, drinking and smoking is forbidden in **ALL** workshops due to the risk of ingestion of toxic materials and dust (with the exception of covered water bottles in the hot shop)
- All accidents must be reported to a member of Staff. All students should familiarise themselves with the first aid team and procedures as displayed in each of the workshops.
- In event of **FIRE**, students will evacuate the building via the main red staircase. **THE LIFT MUST NOT BE USED.**
- Always make sure that there is at least one other person working in the same room as you. **DO NOT WORK ALONE.**
- **NO** student should be working in the workshops when under the influence of alcohol.
- Students must not leave work on work benches or around the workshops. Please clean up after yourself.
- Be respectful of machines, tools and equipment.
- **NO EARPHONES/HEADPHONES ON IN EITHER THE COLD WORKSHOP OR HOT WORKSHOP**
- If you have not received supervised tuition in the use of a particular machine, tool or material you MUST NOT USE IT.

- **Eye protection** must be worn when cutting and grinding glass and when brushing tables clean. It is advisable that you wear protection when glass is being cut near you.
- Dust masks must be worn when applying whiting, when working with dry glass paints and enamels, dry toxic substances and when **sandblasting**.
- Attire: Wear closed-toes shoes, preferably with socks, to guard against shards of glass getting embedded in your feet. It is preferable that your knees are covered.
- Be aware of tiny shards of glass on the cutting table. These should be removed immediately with a dustpan & brush.
- Broken fragments of glass must be placed in the scrap box or appropriate waste buckets. This should be done so all glass lies flat in the bin (cut the glass down, if needed) and **must** be done so that no pieces of glass emerge over the top of the bin.
- Gloves should be worn when handling large sheets of glass.
- Never handle a piece of glass that is too big for you to handle comfortably – ask for help.

Furnace Room/ Studio Rules

- Glasses must be worn at **ALL** times: **Green** when furnace working or **clear** when watching demos
- **TIDY** up after yourself: return all tools and irons
- Sweep up around your working area
- Please re-cycle all clear glass in one cullet chest, and all colour glass in the other.

Informed Consent Form

To: Lisa Naas, PhD Student, Design (ECA)

From (Name): Lauren Hallenbeck

[redacted]

Date: 17 February 2016

Project Title: **Play with Fire: Glass Concepts**

Project Summary: Student participants from various disciplines throughout the University will come together to contribute to ongoing research about the production of ideas at the intersection of disciplines. Students will be asked to consider "glass" from the lens of their discipline by first joining in a round-table discussion about "glass" and then by sketching, writing, or constructing ideas. A new, exploratory method for early idea production will be introduced as part of the discussion and session. Following the workshop, a demonstration and beginner skills session will take place in the ECA hotshop. Skilled glass artists and the ECA glass technician will work together with the students to realize selected workshop sketches in glass.

Objectives

- To introduce participants to glass, to the hotshop, and to associative, creative thinking
- To explore what might happen to creative outputs if new-to-glass participants approach glass from a conceptual perspective, viewing it through the lens of their personal disciplines
- To create a hands-on learning environment that fosters creative thinking in an interdisciplinary group setting to encourage idea production

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution will be recorded for the purpose of inclusion in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of persona data obtained in this study (e.g.: name, age, and occupation).

Lauren Hallenbeck

Participant's Name (Printed)

[redacted]

Lisa Naas

Name of person obtaining consent (Printed)

[redacted]

Signature of person obtaining consent

HEALTH AND SAFETY GUIDELINES

GLASS Department

I hereby confirm that I have read and retained a copy of the department's rules for Health and Safety and agree to follow them

Signe [redacted] **Date:** February 17, 2016

Name: Lauren Hallenbeck [redacted]		
Matric No: [redacted]	**Department:** HSS	**Year:** 2017

General:

- Eating, drinking and smoking is forbidden in **ALL** workshops due to the risk of ingestion of toxic materials and dust (with the exception of covered water bottles in the hot shop)
- All accidents must be reported to a member of Staff. All students should familiarise themselves with the first aid team and procedures as displayed in each of the workshops.
- In event of **FIRE**, students will evacuate the building via the main red staircase. **THE LIFT MUST NOT BE USED.**
- Always make sure that there is at least one other person working in the same room as you. **DO NOT WORK ALONE.**
- **NO** student should be working in the workshops when under the influence of alcohol.
- Students must not leave work on work benches or around the workshops. Please clean up after yourself.
- Be respectful of machines, tools and equipment.
- **NO EARPHONES/HEADPHONES ON IN EITHER THE COLD WORKSHOP OR HOT WORKSHOP**
- If you have not received supervised tuition in the use of a particular machine, tool or material you MUST NOT USE IT.
- **Eye protection** must be worn when cutting and grinding glass and when brushing tables clean. It is advisable that you wear protection when glass is being cut near you.
- Dust masks must be worn when applying whiting, when working with dry glass paints and enamels, dry toxic substances and when **sandblasting**.
- Attire: Wear closed-toes shoes, preferably with socks, to guard against shards of glass getting embedded in your feet. It is preferable that your knees are covered.
- Be aware of tiny shards of glass on the cutting table. These should be removed immediately with a dustpan & brush.
- Broken fragments of glass must be placed in the scrap box or appropriate waste buckets. This should be done so all glass lies flat in the bin (cut the glass down, if needed) and **must** be done so that no pieces of glass emerge over the top of the bin.
- Gloves should be worn when handling large sheets of glass.
- Never handle a piece of glass that is too big for you to handle comfortably – ask for help.

Furnace Room/ Studio Rules

- Glasses must be worn at **ALL** times: **Green** when furnace working or **clear** when watching demos
- **TIDY** up after yourself: return all tools and irons
- Sweep up around your working area
- Please re-cycle all clear glass in one cullet chest, and all colour glass in the other.

Informed Consent Form

To: Lisa Naas, PhD Student, Design (ECA)

From (Name):

Address:

Contact number:

Email:

Date: 17 February 2016

Project Title: **Play with Fire: Glass Concepts**

Project Summary: Student participants from various disciplines throughout the University will come together to contribute to ongoing research about the production of ideas at the intersection of disciplines. Students will be asked to consider "glass" from the lens of their discipline by first joining in a round-table discussion about "glass" and then by sketching, writing, or constructing ideas. A new, exploratory method for early idea production will be introduced as part of the discussion and session. Following the workshop, a demonstration and beginner skills session will take place in the ECA hotshop. Skilled glass artists and the ECA glass technician will work together with the students to realize selected workshop sketches in glass.

Objectives

- To introduce participants to glass, to the hotshop, and to associative, creative thinking
- To explore what might happen to creative outputs if new-to-glass participants approach glass from a conceptual perspective, viewing it through the lens of their personal disciplines
- To create a hands-on learning environment that fosters creative thinking in an interdisciplinary group setting to encourage idea production

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution will be recorded for the purpose of inclusion in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of persona data obtained in this study (e.g.: name, age, and occupation).

Bella Kaemeyer

.....

Participant's Name (Printed)

[redacted]

.....

Lisa Naas

.....

Name of person obtaining consent (Printed)

[redacted]

Signature of person obtaining consent

HEALTH AND SAFETY GUIDELINES

GLASS Department

I hereby confirm that I have read and retained a copy of the department's rules for Health and Safety and agree to follow them

Si [redacted] ..... **Date:** 17 February 2016

Name: Bella Knemeyer	[redacted]	**Tel:**
[redacted]	**Department:** Landscape Architecture	**Year:** MLA 1

General:

- Eating, drinking and smoking is forbidden in **ALL** workshops due to the risk of ingestion of toxic materials and dust (with the exception of covered water bottles in the hot shop)
- All accidents must be reported to a member of Staff. All students should familiarise themselves with the first aid team and procedures as displayed in each of the workshops.
- In event of **FIRE**, students will evacuate the building via the main red staircase. **THE LIFT MUST NOT BE USED.**
- Always make sure that there is at least one other person working in the same room as you. **DO NOT WORK ALONE.**
- **NO** student should be working in the workshops when under the influence of alcohol.
- Students must not leave work on work benches or around the workshops. Please clean up after yourself.
- Be respectful of machines, tools and equipment.
- **NO EARPHONES/HEADPHONES ON IN EITHER THE COLD WORKSHOP OR HOT WORKSHOP**
- If you have not received supervised tuition in the use of a particular machine, tool or material you MUST NOT USE IT.
- **Eye protection** must be worn when cutting and grinding glass and when brushing tables clean. It is advisable that you wear protection when glass is being cut near you.
- Dust masks must be worn when applying whiting, when working with dry glass paints and enamels, dry toxic substances and when **sandblasting**.
- Attire: Wear closed-toes shoes, preferably with socks, to guard against shards of glass getting embedded in your feet. It is preferable that your knees are covered.
- Be aware of tiny shards of glass on the cutting table. These should be removed immediately with a dustpan & brush.
- Broken fragments of glass must be placed in the scrap box or appropriate waste buckets. This should be done so all glass lies flat in the bin (cut the glass down, if needed) and **must** be done so that no pieces of glass emerge over the top of the bin.
- Gloves should be worn when handling large sheets of glass.
- Never handle a piece of glass that is too big for you to handle comfortably – ask for help.

Furnace Room/ Studio Rules

- Glasses must be worn at **ALL** times: **Green** when furnace working or **clear** when watching demos
- **TIDY** up after yourself: return all tools and irons
- Sweep up around your working area
- Please re-cycle all clear glass in one cullet chest, and all colour glass in the other.

Informed Consent Form

To: Lisa Naas, PhD Student, Design (ECA)

From (Name): Sharon

Address: [redacted]

Contact nur

Email: l7

Date: 17 February 2016

Project Title: **Play with Fire: Glass Concepts**

Project Summary: Student participants from various disciplines throughout the University will come together to contribute to ongoing research about the production of ideas at the intersection of disciplines. Students will be asked to consider "glass" from the lens of their discipline by first joining in a round-table discussion about "glass" and then by sketching, writing, or constructing ideas. A new, exploratory method for early idea production will be introduced as part of the discussion and session. Following the workshop, a demonstration and beginner skills session will take place in the ECA hotshop. Skilled glass artists and the ECA glass technician will work together with the students to realize selected workshop sketches in glass.

Objectives

- To introduce participants to glass, to the hotshop, and to associative, creative thinking
- To explore what might happen to creative outputs if new-to-glass participants approach glass from a conceptual perspective, viewing it through the lens of their personal disciplines
- To create a hands-on learning environment that fosters creative thinking in an interdisciplinary group setting to encourage idea production

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution will be recorded for the purpose of inclusion in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of persona data obtained in this study (e.g.: name, age, and occupation).

SHARON LEI

Participant's Name (Printed)

[redacted]

Lisa Naas

Name of person obtaining consent (Printed)

[redacted]

Signature of person obtaining consent

HEALTH AND SAFETY GUIDELINES

GLASS Department

I hereby confirm that I have read and retained a copy of the department's rules for Health and Safety and agree to follow them

Signed:..... [redacted] ..... **Date:** 17/02/2016

Name: Sharon Lei	[redacted]	[redacted]
Matric [redacted]	**Department:** Business school	**Year:** Year 1

General:

- Eating, drinking and smoking is forbidden in **ALL** workshops due to the risk of ingestion of toxic materials and dust (with the exception of covered water bottles in the hot shop)
- All accidents must be reported to a member of Staff. All students should familiarise themselves with the first aid team and procedures as displayed in each of the workshops.
- In event of **FIRE**, students will evacuate the building via the main red staircase. **THE LIFT MUST NOT BE USED.**
- Always make sure that there is at least one other person working in the same room as you. **DO NOT WORK ALONE.**
- **NO** student should be working in the workshops when under the influence of alcohol.
- Students must not leave work on work benches or around the workshops. Please clean up after yourself.
- Be respectful of machines, tools and equipment.
- **NO EARPHONES/HEADPHONES ON IN EITHER THE COLD WORKSHOP OR HOT WORKSHOP**
- If you have not received supervised tuition in the use of a particular machine, tool or material you MUST NOT USE IT.
- **Eye protection** must be worn when cutting and grinding glass and when brushing tables clean. It is advisable that you wear protection when glass is being cut near you.
- Dust masks must be worn when applying whiting, when working with dry glass paints and enamels, dry toxic substances and when **sandblasting**.
- Attire: Wear closed-toes shoes, preferably with socks, to guard against shards of glass getting embedded in your feet. It is preferable that your knees are covered.
- Be aware of tiny shards of glass on the cutting table. These should be removed immediately with a dustpan & brush.
- Broken fragments of glass must be placed in the scrap box or appropriate waste buckets. This should be done so all glass lies flat in the bin (cut the glass down, if needed) and **must** be done so that no pieces of glass emerge over the top of the bin.
- Gloves should be worn when handling large sheets of glass.
- Never handle a piece of glass that is too big for you to handle comfortably – ask for help.

Furnace Room/ Studio Rules

- Glasses must be worn at **ALL** times: **Green** when furnace working or **clear** when watching demos
- **TIDY** up after yourself: return all tools and irons
- Sweep up around your working area
- Please re-cycle all clear glass in one cullet chest, and all colour glass in the other.

Informed Consent Form

To: Lisa Naas, PhD Student, Design (ECA)

From (Na[redacted]

Address: [redacted]

Contact n[redacted]

Email: [redacted]

Date: 17 February 2016

Project Title: **Play with Fire: Glass Concepts**

Project Summary: Student participants from various disciplines throughout the University will come together to contribute to ongoing research about the production of ideas at the intersection of disciplines. Students will be asked to consider "glass" from the lens of their discipline by first joining in a round-table discussion about "glass" and then by sketching, writing, or constructing ideas. A new, exploratory method for early idea production will be introduced as part of the discussion and session. Following the workshop, a demonstration and beginner skills session will take place in the ECA hotshop. Skilled glass artists and the ECA glass technician will work together with the students to realize selected workshop sketches in glass.

Objectives

- To introduce participants to glass, to the hotshop, and to associative, creative thinking
- To explore what might happen to creative outputs if new-to-glass participants approach glass from a conceptual perspective, viewing it through the lens of their personal disciplines
- To create a hands-on learning environment that fosters creative thinking in an interdisciplinary group setting to encourage idea production

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution will be recorded for the purpose of inclusion in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of persona data obtained in this study (e.g.: name, age, and occupation).

[redacted]

Lisa Naas

.....

Name of person obtaining consent (Printed)

[redacted]

Signature of person obtaining consent

HEALTH AND SAFETY GUIDELINES

GLASS Department

I hereby confirm that I have read and retained a copy of the department's rules for Health and Safety and agree to follow them

Signe [redacted] ..... **Date:** 17.2.2016.

Name: Xiaojing Li	[redacted]	
[redacted]	Advanced Sustainable design.	1

General:

- Eating, drinking and smoking is forbidden in **ALL** workshops due to the risk of ingestion of toxic materials and dust (with the exception of covered water bottles in the hot shop)
- All accidents must be reported to a member of Staff. All students should familiarise themselves with the first aid team and procedures as displayed in each of the workshops.
- In event of **FIRE**, students will evacuate the building via the main red staircase. **THE LIFT MUST NOT BE USED.**
- Always make sure that there is at least one other person working in the same room as you. **DO NOT WORK ALONE.**
- **NO** student should be working in the workshops when under the influence of alcohol.
- Students must not leave work on work benches or around the workshops. Please clean up after yourself.
- Be respectful of machines, tools and equipment.
- **NO EARPHONES/HEADPHONES ON IN EITHER THE COLD WORKSHOP OR HOT WORKSHOP**
- If you have not received supervised tuition in the use of a particular machine, tool or material you MUST NOT USE IT.

- **Eye protection** must be worn when cutting and grinding glass and when brushing tables clean. It is advisable that you wear protection when glass is being cut near you.
- Dust masks must be worn when applying whiting, when working with dry glass paints and enamels, dry toxic substances and when **sandblasting**.
- Attire: Wear closed-toes shoes, preferably with socks, to guard against shards of glass getting embedded in your feet. It is preferable that your knees are covered.
- Be aware of tiny shards of glass on the cutting table. These should be removed immediately with a dustpan & brush.
- Broken fragments of glass must be placed in the scrap box or appropriate waste buckets. This should be done so all glass lies flat in the bin (cut the glass down, if needed) and **must** be done so that no pieces of glass emerge over the top of the bin.
- Gloves should be worn when handling large sheets of glass.
- Never handle a piece of glass that is too big for you to handle comfortably – ask for help.

Furnace Room/ Studio Rules

- Glasses must be worn at **ALL** times: **Green** when furnace working or **clear** when watching demos
- **TIDY** up after yourself: return all tools and irons
- Sweep up around your working area
- Please re-cycle all clear glass in one cullet chest, and all colour glass in the other.

Informed Consent Form

To: Lisa Naas, PhD Student, Design (ECA)

From (Name): Wei Lin

A [redacted]

C

E

Date: 17 February 2016

Project Title: **Play with Fire: Glass Concepts**

Project Summary: Student participants from various disciplines throughout the University will come together to contribute to ongoing research about the production of ideas at the intersection of disciplines. Students will be asked to consider "glass" from the lens of their discipline by first joining in a round-table discussion about "glass" and then by sketching, writing, or constructing ideas. A new, exploratory method for early idea production will be introduced as part of the discussion and session. Following the workshop, a demonstration and beginner skills session will take place in the ECA hotshop. Skilled glass artists and the ECA glass technician will work together with the students to realize selected workshop sketches in glass.

Objectives

- To introduce participants to glass, to the hotshop, and to associative, creative thinking
- To explore what might happen to creative outputs if new-to-glass participants approach glass from a conceptual perspective, viewing it through the lens of their personal disciplines
- To create a hands-on learning environment that fosters creative thinking in an interdisciplinary group setting to encourage idea production

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution will be recorded for the purpose of inclusion in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of persona data obtained in this study (e.g.: name, age, and occupation).

.....
Participant's Name (Printed)

.....
Participant's signature

Lisa Naas

.....
Name of person obtaining consent (Printed)

[redacted]

HEALTH AND SAFETY GUIDELINES

GLASS Department

I hereby confirm that I have read and retained a copy of the department's rules for Health and Safety and agree to follow them

Signed: [redacted] ..... **Date:** 17/02/2016.....

Name: Wei Lin [redacted]		
Matric No:	**Department:** Engineer	**Year:**

General:

- Eating, drinking and smoking is forbidden in **ALL** workshops due to the risk of ingestion of toxic materials and dust (with the exception of covered water bottles in the hot shop)
- All accidents must be reported to a member of Staff. All students should familiarise themselves with the first aid team and procedures as displayed in each of the workshops.
- In event of **FIRE**, students will evacuate the building via the main red staircase. **THE LIFT MUST NOT BE USED.**
- Always make sure that there is at least one other person working in the same room as you. **DO NOT WORK ALONE.**
- **NO** student should be working in the workshops when under the influence of alcohol.
- Students must not leave work on work benches or around the workshops. Please clean up after yourself.
- Be respectful of machines, tools and equipment.
- **NO EARPHONES/HEADPHONES ON IN EITHER THE COLD WORKSHOP OR HOT WORKSHOP**
- If you have not received supervised tuition in the use of a particular machine, tool or material you MUST NOT USE IT.
- **Eye protection** must be worn when cutting and grinding glass and when brushing tables clean. It is advisable that you wear protection when glass is being cut near you.
- Dust masks must be worn when applying whiting, when working with dry glass paints and enamels, dry toxic substances and when **sandblasting**.
- Attire: Wear closed-toes shoes, preferably with socks, to guard against shards of glass getting embedded in your feet. It is preferable that your knees are covered.
- Be aware of tiny shards of glass on the cutting table. These should be removed immediately with a dustpan & brush.
- Broken fragments of glass must be placed in the scrap box or appropriate waste buckets. This should be done so all glass lies flat in the bin (cut the glass down, if needed) and **must** be done so that no pieces of glass emerge over the top of the bin.
- Gloves should be worn when handling large sheets of glass.
- Never handle a piece of glass that is too big for you to handle comfortably – ask for help.

Furnace Room/ Studio Rules

- Glasses must be worn at **ALL** times: **Green** when furnace working or **clear** when watching demos
- **TIDY** up after yourself: return all tools and irons
- Sweep up around your working area
- Please re-cycle all clear glass in one cullet chest, and all colour glass in the other.

Informed Consent Form

To: Lisa Naas, PhD Student, Design (ECA)

From (Name):

Address:

Contact number:

Email:

Date: 17 February 2016

Project Title: **Play with Fire: Glass Concepts**

Project Summary: Student participants from various disciplines throughout the University will come together to contribute to ongoing research about the production of ideas at the intersection of disciplines. Students will be asked to consider "glass" from the lens of their discipline by first joining in a round-table discussion about "glass" and then by sketching, writing, or constructing ideas. A new, exploratory method for early idea production will be introduced as part of the discussion and session. Following the workshop, a demonstration and beginner skills session will take place in the ECA hotshop. Skilled glass artists and the ECA glass technician will work together with the students to realize selected workshop sketches in glass.

Objectives

- To introduce participants to glass, to the hotshop, and to associative, creative thinking
- To explore what might happen to creative outputs if new-to-glass participants approach glass from a conceptual perspective, viewing it through the lens of their personal disciplines
- To create a hands-on learning environment that fosters creative thinking in an interdisciplinary group setting to encourage idea production

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution will be recorded for the purpose of inclusion in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of persona data obtained in this study (e.g.: name, age, and occupation).

.....

Participant's Name (Printed)

[redacted]

Lisa Naas

.....

Name of person obtaining consent (Printed)

[redacted]

HEALTH AND SAFETY GUIDELINES

GLASS Department

I hereby confirm that I have read and retained a copy of the department's rules for Health and Safety and agree to follow them

Signe[redacted]..... Date:17/02/2016.

Name: Yan Ma.	[redacted]	
[redacted]	Department: Interior Design	Year: 1st

General:

- Eating, drinking and smoking is forbidden in **ALL** workshops due to the risk of ingestion of toxic materials and dust (with the exception of covered water bottles in the hot shop)
- All accidents must be reported to a member of Staff. All students should familiarise themselves with the first aid team and procedures as displayed in each of the workshops.
- In event of **FIRE**, students will evacuate the building via the main red staircase. **THE LIFT MUST NOT BE USED.**
- Always make sure that there is at least one other person working in the same room as you. **DO NOT WORK ALONE.**
- **NO** student should be working in the workshops when under the influence of alcohol.
- Students must not leave work on work benches or around the workshops. Please clean up after yourself.
- Be respectful of machines, tools and equipment.
- **NO EARPHONES/HEADPHONES ON IN EITHER THE COLD WORKSHOP OR HOT WORKSHOP**
- If you have not received supervised tuition in the use of a particular machine, tool or material you MUST NOT USE IT.

- **Eye protection** must be worn when cutting and grinding glass and when brushing tables clean. It is advisable that you wear protection when glass is being cut near you.
- Dust masks must be worn when applying whiting, when working with dry glass paints and enamels, dry toxic substances and when **sandblasting**.
- Attire: Wear closed-toes shoes, preferably with socks, to guard against shards of glass getting embedded in your feet. It is preferable that your knees are covered.
- Be aware of tiny shards of glass on the cutting table. These should be removed immediately with a dustpan & brush.
- Broken fragments of glass must be placed in the scrap box or appropriate waste buckets. This should be done so all glass lies flat in the bin (cut the glass down, if needed) and **must** be done so that no pieces of glass emerge over the top of the bin.
- Gloves should be worn when handling large sheets of glass.
- Never handle a piece of glass that is too big for you to handle comfortably – ask for help.

Furnace Room/ Studio Rules

- Glasses must be worn at **ALL** times: **Green** when furnace working or **clear** when watching demos
- **TIDY** up after yourself: return all tools and irons
- Sweep up around your working area
- Please re-cycle all clear glass in one cullet chest, and all colour glass in the other.

Informed Consent Form

To: Lisa Naas, PhD Student, Design (ECA)

From (Name): PORNNAPHA MONTRIKITTIPHANT (MINT)

[redacted]

Date: 17 February 2016

Project Title: **Play with Fire: Glass Concepts**

Project Summary: Student participants from various disciplines throughout the University will come together to contribute to ongoing research about the production of ideas at the intersection of disciplines. Students will be asked to consider "glass" from the lens of their discipline by first joining in a round-table discussion about "glass" and then by sketching, writing, or constructing ideas. A new, exploratory method for early idea production will be introduced as part of the discussion and session. Following the workshop, a demonstration and beginner skills session will take place in the ECA hotshop. Skilled glass artists and the ECA glass technician will work together with the students to realize selected workshop sketches in glass.

Objectives

- To introduce participants to glass, to the hotshop, and to associative, creative thinking
- To explore what might happen to creative outputs if new-to-glass participants approach glass from a conceptual perspective, viewing it through the lens of their personal disciplines
- To create a hands-on learning environment that fosters creative thinking in an interdisciplinary group setting to encourage idea production

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution will be recorded for the purpose of inclusion in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of persona data obtained in this study (e.g.: name, age, and occupation).

PORNNAPHA MONTRIKITTIPHANT

Participant's Name (Printed)

[redacted]

Participant's signature

Lisa Naas

.....

Name of person obtaining consent (Printed)

[redacted]

.....

Signature of person obtaining consent

HEALTH AND SAFETY GUIDELINES

GLASS Department

I hereby confirm that I have read and retained a copy of the department's rules for Health and Safety and agree to follow them

Signe [redacted] **Date:** 17/02/2016

Name: PORNNAPHA MONTRIKITTIPHANT [redacted]		
[redacted]	**Department:** Biomedical Sciences with Manangement	**Year:** 3rd Year

General:

- Eating, drinking and smoking is forbidden in **ALL** workshops due to the risk of ingestion of toxic materials and dust (with the exception of covered water bottles in the hot shop)
- All accidents must be reported to a member of Staff. All students should familiarise themselves with the first aid team and procedures as displayed in each of the workshops.
- In event of **FIRE**, students will evacuate the building via the main red staircase. **THE LIFT MUST NOT BE USED.**
- Always make sure that there is at least one other person working in the same room as you. **DO NOT WORK ALONE.**
- **NO** student should be working in the workshops when under the influence of alcohol.
- Students must not leave work on work benches or around the workshops. Please clean up after yourself.
- Be respectful of machines, tools and equipment.
- **NO EARPHONES/HEADPHONES ON IN EITHER THE COLD WORKSHOP OR HOT WORKSHOP**
- If you have not received supervised tuition in the use of a particular machine, tool or material you MUST NOT USE IT.
- **Eye protection** must be worn when cutting and grinding glass and when brushing tables clean. It is advisable that you wear protection when glass is being cut near you.
- Dust masks must be worn when applying whiting, when working with dry glass paints and enamels, dry toxic substances and when **sandblasting**.
- Attire: Wear closed-toes shoes, preferably with socks, to guard against shards of glass getting embedded in your feet. It is preferable that your knees are covered.
- Be aware of tiny shards of glass on the cutting table. These should be removed immediately with a dustpan & brush.
- Broken fragments of glass must be placed in the scrap box or appropriate waste buckets. This should be done so all glass lies flat in the bin (cut the glass down, if needed) and **must** be done so that no pieces of glass emerge over the top of the bin.
- Gloves should be worn when handling large sheets of glass.
- Never handle a piece of glass that is too big for you to handle comfortably – ask for help.

Furnace Room/ Studio Rules

- Glasses must be worn at **ALL** times: **Green** when furnace working or **clear** when watching demos
- **TIDY** up after yourself: return all tools and irons
- Sweep up around your working area
- Please re-cycle all clear glass in one cullet chest, and all colour glass in the other.

Informed Consent Form

To: Lisa Naas, PhD Student, Design (ECA)

From (Name): Zuzana Ullmannova

[redacted]

Date: 17 February 2016

Project Title: **Play with Fire: Glass Concepts**

Project Summary: Student participants from various disciplines throughout the University will come together to contribute to ongoing research about the production of ideas at the intersection of disciplines. Students will be asked to consider "glass" from the lens of their discipline by first joining in a round-table discussion about "glass" and then by sketching, writing, or constructing ideas. A new, exploratory method for early idea production will be introduced as part of the discussion and session. Following the workshop, a demonstration and beginner skills session will take place in the ECA hotshop. Skilled glass artists and the ECA glass technician will work together with the students to realize selected workshop sketches in glass.

Objectives

- To introduce participants to glass, to the hotshop, and to associative, creative thinking
- To explore what might happen to creative outputs if new-to-glass participants approach glass from a conceptual perspective, viewing it through the lens of their personal disciplines
- To create a hands-on learning environment that fosters creative thinking in an interdisciplinary group setting to encourage idea production

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution will be recorded for the purpose of inclusion in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of persona data obtained in this study (e.g.: name, age, and occupation).

Zuzana Ullmannova

Participant's Name (Printed)

[redacted]

Participant's Signature

Lisa Naas

Name of person obtaining consent (Printed)

[redacted]

Signature of person obtaining consent

HEALTH AND SAFETY GUIDELINES

GLASS Department

I hereby confirm that I have read and retained a copy of the department's rules for Health and Safety and agree to follow them

Signe [redacted] **Date:** 17/02/2016

Name: Zuzana Ullmannova [redacted]		
[redacted]	**Department:** Painting	**Year:** First

General:

- Eating, drinking and smoking is forbidden in **ALL** workshops due to the risk of ingestion of toxic materials and dust (with the exception of covered water bottles in the hot shop)
- All accidents must be reported to a member of Staff. All students should familiarise themselves with the first aid team and procedures as displayed in each of the workshops.
- In event of **FIRE**, students will evacuate the building via the main red staircase. **THE LIFT MUST NOT BE USED.**
- Always make sure that there is at least one other person working in the same room as you. **DO NOT WORK ALONE.**
- **NO** student should be working in the workshops when under the influence of alcohol.
- Students must not leave work on work benches or around the workshops. Please clean up after yourself.
- Be respectful of machines, tools and equipment.
- **NO EARPHONES/HEADPHONES ON IN EITHER THE COLD WORKSHOP OR HOT WORKSHOP**
- If you have not received supervised tuition in the use of a particular machine, tool or material you MUST NOT USE IT.
- **Eye protection** must be worn when cutting and grinding glass and when brushing tables clean. It is advisable that you wear protection when glass is being cut near you.
- Dust masks must be worn when applying whiting, when working with dry glass paints and enamels, dry toxic substances and when **sandblasting**.
- Attire: Wear closed-toes shoes, preferably with socks, to guard against shards of glass getting embedded in your feet. It is preferable that your knees are covered.
- Be aware of tiny shards of glass on the cutting table. These should be removed immediately with a dustpan & brush.
- Broken fragments of glass must be placed in the scrap box or appropriate waste buckets. This should be done so all glass lies flat in the bin (cut the glass down, if needed) and **must** be done so that no pieces of glass emerge over the top of the bin.
- Gloves should be worn when handling large sheets of glass.
- Never handle a piece of glass that is too big for you to handle comfortably – ask for help.

Furnace Room/ Studio Rules

- Glasses must be worn at **ALL** times: **Green** when furnace working or **clear** when watching demos
- **TIDY** up after yourself: return all tools and irons
- Sweep up around your working area
- Please re-cycle all clear glass in one cullet chest, and all colour glass in the other.

Informed Consent Form

To: Lisa Naas, PhD Student, Design (ECA)

From (Name): Yujun XU

[redacted]

Date: 17 February 2016

Project Title: **Play with Fire: Glass Concepts**

Project Summary: Student participants from various disciplines throughout the University will come together to contribute to ongoing research about the production of ideas at the intersection of disciplines. Students will be asked to consider "glass" from the lens of their discipline by first joining in a round-table discussion about "glass" and then by sketching, writing, or constructing ideas. A new, exploratory method for early idea production will be introduced as part of the discussion and session. Following the workshop, a demonstration and beginner skills session will take place in the ECA hotshop. Skilled glass artists and the ECA glass technician will work together with the students to realize selected workshop sketches in glass.

Objectives

- To introduce participants to glass, to the hotshop, and to associative, creative thinking
- To explore what might happen to creative outputs if new-to-glass participants approach glass from a conceptual perspective, viewing it through the lens of their personal disciplines
- To create a hands-on learning environment that fosters creative thinking in an interdisciplinary group setting to encourage idea production

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution will be recorded for the purpose of inclusion in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of persona data obtained in this study (e.g.: name, age, and occupation).

Yujun XU

.....

Participant's Name (Printed)

[redacted]

.....

Participant's signature

Lisa Naas

.....

Name of person obtaining consent (Printed)

[redacted]

Signature of person obtaining consent

HEALTH AND SAFETY GUIDELINES

GLASS Department

I hereby confirm that I have read and retained a copy of the department's rules for Health and Safety and agree to follow them

Signed:.. [redacted] ..... **Date:** 17/02/2016

Name: Yujun XU [redacted]		
Ma [redacted]	**Department:** Education School	**Year:** [redacted] 1st Year

General:

- Eating, drinking and smoking is forbidden in **ALL** workshops due to the risk of ingestion of toxic materials and dust (with the exception of covered water bottles in the hot shop)
- All accidents must be reported to a member of Staff. All students should familiarise themselves with the first aid team and procedures as displayed in each of the workshops.
- In event of **FIRE**, students will evacuate the building via the main red staircase. **THE LIFT MUST NOT BE USED.**
- Always make sure that there is at least one other person working in the same room as you. **DO NOT WORK ALONE.**
- **NO** student should be working in the workshops when under the influence of alcohol.
- Students must not leave work on work benches or around the workshops. Please clean up after yourself.
- Be respectful of machines, tools and equipment.
- **NO EARPHONES/HEADPHONES ON IN EITHER THE COLD WORKSHOP OR HOT WORKSHOP**
- If you have not received supervised tuition in the use of a particular machine, tool or material you MUST NOT USE IT.
- **Eye protection** must be worn when cutting and grinding glass and when brushing tables clean. It is advisable that you wear protection when glass is being cut near you.
- Dust masks must be worn when applying whiting, when working with dry glass paints and enamels, dry toxic substances and when **sandblasting**.
- Attire: Wear closed-toes shoes, preferably with socks, to guard against shards of glass getting embedded in your feet. It is preferable that your knees are covered.
- Be aware of tiny shards of glass on the cutting table. These should be removed immediately with a dustpan & brush.
- Broken fragments of glass must be placed in the scrap box or appropriate waste buckets. This should be done so all glass lies flat in the bin (cut the glass down, if needed) and **must** be done so that no pieces of glass emerge over the top of the bin.
- Gloves should be worn when handling large sheets of glass.
- Never handle a piece of glass that is too big for you to handle comfortably – ask for help.

Furnace Room/ Studio Rules

- Glasses must be worn at **ALL** times: **Green** when furnace working or **clear** when watching demos
- **TIDY** up after yourself: return all tools and irons
- Sweep up around your working area
- Please re-cycle all clear glass in one cullet chest, and all colour glass in the other.



15-19 February www.innovativelearning.ed.ac.uk

Glass Innovation, Functions, and Uses

A Very Brief History!





3500 - 50 BC: tools, vessels, decoration, adornment, amulets



1400-1350 BC, Egypt



699-600 BC, Egypt



125-1 BC, Hellenistic Mosaic Bowl

Credit: www.cmog.org

Glass Blowing Technique Innovation 50 BC



1-99 AD, Roman bottle



300-499 AD, Roman Flask



800-999 AD, probably Iran

Credit: www.cmog.org

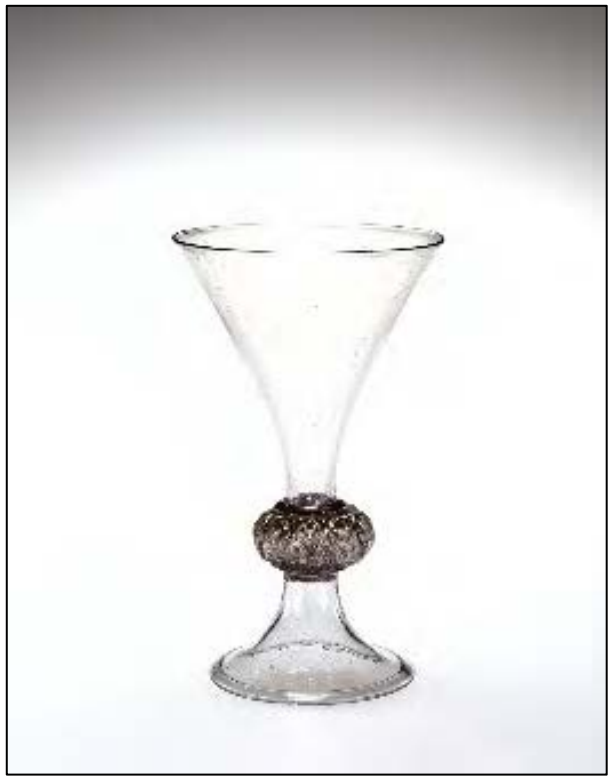
Stained Glass Windows/Architectural Glass



1248 AD Sainte-Chapelle

Credit: www.telegraph.co.uk

Refining Goblets, Drinking Vessels, Table or Function ware



1540-1570 AD, Venice or Austria

Credit: www.cmog.org

Mirrors and Chandeliers



1670s, Hall of Mirrors, Versailles

Credit: www.versailles3d.com

Music and Lenses



1761, Glass Armonica and 1784, Bifocals
Ben Franklin, inventor

Credit: www.ushistory.org

Scientific Models





1886, Harvard Glass Flowers
Leopold Blaschka and son

Credit: Harvard Natural History Museum

Beaux Arts, Home Décor and Lighting

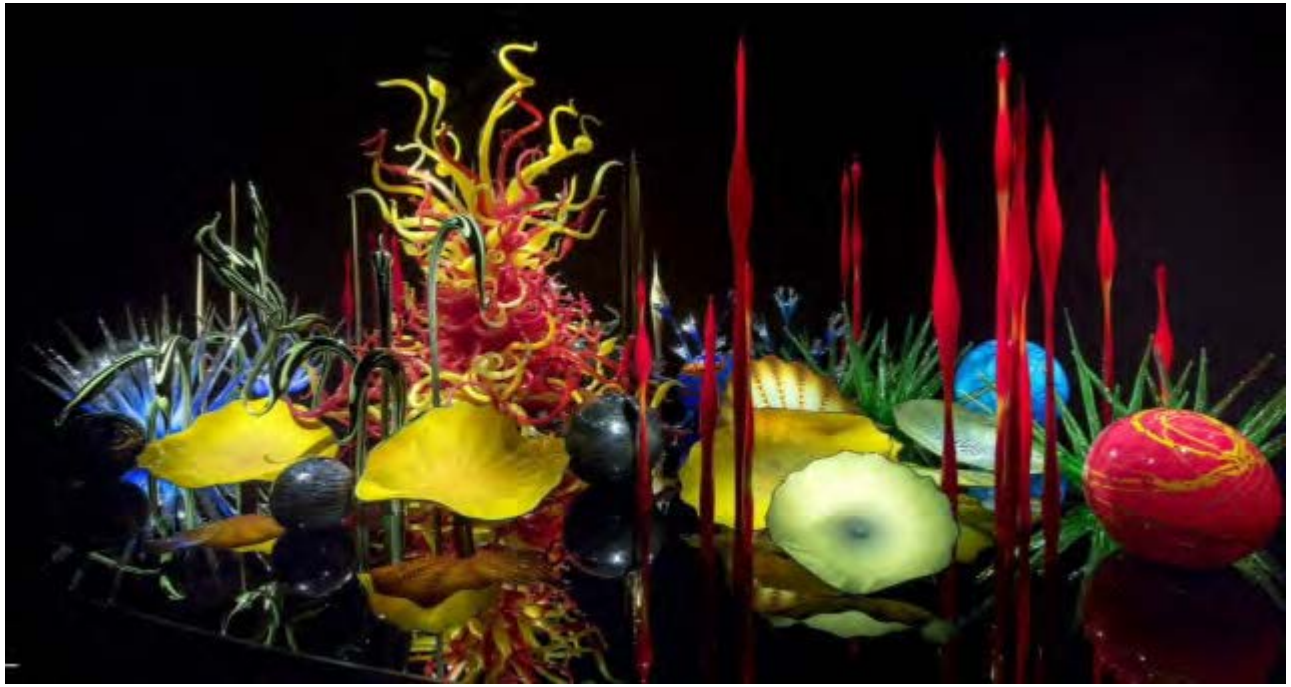


Collection of Tiffany Lamps from the Virginia Museum of Fine Arts

Early 1900's

Studio Glass Art Movement





1960s Italy and United States
Lino Tagliapietra (left) and Dale Chihuly (above)

Credit: www.linotagliapietra.com and www.chihuly.com

Modern Home Goods



1971-1974 Corning Pyrex Casserole Dish

Credit: www.cmog.org

Modern Building



1976 John Hancock Tower, Boston

Credit: www.ottoluk.wordpress.com

Contemporary Sculpture/Neon



2011, Carrion, Javier Perez



12 MONTHS OF NEON LOVE
Richard William Wheater & Victoria Lucas
2011-12

Credit: www.incollect.com and
www.richardwheater.com

Communication Technology/Mobile Devices



2016, Apple iPad

Credit: www.apple.com

What's Next in Art? Design?

How can we combine glass with other disciplines?

?

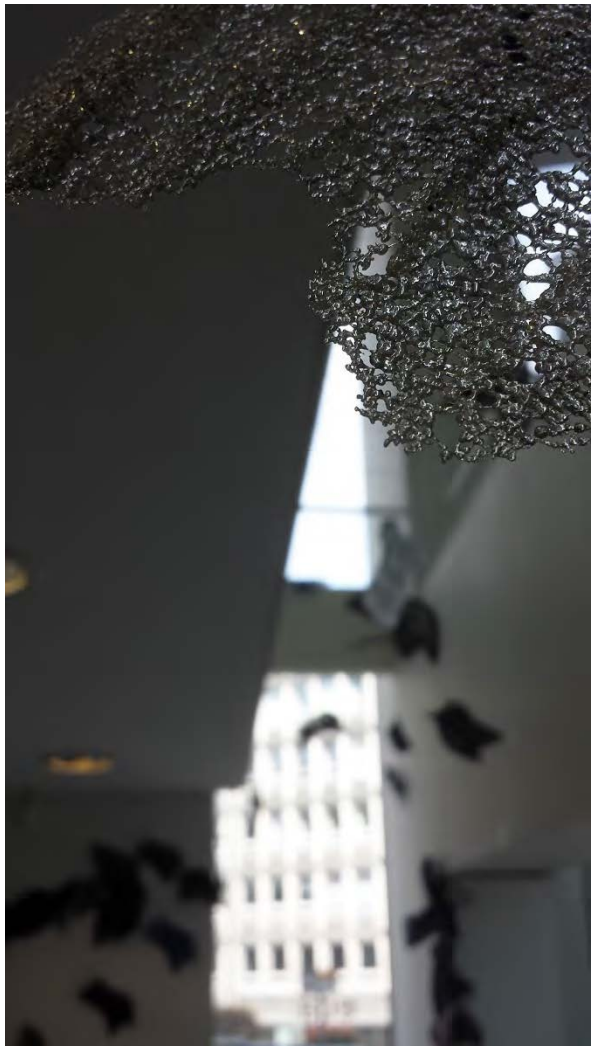
Let's take this medium of innovation and approach it with two theories about creativity and idea production…
Association and Combination

Glass, Sound, Sensors

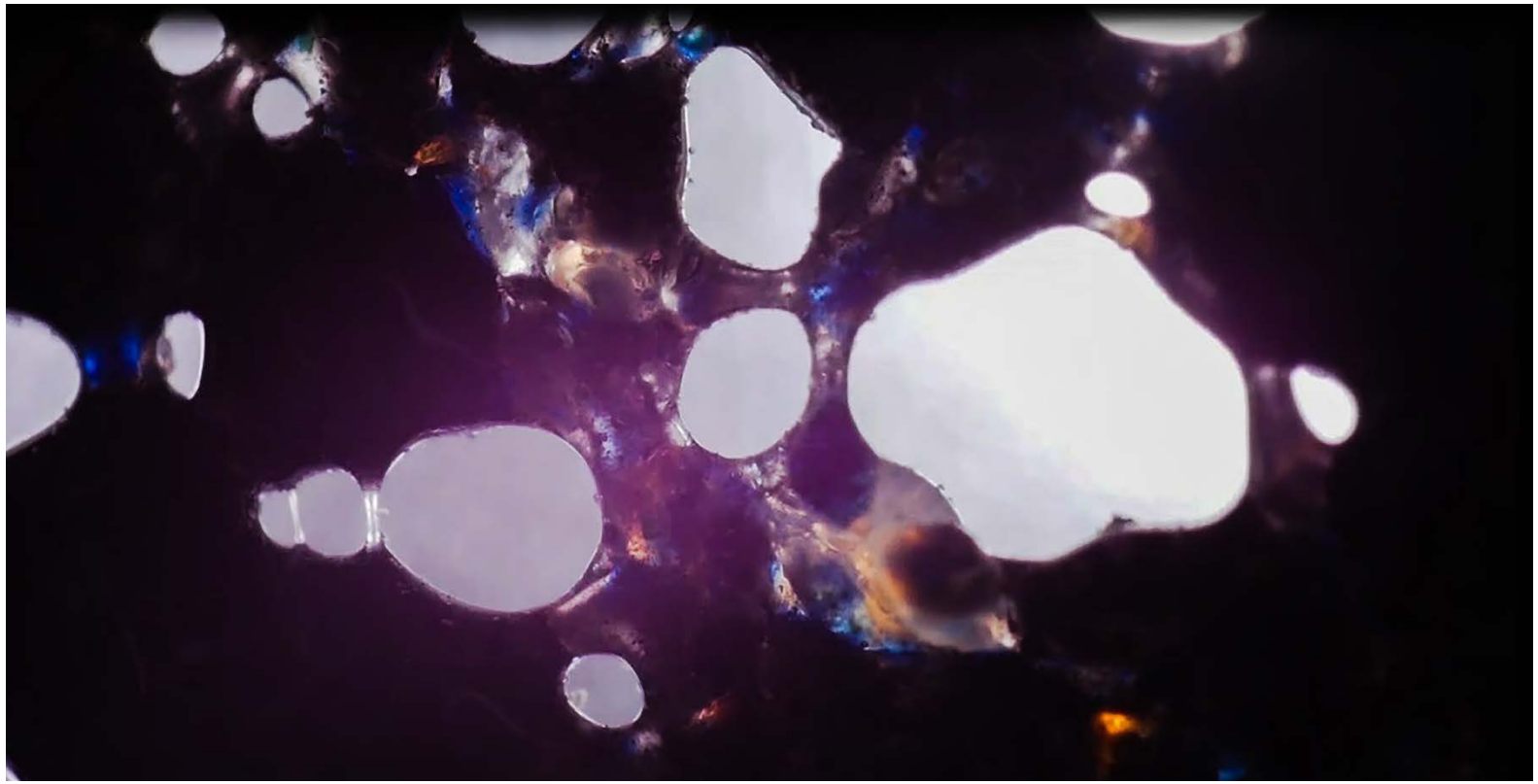




2015
The Sorrows Release Installation



Glass in Film



2015

SORROWS Film Still

http://www.inconcertwithglass.com/#!glass-whispers/cgho

Recording Glass





2015

Makers Marks

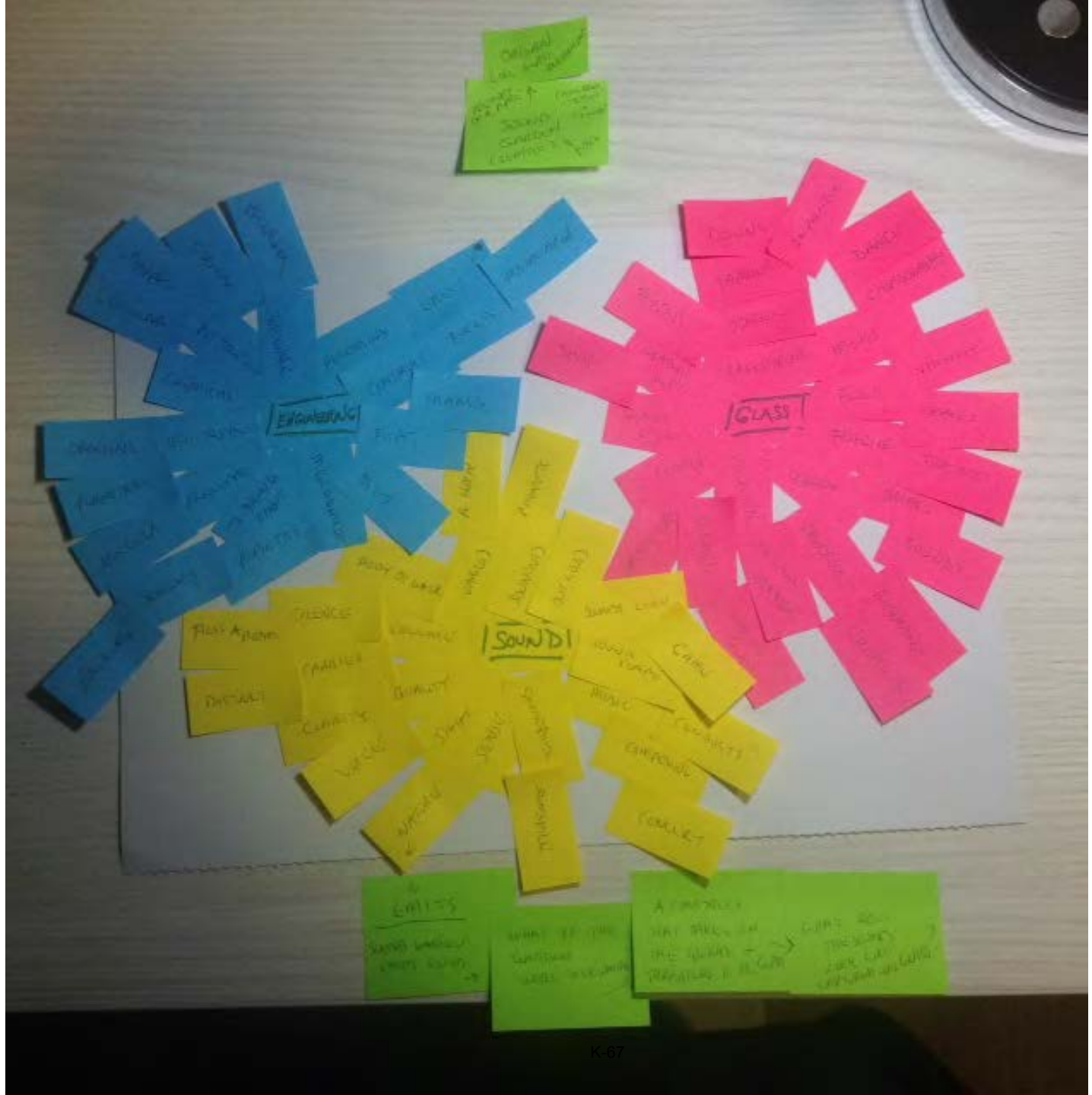
Association and Combination…or Triangulation

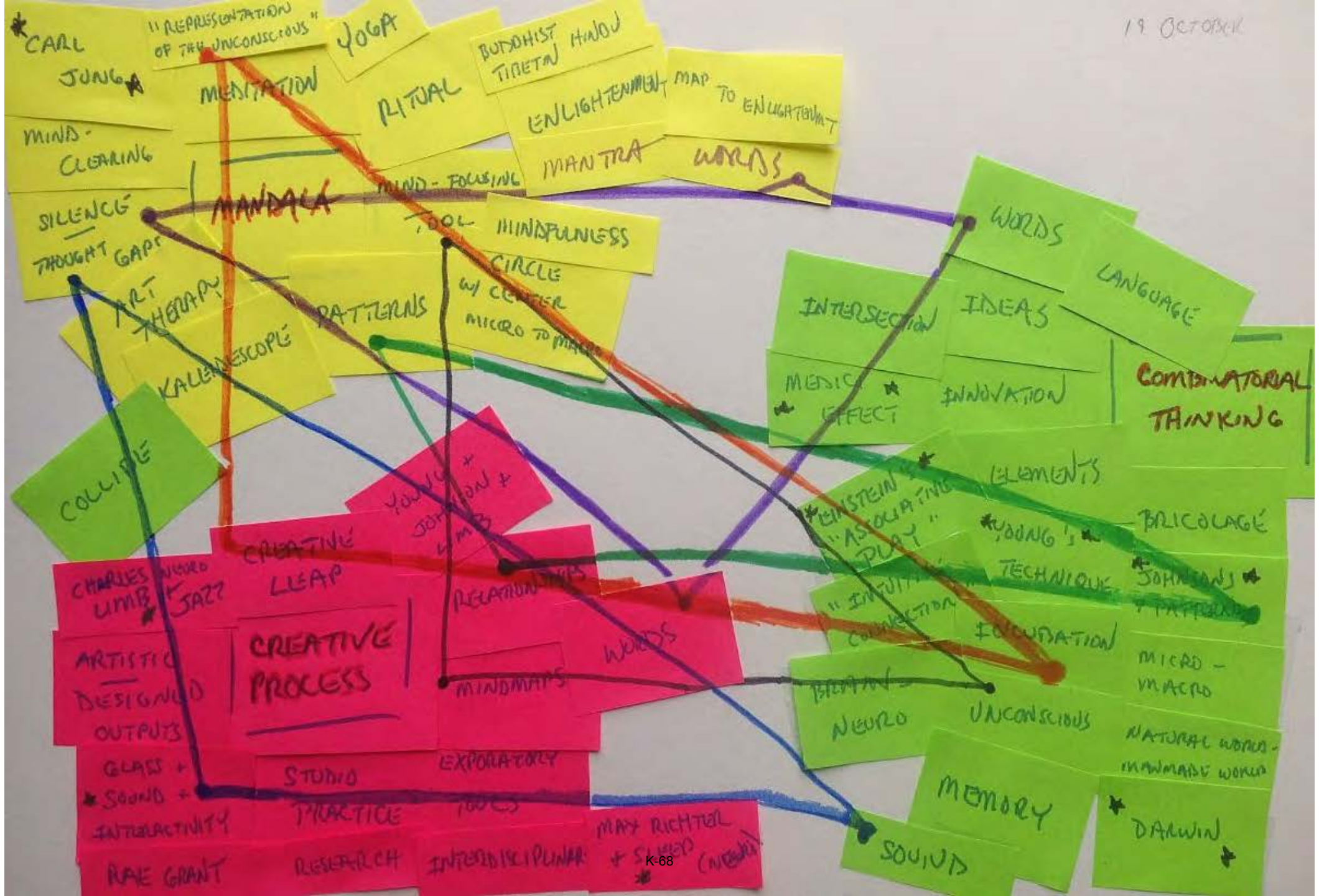



ENGINEERING
GLASS
FRAGILE
SOUND


ENGINEERING
GLASS
SOUND
FILLS A ROOM
DISTINCT
TILENCE
PARTIES
CLARITY
VOICE
NATURE
BODY OF WATER
VOLUME
QUALITY
SMART
SENSE
SOUNDBITE
SOUNDFILE
VARIES
SOUNDS LIKE
CAME
MUSIC
COMPOSING
CONCERT
TRAGILE
BREAKS
SOUNDS


ENGINEERING
GLASS
SOUND
FILLS A ROOM
DISTINCT
CARRIES
QUALITY
VOICE
NATURE
SIGHT
SENSE
MUSIC
CONDUCTS
COMPOSING
CONCERT
GAME
VARIES
SOUNDS
OUTLINES
PHONETY
A HORN
BODY OF LAIR
VOLUME
SOUND CHEF
SOUND GRAPH


ENGINEERING
CLASS
SOUND


19 OCTOBER
CARL JUNG
"REPRESENTATION OF THE UNCONSCIOUS"
YOGA
MEDITATION
RITUAL
BUDDHIST TIBETAN HINDU
ENLIGHTENMENT
MAP TO ENLIGHTENMT
MIND-CLEARING
MANTRA
WORDS
MIND-FOCUSING
SILENCE
MANDALA
TOOL
MINDFULNESS
THOUGHT GAPS
CIRCLE W/ CENTER MICRO TO MACRO
ART THERAPY
PATTERNS
KALEIDESCOPE
WORDS
LANGUAGE
INTERSECTION
IDEAS
MEDICI EFFECT
INNOVATION
COMBINATORIAL THINKING
COLLIDE
ELEMENTS
BRICOLAGE
EINSTEIN'S "ASSOCIATIVE PLAY"
YOUNG'S TECHNIQUE
JOHNSONS
CREATIVE LEAP
CHARLES LIMB
NEURO JAZZ
RELATIONSHIPS
"INTUITIVE CONNECTION"
INCUBATION
CREATIVE PROCESS
WORDS
ARTISTIC DESIGNED OUTPUTS
MINDMAPS
MICRO-MACRO
BRAIN-NEURO
UNCONSCIOUS
NATURAL WORLD-MANMADE WORLD
GLASS + SOUND + INTERACTIVITY
STUDIO PRACTICE
EXPORATORY TOOLS
MEMORY
DARWIN
RAE GRANT
RESEARCH
INTERDISCIPLINARY
MAX RICHTER + SLEEP
SOUND

16 February Map-Sketches

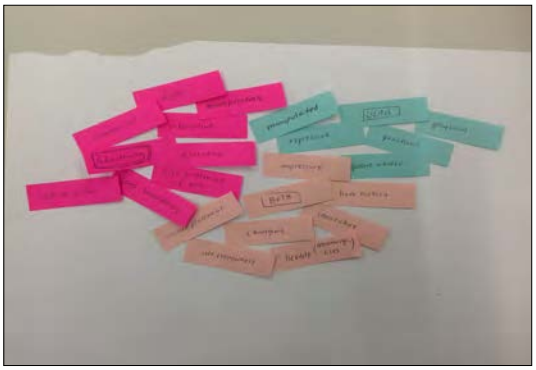












16 February Glass Skills











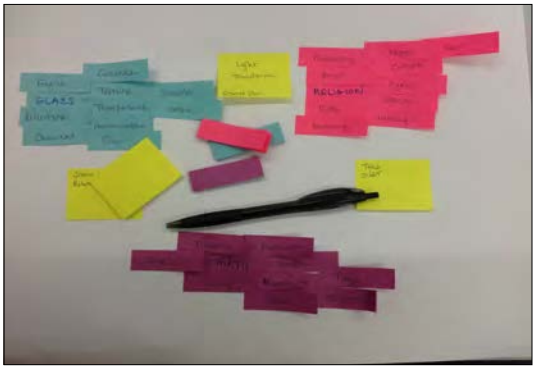


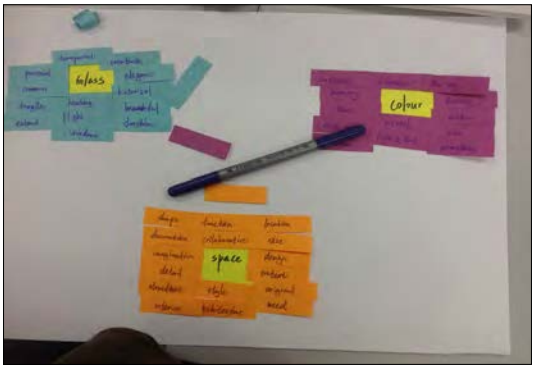


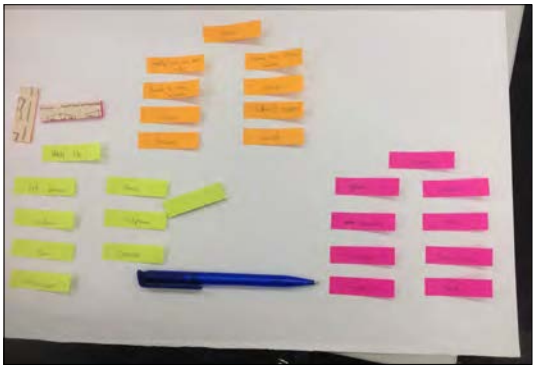


17 February Map-Sketches

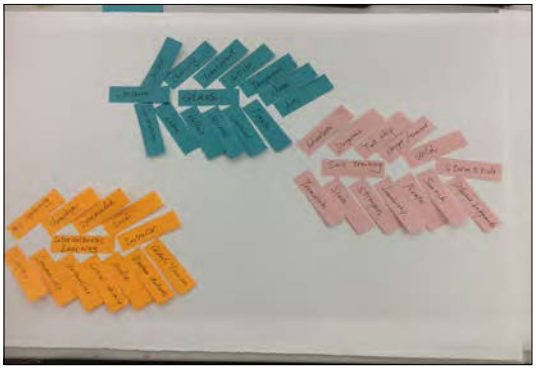




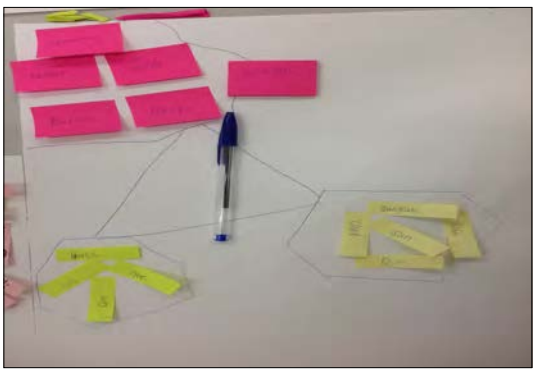


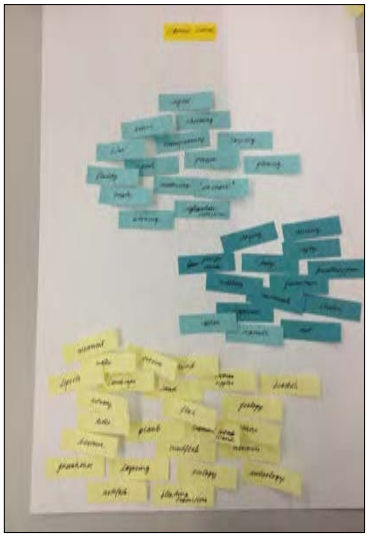














17 February Glass Skills







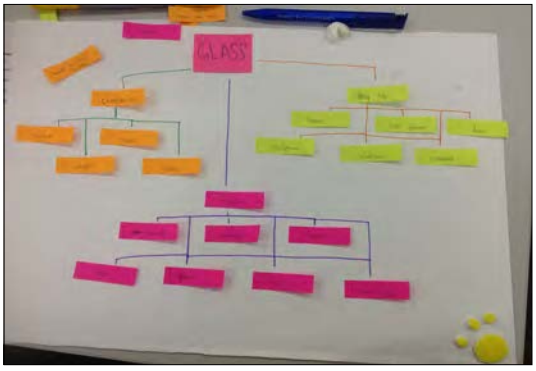


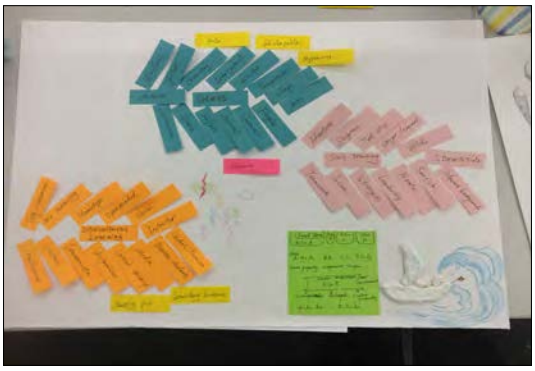


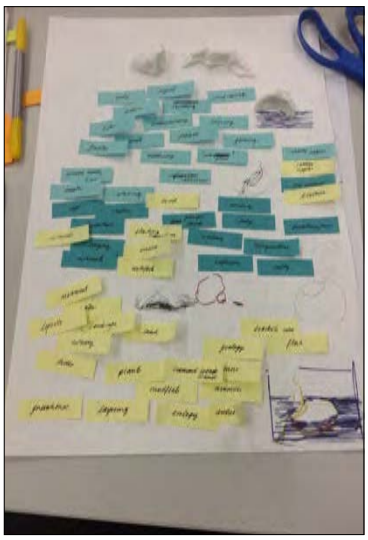


17 February Further Development of Map-Sketches











Play with Fire: Glass Concepts Participant Questionnaire
Event Date:

Year: 2 Undergraduate Student _____MA/MFA Student _____ PhD Student _____ Other

Gender: ✓ Female _____ Male

Discipline/School: MA MUSIC

Sketching/Ideas Workshop Questions
In which sketching/ideas session did you participate? ✓ 10:30-12:30 or _____ 1:30-3:30

Did you try the Triangulation play with words? ✓ yes _____ no

If yes, what three words did you use? SOUND, LIGHT, GLASS

If you tried Triangulation, did you try ✓ individually _____Or with a group?

Did you find the Triangulation method useful to developing your ideas or sketches? YES

In a sentence or two, please describe any ideas that were derived from the Triangulation play: The intersections between my buzz words became clearer, ~~the longer it took to~~ an overall idea began to take shape.

Do you think you might try using this Triangulation method again in the future? YES

From the perspective of the project work you do in your discipline, how do you think you might use the Triangulation method? FOR BRAINSTORMING

Hotshop Session Questions
Did you try all or most of the skills exercises in the hotshop? ✓ yes _____ no

Would you say that the skills exercises gave you a good sense of the qualities of glass? ✓ yes _____no

Which part of the hotshop session did you enjoy the most? BLOWING & MAKING A DROP

Overall Experience
On a scale of 1-10, how would you rate the event as a learning experience?

1 2 3 4 5 6 7 8 9 (10)
Very Poor Excellent

How would you rate your overall experience of Play with Fire: Glass Concepts?

1 2 3 4 5 6 7 8 9 (10)
Very Poor Excellent

We are eager to receive your feedback on any aspect of the event (good or bad) on which you would like to comment. Please use the back of the paper to include any remarks you want to make...thank you so much for your time!

Play with Fire: Glass Concepts Participant Questionnaire

Event Date: 16/2/16

Year: 3 Undergraduate Student ✓ MA/MFA Student _____ PhD Student _____ Other

Gender: ✓ Female _____ Male

Discipline/School: Study Abroad - Exchange / HSS

Sketching/Ideas Workshop Questions

In which sketching/ideas session did you participate? _____ 10:30-12:30 or X 1:30-3:30

Did you try the Triangulation play with words? X yes _____ no

If yes, what three words did you use? GLASS, ADVERTISING, BOTH

If you tried Triangulation, did you try X individually _____ Or with a group?

Did you find the Triangulation method useful to developing your ideas or sketches?
yes - ideas, cool to apply glass / advertising to each other

In a sentence or two, please describe any ideas that were derived from the Triangulation play: I concluded that ~~white~~ advertising is a manipulative medium and glass is more manipulated / manipulable, but each have a unique set of restrictions

Do you think you might try using this Triangulation method again in the future? definitely

From the perspective of the project work you do in your discipline, how do you think you might use the Triangulation method? it depends on the brief, but just connecting concepts, research and ideas

Hotshop Session Questions

Did you try all or most of the skills exercises in the hotshop? X yes _____ no

Would you say that the skills exercises gave you a good sense of the qualities of glass? X yes _____ no

Which part of the hotshop session did you enjoy the most? blowing glass

Overall Experience

On a scale of 1-10, how would you rate the event as a learning experience?

1 2 3 4 5 6 7 8 9 (10)
Very Poor Excellent

How would you rate your overall experience of Play with Fire: Glass Concepts?

1 2 3 4 5 6 7 8 9 (10)
Very Poor Excellent

We are eager to receive your feedback on any aspect of the event (good or bad) on which you would like to comment. Please use the back of the paper to include any remarks you want to make...thank you so much for your time!

this was just an awesome experience that I'm altogether really grateful for.

Play with Fire: Glass Concepts Participant Questionnaire
Event Date:

Year: 4 Undergraduate Student _____ MA/MFA Student _____ PhD Student _____ Other

Gender: _____ Female ✓ Male

Discipline/School: School of Economics

Sketching/Ideas Workshop Questions

In which sketching/ideas session did you participate? ✓ 10:30-12:30 or _____ 1:30-3:30

Did you try the Triangulation play with words? ✓ yes _____ no

If yes, what three words did you use? Glass Economics

If you tried Triangulation, did you try ✓ individually _____ Or with a group?

Did you find the Triangulation method useful to developing your ideas or sketches? Yes.

In a sentence or two, please describe any ideas that were derived from the Triangulation play: At first I thought it would be very difficult to find a link but discovered that the idea of reflection is shared by both. Glass obviously reflects but Economics is a reflection of events in society, in economies & countries

Do you think you might try using this Triangulation method again in the future? Yes.

From the perspective of the project work you do in your discipline, how do you think you might use the Triangulation method? Help me brainstorm more effectively

Hotshop Session Questions

Did you try all or most of the skills exercises in the hotshop? ✓ yes _____ no

Would you say that the skills exercises gave you a good sense of the qualities of glass? ✓ yes _____ no

Which part of the hotshop session did you enjoy the most? Trying out manipulating glass for myself.

Overall Experience

On a scale of 1-10, how would you rate the event as a learning experience?

1 2 3 4 5 6 7 8 9 (10)
Very Poor Excellent

How would you rate your overall experience of Play with Fire: Glass Concepts?

1 2 3 4 5 6 7 8 9 (10)
Very Poor Excellent

We are eager to receive your feedback on any aspect of the event (good or bad) on which you would like to comment. Please use the back of the paper to include any remarks you want to make...thank you so much for your time!

I had a great time, would 100% recommend!

Play with Fire: Glass Concepts Participant Questionnaire

Event Date:

Year: 4 (Undergraduate Student) ____ MA/MFA Student ____ PhD Student ____ Other

Gender: V Female ____ Male

Discipline/School: Politics + Econ History

Sketching/Ideas Workshop Questions

In which sketching/ideas session did you participate? X 10:30-12:30 or ____ 1:30-3:30

Did you try the Triangulation play with words? X yes ____ no

If yes, what three words did you use? Politics, Glass

If you tried Triangulation, did you try X individually ____Or with a group?

Did you find the Triangulation method useful to developing your ideas or sketches?

In a sentence or two, please describe any ideas that were derived from the Triangulation play: I found it really difficult to find connections between my academic discipline + glass, but I enjoyed the opportunity to think differently about things

Do you think you might try using this Triangulation method again in the future? Probably not

From the perspective of the project work you do in your discipline, how do you think you might use the Triangulation method? ____

Hotshop Session Questions

Did you try all or most of the skills exercises in the hotshop? X yes ____ no

Would you say that the skills exercises gave you a good sense of the qualities of glass? X yes ____no

Which part of the hotshop session did you enjoy the most? Manipulating / Dropping the glass

Overall Experience

On a scale of 1-10, how would you rate the event as a learning experience?

1 2 3 4 5 6 7 8 (9) 10

Very Poor Excellent

How would you rate your overall experience of Play with Fire: Glass Concepts?

1 2 3 4 5 6 7 8 9 (10)

Very Poor Excellent

We are eager to receive your feedback on any aspect of the event (good or bad) on which you would like to comment. Please use the back of the paper to include any remarks you want to make...thank you so much for your time!

Play with Fire: Glass Concepts Participant Questionnaire

Event Date: 16/02/16

Year: 3 (Undergraduate Student) _____MA/MFA Student _____ PhD Student _____ Other

Gender: _____(Female)_____ Male

Discipline/School: MVM

Sketching/Ideas Workshop Questions

In which sketching/ideas session did you participate? _____ 10:30-12:30 or _____(1:30-3:30)

Did you try the **Triangulation play with** words? _____(yes)_____ no

If yes, what three words did you use? medicine, science, glass

If you tried Triangulation, did you try _____(individually)_____Or with a group?

Did you find the Triangulation method useful to developing your ideas or sketches? Yes

In a sentence or two, please describe any ideas that were derived from the Triangulation play: innovation, looking/seeing/observation/diagnosis communication

Do you think you might try using this Triangulation method again in the future? Yes

From the perspective of the project work you do in your discipline, how do you think you might use the Triangulation method? to bring together different aspects of something/concepts and identify any links/connections

Hotshop Session Questions

Did you try all or most of the skills exercises in the hotshop? _____(yes)_____ no

Would you say that the skills exercises gave you a good sense of the qualities of glass? _____(yes)_____no

Which part of the hotshop session did you enjoy the most? glass blowing, getting to actually work with/handle the glass

Overall Experience

On a scale of 1-10, how would you rate the event as a learning experience?

1 2 3 4 5 6 7 8 (9) 10

Very Poor Excellent

How would you rate your overall experience of Play with Fire: Glass Concepts?

1 2 3 4 5 6 7 8 9 (10)

Very Poor Excellent

We are eager to receive your feedback on any aspect of the event (good or bad) on which you would like to comment. Please use the back of the paper to include any remarks you want to make...thank you so much for your time!

Play with Fire: Glass Concepts Participant Questionnaire

Event Date:

Year: ____Undergraduate Student ✓ MA/MFA Student ✓ PhD Student ____ Other

Gender: ✓ Female ____ Male

Discipline/School: Product Design / ECA

Sketching/Ideas Workshop Questions

In which sketching/ideas session did you participate? ✓ 10:30-12:30 or ✓ 1:30-3:30

Did you try the Triangulation play with words? ✓ yes ____ no

If yes, what three words did you use? Memory + Glass + Sense

If you tried Triangulation, did you try ✓ individually ____Or with a group?

Did you find the Triangulation method useful to developing your ideas or sketches?

In a sentence or two, please describe any ideas that were derived from the Triangulation play: Emotional design to have a childhood memory in the glass.

Do you think you might try using this Triangulation method again in the future? Maybe.

From the perspective of the project work you do in your discipline, how do you think you might use the Triangulation method? In the early stage of brainstorm.

Hotshop Session Questions

Did you try all or most of the skills exercises in the hotshop? ✓ yes ____ no

Would you say that the skills exercises gave you a good sense of the qualities of glass? ✓ yes ____no

Which part of the hotshop session did you enjoy the most? making

Overall Experience

On a scale of 1-10, how would you rate the event as a learning experience?

1 2 3 4 5 6 7 8 (9) 10

Very Poor Excellent

How would you rate your overall experience of Play with Fire: Glass Concepts?

1 2 3 4 5 6 7 8 (9) 10

Very Poor Excellent

We are eager to receive your feedback on any aspect of the event (good or bad) on which you would like to comment. Please use the back of the paper to include any remarks you want to make...thank you so much for your time!

Play with Fire: Glass Concepts Participant Questionnaire
Event Date:

Year: _____Undergraduate Student ___✓___MA/MFA Student _____ PhD Student _____ Other

Gender: ___✓___ Female _____ Male

Discipline/School: ___ICA___

Sketching/Ideas Workshop Questions
In which sketching/ideas session did you participate? _____ 10:30-12:30 or ___✓___ 1:30-3:30

Did you try the Triangulation play with words? _____ yes ___✓___ no

If yes, what three words did you use? _____

If you tried Triangulation, did you try ___✓___ individually _____Or with a group?

Did you find the Triangulation method useful to developing your ideas or sketches?

In a sentence or two, please describe any ideas that were derived from the Triangulation play: ___exciting___

Do you think you might try using this Triangulation method again in the future? ___Yes No___

From the perspective of the project work you do in your discipline, how do you think you might use the Triangulation method? ___No___

Hotshop Session Questions
Did you try all or most of the skills exercises in the hotshop? ___✓___ yes _____ no

Would you say that the skills exercises gave you a good sense of the qualities of glass? ___✓___ yes _____no

Which part of the hotshop session did you enjoy the most? ___try myself___

Overall Experience
On a scale of 1-10, how would you rate the event as a learning experience?

1 2 3 4 5 6 7 8 9 10✓
Very Poor Excellent

How would you rate your overall experience of Play with Fire: Glass Concepts?

1 2 3 4 5 6 7 8 9✓ 10
Very Poor Excellent

We are eager to receive your feedback on any aspect of the event (good or bad) on which you would like to comment. Please use the back of the paper to include any remarks you want to make...thank you so much for your time!

Play with Fire: Glass Concepts Participant Questionnaire
Event Date:

Year: _____Undergraduate Student MA MA/MFA Student _____ PhD Student _____ Other

Gender: ✓ Female _____ Male

Discipline/School: Interior Architecture design.

Sketching/Ideas Workshop Questions
In which sketching/ideas session did you participate? ✓ 10:30-12:30 or ✓ 1:30-3:30

Did you try the Triangulation play with words? _____ yes ✓ no

If yes, what three words did you use? _____

If you tried Triangulation, did you try ✓ individually _____Or with a group?

Did you find the Triangulation method useful to developing your ideas or sketches?

In a sentence or two, please describe any ideas that were derived from the Triangulation play:_____

_____

_____

_____

Do you think you might try using this Triangulation method again in the future? _____

From the perspective of the project work you do in your discipline, how do you think you might use the Triangulation method? _____

Hotshop Session Questions
Did you try all or most of the skills exercises in the hotshop? ✓ yes _____ no

Would you say that the skills exercises gave you a good sense of the qualities of glass? ✓ yes _____no

Which part of the hotshop session did you enjoy the most? model/made

Overall Experience
On a scale of 1-10, how would you rate the event as a learning experience?

1 2 3 4 5 6 7 8 ✓9 10
Very Poor Excellent

How would you rate your overall experience of Play with Fire: Glass Concepts?

1 2 3 4 5 6 7 8 ✓9 10
Very Poor Excellent

We are eager to receive your feedback on any aspect of the event (good or bad) on which you would like to comment. Please use the back of the paper to include any remarks you want to make...thank you so much for your time!

Play with Fire: Glass Concepts Participant Questionnaire
Event Date:

Year: 1 Undergraduate Student ____ MA/MFA Student ____ PhD Student ✓ Other

Gender: ✓ Female ____ Male

Discipline/School: Education school

Sketching/Ideas Workshop Questions
In which sketching/ideas session did you participate? ✓ 10:30-12:30 or ✓ 1:30-3:30

Did you try the Triangulation play with words? ✓ yes ____ no

If yes, what three words did you use? Glass, Intercultural Learning, Sail training

If you tried Triangulation, did you try ✓ individually ____ Or with a group?

Did you find the Triangulation method useful to developing your ideas or sketches? ✓ Yes

In a sentence or two, please describe any ideas that were derived from the Triangulation play:
Glass has the property that could suit many things. For instance, it's reshapable and people are also changing themselves while encounter different situation

Do you think you might try using this Triangulation method again in the future? Yes

From the perspective of the project work you do in your discipline, how do you think you might use the Triangulation method? As a brain storm method to connect different concepts.

Hotshop Session Questions
Did you try all or most of the skills exercises in the hotshop? ✓ yes ____ no

Would you say that the skills exercises gave you a good sense of the qualities of glass? ✓ yes ____ no

Which part of the hotshop session did you enjoy the most? See glass blowing

Overall Experience
On a scale of 1-10, how would you rate the event as a learning experience?

1 2 3 4 5 6 7 8 ✓9 10
Very Poor Excellent

How would you rate your overall experience of Play with Fire: Glass Concepts?

1 2 3 4 5 6 7 8 ✓9 10
Very Poor Excellent

We are eager to receive your feedback on any aspect of the event (good or bad) on which you would like to comment. Please use the back of the paper to include any remarks you want to make...thank you so much for your time!

Play with Fire: Glass Concepts Participant Questionnaire
Event Date:

Year: 1st Undergraduate Student ____ MA/MFA Student ✓ PhD Student ____ Other

Gender: ____ Female ✓ Male

Discipline/School: Landscape Architecture

Sketching/Ideas Workshop Questions
In which sketching/ideas session did you participate? ✓ 10:30-12:30 or ✓ 1:30-3:30

Did you try the Triangulation play with words? ✓ yes ____ no

If yes, what three words did you use? glass, landscape, body

If you tried Triangulation, did you try ✓ individually ____ Or with a group?

Did you find the Triangulation method useful to developing your ideas or sketches? Yes!

In a sentence or two, please describe any ideas that were derived from the Triangulation play: I began to think about glass as a medium for furniture or shelter as in a coastal setting. natural erosion became an interesting trail when thought of in conjunction with 'sea-glass'

Do you think you might try using this Triangulation method again in the future? Yes!

From the perspective of the project work you do in your discipline, how do you think you might use the Triangulation method? I would ~~be~~ (will) bring in drawings and sketches onto larger post it notes. into the conceptualizing process.

Hotshop Session Questions
Did you try all or most of the skills exercises in the hotshop? ✓ yes ____ no

Would you say that the skills exercises gave you a good sense of the qualities of glass? ✓ yes ____ no

Which part of the hotshop session did you enjoy the most? adding textures / probing

Overall Experience
On a scale of 1-10, how would you rate the event as a learning experience?

1 2 3 4 5 6 7 8 9 (10)
Very Poor Excellent

How would you rate your overall experience of Play with Fire: Glass Concepts?

1 2 3 4 5 6 7 8 9 (10)
Very Poor Excellent

We are eager to receive your feedback on any aspect of the event (good or bad) on which you would like to comment. Please use the back of the paper to include any remarks you want to make...thank you so much for your time!

Play with Fire: Glass Concepts Participant Questionnaire

Event Date: 12/02/2016

Year: ✓ Undergraduate Student _____ MA/MFA Student _____ PhD Student _____ Other

Gender: ✓ Female _____ Male

Discipline/School: Biomedical sciences with Management

Sketching/Ideas Workshop Questions

In which sketching/ideas session did you participate? ✓ 10:30-12:30 or ✓ 1:30-3:30

Did you try the Triangulation play with words? ✓ yes _____ no

If yes, what three words did you use? Glass, Daily life, creatives

If you tried Triangulation, did you try ✓ individually _____ Or with a group?

Did you find the Triangulation method useful to developing your ideas or sketches? Yes

In a sentence or two, please describe any ideas that were derived from the Triangulation play: sometimes the ideas come out randomly without any connections. this triangulation help to link them easily & see them in a big overall concept

Do you think you might try using this Triangulation method again in the future? Yes, definitely

From the perspective of the project work you do in your discipline, how do you think you might use the Triangulation method? Memorising info., good way to picture stuff in my mind as well

Hotshop Session Questions

Did you try all or most of the skills exercises in the hotshop? ✓ yes _____ no

Would you say that the skills exercises gave you a good sense of the qualities of glass? ✓ yes _____ no

Which part of the hotshop session did you enjoy the most? modulating & forming & breaking the glass

Overall Experience

On a scale of 1-10, how would you rate the event as a learning experience?

1 2 3 4 5 6 7 8 (9) 10
Very Poor Excellent

How would you rate your overall experience of Play with Fire: Glass Concepts?

1 2 3 4 5 6 7 (8) 9 10
Very Poor Excellent

We are eager to receive your feedback on any aspect of the event (good or bad) on which you would like to comment. Please use the back of the paper to include any remarks you want to make...thank you so much for your time!

create, design, & decorate my own back home.

Play with Fire: Glass Concepts Participant Questionnaire
Event Date: February 17, 2016

Year: X Undergraduate Student _____ MA/MFA Student _____ PhD Student _____ Other

Gender: X Female _____ Male

Discipline/School: HSS / School of Divinity

Sketching/Ideas Workshop Questions

In which sketching/ideas session did you participate? X 10:30-12:30 or _____ 1:30-3:30

Did you try the Triangulation play with words? X yes _____ no

If yes, what three words did you use? Glass, Mathematics, Religion

If you tried Triangulation, did you try X individually _____ Or with a group?

Did you find the Triangulation method useful to developing your ideas or sketches? Yes

In a sentence or two, please describe any ideas that were derived from the Triangulation play: I made connections between my three words and used them as ideas for what to do in the hotshop, including looking at time, light, stability, and order.

Do you think you might try using this Triangulation method again in the future? Yes

From the perspective of the project work you do in your discipline, how do you think you might use the Triangulation method? To link religions and find commonalities.

Hotshop Session Questions

Did you try all or most of the skills exercises in the hotshop? X yes _____ no

Would you say that the skills exercises gave you a good sense of the qualities of glass? X yes _____ no

Which part of the hotshop session did you enjoy the most? Playing the game to make the biggest drop of glass.

Overall Experience

On a scale of 1-10, how would you rate the event as a learning experience?

1 2 3 4 5 6 7 (8) 9 10
Very Poor Excellent

How would you rate your overall experience of Play with Fire: Glass Concepts?

1 2 3 4 5 6 7 (8) 9 10
Very Poor Excellent

We are eager to receive your feedback on any aspect of the event (good or bad) on which you would like to comment. Please use the back of the paper to include any remarks you want to make...thank you so much for your time!

Play with Fire: Glass Concepts Participant Questionnaire
Event Date: 17. V. 2016.

Year: ____Undergraduate Student / ✓ MA/MFA Student ____ PhD Student ____ Other

Gender: ✓ Female ____ Male

Discipline/School: Advanced Sustainable design. (Escala)

Sketching/Ideas Workshop Questions
In which sketching/ideas session did you participate? ✓ 10:30-12:30 or ✓ 1:30-3:30

Did you try the Triangulation play with words? ✓ yes ____ no

If yes, what three words did you use? Glass, Life Architecture.

If you tried Triangulation, did you try ✓ individually ____Or with a group?

Did you find the Triangulation method useful to developing your ideas or sketches? Yes.

In a sentence or two, please describe any ideas that were derived from the Triangulation play:
Daylighting: Glasses ~~in the~~ on the facade of a building can provide daylighting for human and save energy.

Do you think you might try using this Triangulation method again in the future? Sure.

From the perspective of the project work you do in your discipline, how do you think you might use the Triangulation method? Combine different fields to design a more creative building.

Hotshop Session Questions
Did you try all or most of the skills exercises in the hotshop? ✓ yes ____ no

Would you say that the skills exercises gave you a good sense of the qualities of glass? ✓ yes ____ no

Which part of the hotshop session did you enjoy the most? Glass experience.

Overall Experience
On a scale of 1-10, how would you rate the event as a learning experience?

1 2 3 4 5 6 7 8 ✓9 10
Very Poor Excellent

How would you rate your overall experience of Play with Fire: Glass Concepts?

1 2 3 4 5 6 7 8 ✓9 10
Very Poor Excellent

We are eager to receive your feedback on any aspect of the event (good or bad) on which you would like to comment. . Please use the back of the paper to include any remarks you want to make...thank you so much for your time!

Play with Fire: Glass Concepts Participant Questionnaire

Event Date:

Year: 2 Undergraduate Student ✓ MA/MFA Student _____ PhD Student _____ Other

Gender: ✓ Female _____ Male

Discipline/School: Jewellery + Silversmithing - Design School.

Sketching/Ideas Workshop Questions

In which sketching/ideas session did you participate? ✓ 10:30-12:30 or _____ 1:30-3:30

Did you try the Triangulation play with words? ✓ yes _____ no Glass Transparent Silver Malluable, colour Warm

If yes, what three words did you use? _____

If you tried Triangulation, did you try ✓ individually _____ Or with a group?

Did you find the Triangulation method useful to developing your ideas or sketches? Kind of.

In a sentence or two, please describe any ideas that were derived from the Triangulation play: _____

blowing a ball. then squashing it slightly to create a bowl of a spoon.

Do you think you might try using this Triangulation method again in the future? Maybe.

From the perspective of the project work you do in your discipline, how do you think you might use the Triangulation method? Coming up with design ideas from source inspiration

Hotshop Session Questions

Did you try all or most of the skills exercises in the hotshop? ✓ yes _____ no the ones on offer

Would you say that the skills exercises gave you a good sense of the qualities of glass? ✓ yes _____ no

Which part of the hotshop session did you enjoy the most? blowing a big air bubble

Overall Experience

On a scale of 1-10, how would you rate the event as a learning experience?

1 2 3 4 5 6 7 8 (9) 10

Very Poor Excellent

How would you rate your overall experience of Play with Fire: Glass Concepts?

1 2 3 4 5 6 7 8 (9) 10

Very Poor Excellent

We are eager to receive your feedback on any aspect of the event (good or bad) on which you would like to comment. Please use the back of the paper to include any remarks you want to make...thank you so much for your time!

Play with Fire: Glass Concepts Participant Questionnaire

Event Date: 17/02/2016

Year: ✓ Undergraduate Student _____ MA/MFA Student _____ PhD Student _____ Other

Gender: ✓ Female _____ Male

Discipline/School: Edinburgh Kingbuilding

Sketching/Ideas Workshop Questions

In which sketching/ideas session did you participate? _____ 10:30-12:30 or ✓ 1:30-3:30

Did you try the Triangulation play with words? ✓ yes _____ no

If yes, what three words did you use? Glass. Life.

If you tried Triangulation, did you try ✓ individually _____ Or with a group?

Did you find the Triangulation method useful to developing your ideas or sketches?

In a sentence or two, please describe any ideas that were derived from the Triangulation play:

Glass help for life. we can make a lot of glass of life.

Do you think you might try using this Triangulation method again in the future? Yes.

From the perspective of the project work you do in your discipline, how do you think you might use the Triangulation method?

Hotshop Session Questions

Did you try all or most of the skills exercises in the hotshop? ✓ yes _____ no

Would you say that the skills exercises gave you a good sense of the qualities of glass? ✓ yes _____ no

Which part of the hotshop session did you enjoy the most? Very enjoy it.

Overall Experience

On a scale of 1-10, how would you rate the event as a learning experience?

1 2 3 4 5 6 7 8 9 ✓10

Very Poor Excellent

How would you rate your overall experience of Play with Fire: Glass Concepts?

1 2 3 4 5 6 7 8 9 ✓10

Very Poor Excellent

We are eager to receive your feedback on any aspect of the event (good or bad) on which you would like to comment. Please use the back of the paper to include any remarks you want to make...thank you so much for your time!

Play with Fire: Glass Concepts Participant Questionnaire

Event Date: 17/02/2016

Year: 1 Undergraduate Student √ MA/MFA Student _____ PhD Student _____ Other

Gender: √ Female _____ Male

Discipline/School: ECA Interior Design

Sketching/Ideas Workshop Questions

In which sketching/ideas session did you participate? _____ 10:30-12:30 or √ 1:30-3:30

Did you try the Triangulation play with words? √ yes _____ no

If yes, what three words did you use? Glass, Colour, Space

If you tried Triangulation, did you try √ individually _____ Or with a group?

Did you find the Triangulation method useful to developing your ideas or sketches? Not a bit

In a sentence or two, please describe any ideas that were derived from the Triangulation play: As a interior design student it's interesting to look at the space while glass is really common to see in any space. Colour is also easily ~~[illegible]~~ controllable.

Do you think you might try using this Triangulation method again in the future? Maybe

From the perspective of the project work you do in your discipline, how do you think you might use the Triangulation method? design ideas & essay writing

Hotshop Session Questions

Did you try all or most of the skills exercises in the hotshop? √ yes _____ no

Would you say that the skills exercises gave you a good sense of the qualities of glass? √ yes _____ no

Which part of the hotshop session did you enjoy the most? Princess Robot Days

Overall Experience

On a scale of 1-10, how would you rate the event as a learning experience?

1 2 3 4 5 6 7 8 (9) 10

Very Poor Excellent

How would you rate your overall experience of Play with Fire: Glass Concepts?

1 2 3 4 5 6 7 8 (9) 10

Very Poor Excellent

We are eager to receive your feedback on any aspect of the event (good or bad) on which you would like to comment. Please use the back of the paper to include any remarks you want to make...thank you so much for your time!

Play with Fire: Glass Concepts Participant Questionnaire

Event Date: 17.02.2016

Year: 1 Undergraduate Student _____ MA/MFA Student _____ PhD Student _____ Other

Gender: ✓ Female _____ Male

Discipline/School: Painting - ECA

Sketching/Ideas Workshop Questions

In which sketching/ideas session did you participate? ✓ 10:30-12:30 or ✓ 1:30-3:30

Did you try the Triangulation play with words? ✓ yes _____ no

If yes, what three words did you use? glass, painting, landscape

If you tried Triangulation, did you try ✓ individually _____ Or with a group?

Did you find the Triangulation method useful to developing your ideas or sketches? yes, but I think I might get the same results with just making a list - it's about putting thoughts on

In a sentence or two, please describe any ideas that were derived from the Triangulation play: thinking about ideas more in 3D, rather than the flatness of paper of paintings/drawings. Working with light.

Do you think you might try using this Triangulation method again in the future? Maybe

From the perspective of the project work you do in your discipline, how do you think you might use the Triangulation method? yes, but possibly only in the research/preliminary stage of gathering ideas

Hotshop Session Questions

Did you try all or most of the skills exercises in the hotshop? ✓ yes _____ no

Would you say that the skills exercises gave you a good sense of the qualities of glass? ✓ yes _____ no

Which part of the hotshop session did you enjoy the most? all of them

Overall Experience

On a scale of 1-10, how would you rate the event as a learning experience?

1 2 3 4 5 6 7 8 (9) 10

Very Poor Excellent

How would you rate your overall experience of Play with Fire: Glass Concepts?

1 2 3 4 5 6 7 (8) 9 10

Very Poor Excellent

We are eager to receive your feedback on any aspect of the event (good or bad) on which you would like to comment. Please use the back of the paper to include any remarks you want to make...thank you so much for your time!

Play with Fire: Glass Concepts Participant Questionnaire

Event Date: 17/02/2016

Year: 1 Undergraduate Student _____ MA/MFA Student _____ PhD Student _____ Other

Gender: ✓ Female _____ Male

Discipline/School: Business School.

Sketching/Ideas Workshop Questions

In which sketching/ideas session did you participate? _____ 10:30-12:30 or 1 1:30-3:30

Did you try the Triangulation play with words? ✓ yes _____ no

If yes, what three words did you use? daily life, shape, characteristics.

If you tried Triangulation, did you try ✓ individually _____ Or with a group?

Did you find the Triangulation method useful to developing your ideas or sketches?

In a sentence or two, please describe any ideas that were derived from the Triangulation play: It links the idea together as a whole.

Do you think you might try using this Triangulation method again in the future? Yes.

From the perspective of the project work you do in your discipline, how do you think you might use the Triangulation method? studying

Hotshop Session Questions

Did you try all or most of the skills exercises in the hotshop? ✓ yes _____ no

Would you say that the skills exercises gave you a good sense of the qualities of glass? ✓ yes _____ no

Which part of the hotshop session did you enjoy the most? blowing the glass.

Overall Experience

On a scale of 1-10, how would you rate the event as a learning experience?

1 2 3 4 5 6 7 (8) 9 10

Very Poor Excellent

How would you rate your overall experience of Play with Fire: Glass Concepts?

1 2 3 4 5 6 7 8 (9) 10

Very Poor Excellent

We are eager to receive your feedback on any aspect of the event (good or bad) on which you would like to comment. Please use the back of the paper to include any remarks you want to make...thank you so much for your time!

Appendix L.

after the storm

After the storm – The Royal Botanic Gardens Edinburgh

A proposal from the ECA Glass Department
Dr Jessamy Kelly & PhD student Lisa Naas

September 2016 – December 2016

A diverse group of students from ECA will be invited to attend a series of workshops in the ECA Glass Studios. It is hoped that the workshops will inspire collaborative projects using ECA glass and RBGE wood for potential inclusion in the 'after the storm' exhibition to be held at the John Hope Gateway at the Royal Botanic Garden Edinburgh in December 2016. (The work produced from the workshops would still need to be selected by the After the Storm exhibition coordinators.)

Theme/Background

The theme of the exhibition 'after the storm' has been devised by ecologist Ian Edwards; he has issued a call out to all ECA students to respond to the exhibition theme. This call out was inspired by a storm, which hit Scotland in January 2012. It was widely portrayed by the media as a traumatic event, descriptions likened to war coverage described a scene of total devastation. Edwards however had a different perspective on the storm and viewed it as a positive event, as storms are necessary to ensure a diverse ecosystem. He has since taken great measures to find positives from the storm and has explored many ways of readdressing the initial media coverage.

The storm created important gaps in the woodland, which provided opportunities for young trees to be planted. Over time, woodlands become less diverse which puts them at risk. Storms are an essential part of the regeneration process and promote diversity, as a wide variety of species are needed in ecosystems to provide stability. ECA students are invited to draw parallels between their own lives and the traumas that we may encounter. Students are asked to consider how we may need to regenerate and diversify, how we become resilient, and how we adapt in order to recover and be stable. Edwards offered comparisons between the garden ecosystems and human communities, citing health issues and human relationships. He also described how the Forestry commission views the value of green spaces and woodlands as an essential part of everyday health and well being and the part it plays in recovery. The project hopes to engage with the community to promote outreach to new audiences and difficult-to-reach groups. A range of wood from damaged trees is available from the RBGE that can be used in the projects if required.

Regeneration: Reforming, Rebuilding, Resurfacing

An Interdisciplinary Collaborative Workshop Series based in ECA Glass Department

From furnace fire to hot-worked material to made object to cold recycled bits, glass working follows a life cycle of sorts and is an ideal process to use as a springboard for this project. As an artist's medium, glass is embedded with contradictory properties and qualities that is well-suited to use as an initial approach and response to the RBGE exhibition call out. Glass can be destroyed and remade; it is fragile; it can break, shatter, cut, and damage but it can also frame, preserve, and hold safe. It is material that can be used to build and shape an environment but it is material that can also reflect its environment. Students will be asked to consider how they might work with these properties to achieve a new project in glass. This series of workshops will be organised and run by Lecturer Dr Jessamy Kelly and PhD student Lisa Naas.

Workshops

Workshop 1 'Regeneration': Introduction to Glass, 22nd September
In the first workshop (of this series of four), ECA students will be introduced to the project at RGBE and the theme of the exhibition – 'REGENERATION'. They will be given a short history of Glass and will initiate the project by participating in a round-table discussion about "glass". After answering 3 questions about their practice and project interest, they will be matched with other students based on their common ground, in order to form smaller collaborative groups.

Workshop 2 'Reform': Idea Generation and Hot glass Demonstration
In the second workshop, students will reflect upon their initial introduction to glass and will be asked to take the theme of 'regeneration' as a way of focusing the project. They will be asked to work and REFORM within their smaller groups to create collaborative projects which can be realised in the ECA glass studios for potential exhibition at RBGE. As groups they will be asked to sketch, write, or construct their ideas. PhD student Lisa Naas will lead this aspect of the workshop, introducing the group to her newly developed research model for sparking the creative process. The students will be invited to have a hands-on experience of Glass and will be asked to consider "glass" in conjunction with "regeneration" and an approach of their choosing. They will then be introduced to the Glass hotshop with a demonstration and a beginner skills session. They will also be encouraged to think of ways in which they might incorporate the RBGE wood into their projects-either directly in combination with glass or indirectly such as using the wood as blow-moulds for the glass making.

Self-directed group meetings and field trips to RBGE will be arranged for on-site study and in consideration of any site-specific project plans. Students will be encouraged to use research tools such as reflective journals, or a blog/vlog, to work through their creative process and document the project. Each group will be required to write a short abstract (max. 500 words) about

their proposed collaborative project, to include sketches or working models, to be emailed in advance of the 3rd workshop, by deadline 5pm 7th of October.

Workshop 3 ‘Rebuild’: Prototyping
A third workshop will focus on the REBUILDING and the practical aspects of the design work. Students will be able to see their selected designs being brought to life by working with skilled glass artists and technicians. Additional, practical sessions may be required and will need to be led by the student group and booked with the Glass Technician Ingrid Phillips.

Workshop 4 ‘Resurfacing’: Feedback
RESURFACING: The fourth and final workshop will be an opportunity for the students in the smaller collaborative groups to present their work and outputs to all of the participating students and staff in this Glass project. Feedback session, revisions maybe required for showcase in.

<u>Proposed Timescale</u>

1st Call out to all ECA students – expressions of interest – 16th of May

Expression of interest to be emailed to organizer by 30th June

2nd Call out to students – 12th September

Workshop 1 –Introduction to Glass ‘Regeneration’ - 22nd September – 10am - 12.30pm

Workshop 2 – Idea Generation and Hot glass Demonstration ‘Reform’ –
w/c 26th September based on student schedules and hotshop availability

Self directed group meeting & field trip to RGBE – w/c 3rd October
Proposal to be emailed to organisers by 7th October

Workshop 3 – Prototyping ‘Rebuild’ - w/c 10th October

Self directed group work – w/c 17th October

Workshop 4 – Feedback ‘Resurfacing’ – 20th October 10am – 12.30pm

Self directed group work revisions to be made for exhibition at ECA w/c 24th October

ECA After the Storm Exhibition – November 2016 date TBC

RGBE After the Storm Exhibition – December 2016 date TBC

After the storm – The Royal Botanic Gardens Edinburgh

The ECA Glass Department, School of Design
Dr Jessamy Kelly & PhD student Lisa Naas

September 2016 – January 2017

You are invited to attend a series of workshops in the ECA School of Design Glass department. It is hoped that the workshops will inspire collaborative projects for potential inclusion in the 'after the storm' exhibition to be held at the John Hope Gateway at the Royal Botanic Garden Edinburgh in January 2017.



Background

The theme of the exhibition 'after the storm' has been devised by ecologist Ian Edwards; he has issued a call out to all ECA students to respond to the exhibition theme. This call out was inspired by a storm, which hit Scotland in January 2012. It was widely portrayed by the media as a traumatic event, descriptions likened to war coverage described a scene of total devastation. Edwards however had a different perspective on the storm and viewed it as a positive event, as storms are necessary to ensure a diverse ecosystem. He has since taken great measures to find positives from the storm and has explored many ways of readdressing the initial media coverage.

The storm created important gaps in the woodland, which provided opportunities for young trees to be planted. Over time, woodlands become less diverse which puts them at risk. Storms are an essential part of the regeneration process and promote diversity, as a wide variety of species are needed in ecosystems to provide stability. ECA students are invited to draw parallels between their own lives and the traumas that we may encounter. Students are asked to consider how we may need to regenerate and diversify, how we become resilient, and how we adapt in order to recover and be stable. Edwards offered comparisons between the garden ecosystems and human communities, citing health issues and human relationships. He also described how the Forestry commission views the value of green spaces and woodlands as an essential part of everyday health and well being and the part it plays in recovery. The project hopes to engage with the community to promote outreach to new audiences and difficult-to-reach groups. A range of wood from damaged trees is available from the RBGE that can be used in the projects if required, we will anticipate using the wood to be make wooden blow moulds for blowing glass into; the wooden moulds may be exhibited alongside the finished work. It is hoped that students will design site-specific work for the gardens or limited edition runs of glass objects/vessels which will be exhibited in the gallery.

Regeneration: Reforming: Rebuilding: Resurfacing

An Interdisciplinary Collaborative Workshop Series based in the ECA Glass Department. From furnace fire to hot-worked material to made object to cold recycled bits, glass working follows a life cycle of sorts and is an ideal process to use as a springboard for this project. As an artist's medium, glass is embedded with contradictory properties and qualities that is well-suited to use as an initial approach and response to the RBGE exhibition call out. Glass can be destroyed and remade; it is fragile; it can break, shatter, cut, and damage but it can also frame, preserve, and hold safe. It is material that can be used to build and shape an environment but it is material that can also reflect its environment. Students will be asked to consider how they might work with these properties to achieve a new project in glass. This series of workshops will be organised and run by Glass Lecturer Dr Jessamy Kelly and PhD student Lisa Naas.

Workshop 1 'Regeneration': Introduction to Glass 26th September.
In the first workshop (of this series of four), ECA students will be introduced to the project at RGBE and the theme of the exhibition – 'REGENERATION'. They will be given a short history of Glass and will initiate the project by participating in a round-table discussion about "glass". After answering 3 questions about their practice and project interest, they will be matched with other students based on their common ground, in order to form smaller collaborative groups. A tour of the Glass department studios will be given to the participants to give them an initial introduction to the discipline.

Workshop 2 'Reform': Idea Generation & Hot glass Demonstration 28th September. In the second workshop, students will reflect upon their initial introduction to glass and will be asked to take the theme of 'regeneration' as a way of focusing the project. They will be asked to work and REFORM within their smaller groups to create collaborative projects which can be realised in the ECA glass studios for potential exhibition at RBGE. As groups they will be asked to sketch, write, or construct their ideas. PhD student Lisa Naas will lead this aspect of the workshop, introducing the group to her newly developed research model for sparking the creative process. The students will be invited to have a hands-on experience of Glass and will be asked to consider "glass" in conjunction with "regeneration" and an approach of their choosing. They will be introduced to the Glass hotshop with a beginner skills session and mould blowing demonstration on the 25th of October.

Self Directed Group meetings and field trips to RBGE will be arranged for on-site study and any site-specific project plans w/c 3rd October.

Documentation Students will be encouraged to use research tools such as reflective journals, or a blog/vlog, to work through their creative process and document the project. Each group will be required to write a short abstract (max. 500 words) about their proposed collaborative project, to include sketches or working models, to be emailed in advance of the 3rd workshop, by deadline 7th of October by 5pm.

Workshop 3 'Rebuild': Prototyping, 11th October
A third workshop will focus on the REBUILDING and the practical aspects of the design work. Students will be able to see their selected designs being brought to life by working with skilled glass artists and technicians. Additional, practical sessions may be required and will need to be led by the student group and booked with the Glass Technician Ingrid Phillips.

Workshop 4 'Resurfacing': Feedback, 27th October
The fourth and final workshop will be an opportunity for the students in the smaller collaborative groups to present their work and outputs to all of the participating students and staff in this Glass project. Feedback session, revisions may be required for the final showcase.

Proposed Timescale

- Workshop 1 –Introduction to Glass 'Regeneration' – 26th September – 12.30pm - 2.30pm
- Workshop 2 – Idea Generation and Hot glass Demonstration 'Reform' – w/c 26th September based on student schedules and hotshop availability
- Hot Glass skills session and mould blowing demonstration- 28th October 9.30am Undergraduate & 1pm Postgraduate
- Self directed group meeting & field trip to RGBE – w/c 3rd October.
- Proposal to be emailed to organisers by 7th October
- Workshop 3 – Prototyping 'Rebuild' – 11th October 10am – 12.30pm
- Self directed group work – w/c 17th October
- Workshop 4 – Feedback 'Resurfacing' – 27th October 12.30-2.30pm
- Self directed group work revisions to be made for exhibition at ECA w/c 31st October – end November
- Workshop 5 Reveal – 1st December
- RGBE After the Storm Exhibition – January 2017 date TBC[1]

[1] The work produced from the workshops would still have to be selected by the After the Storm exhibition coordinators and the RBGE exhibition organisers.

STUDENT CALL: *after the storm*

Presented by

The Royal Botanic Gardens Edinburgh (RBGE)

Ian Edwards, Ecologist, RBGE

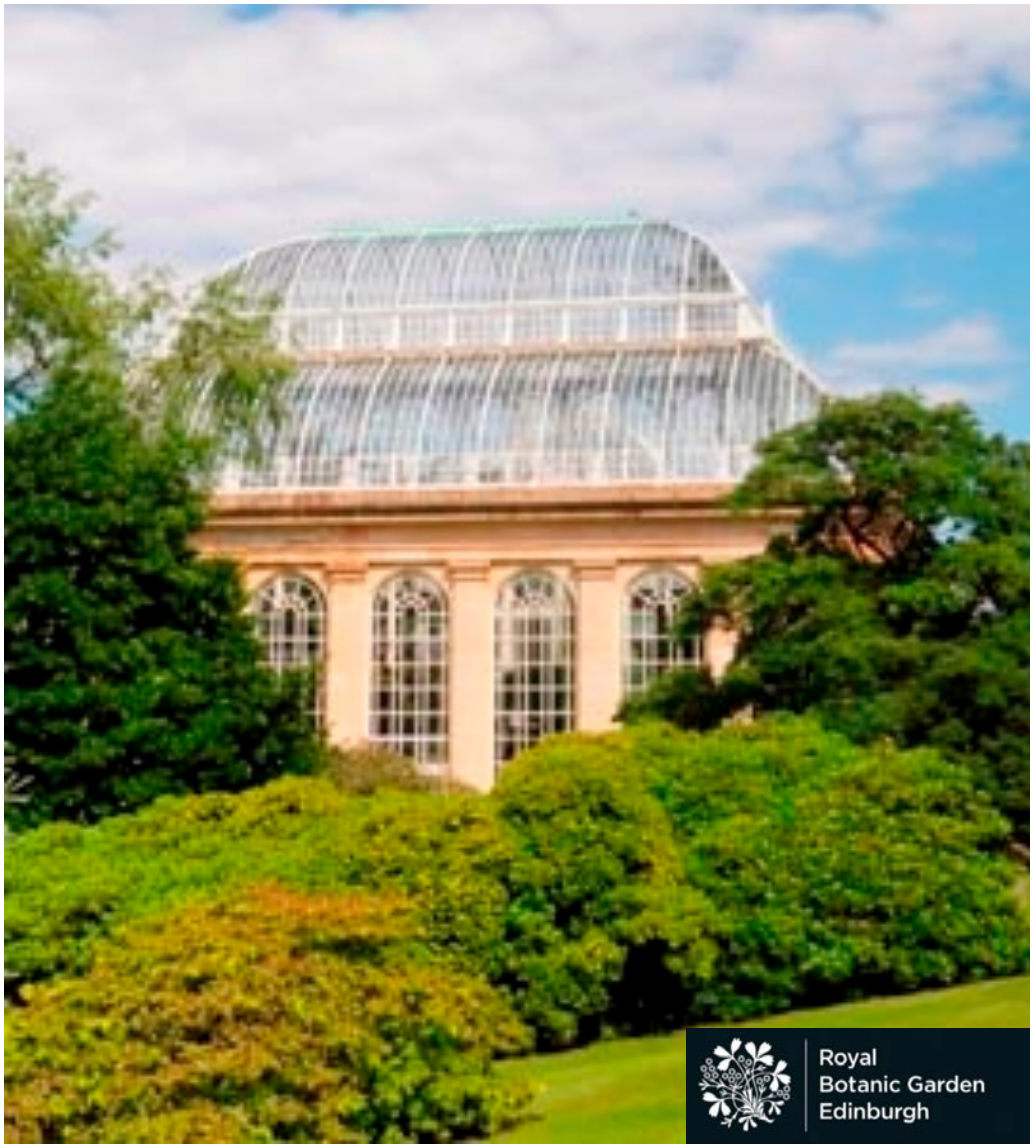
In collaboration with

Edinburgh College of Art

Facilitated by

Dr Jessamy Kelly & PhD Student Lisa Naas
Glass Department, School of Design

September 2016 – January 2017



REGENERATION

You are invited to attend a series of workshops in the ECA School of Design Glass department that explores the theme of REGENERATION in response to this call. It is hoped that the workshops will inspire collaborative projects for potential inclusion in the 'after the storm' exhibition to be held at the John Hope Gateway at the Royal Botanic Garden Edinburgh in January 2017.

	Timeframe
REFORM	28 September-Idea Generation, Intro
	7 October-Project Proposal
REBUILD	11 & 17 October-Studio Making
RESURFACE	27 October-Feedback
REVEAL	1 December-Presentation & ECA Exhibition
	January-Selection for possible RBGE Exhibition Inclusion

PROJECT BACKGROUND

This call out was inspired by a storm, which hit Scotland in January 2012. It was widely portrayed by the media as a traumatic event, descriptions likened to war coverage described a scene of total devastation. RBGE ecologist, Ian Edwards had a different perspective on the storm and viewed it as a positive event. He explains that storms are necessary to ensure a diverse ecosystem, including the ones in the Gardens. RBGE is about to celebrate 350 years and the collaboration with ECA is part of a larger celebration of the Gardens with exhibitions and events.

"The main point that we want to get across for this project is that storms are essential…if you don't have storms, everything stagnates".

The storms do more than contribute to the life cycle of the species. The storms "leave gaps, which allows for diversity and resilience…the more diversity you've got, the more options you have to go in different directions…we need the maximum amount of diversity here to adapt in the future. It's fundamental to human society and communities as well".

-Ian Edwards

TIME, GAPS, & DIVERSITY

The storm created important gaps in the woodland, which provided opportunities for young trees to be planted. Over time, woodlands become less diverse which puts them at risk. Storms are an essential part of the regeneration process and promote diversity, as a wide variety of species are needed in ecosystems to provide stability. ECA students are invited to draw parallels between their own lives and the traumas that we may encounter. Students are asked to consider how we may need to regenerate and diversify, how we become resilient, and how we adapt in order to recover and be stable. Edwards offered comparisons between the garden ecosystems and human communities, citing health issues and human relationships. He also described how the Forestry commission views the value of green spaces and woodlands as an essential part of everyday health and well being and the part it plays in recovery.



Lisa's image of a scarred part of the Garden left by a felled tree

JESSAMY'S STORY











JESSAMY'S STORY







JESSAMY'S STORY & INTEREST IN THE REGENERATION PROJECT









DESIGN OPPORTUNITIES

It is hoped that students will design site-specific work for the gardens or limited edition runs of glass objects/vessels which will be exhibited in the gallery. There are numerous possibilities for showing the work either in the gardens or within one of the spaces on the property, which include the glasshouses.



Interior Gallery Space

INTERIOR GALLERY SPACES IN THE MAIN BUILDING





Interior Gallery Space
Images by Lisa Naas

VARIOUS GLASSHOUSE SPACES





The Palm House
Images by Lisa Naas

OTHER GARDEN HIGHLIGHTS



One of the oldest trees on site



250 Year Old Historical House

STORIES

"Every species has a story of culture…there are travelers' stories of how people respond and interact with them in different cultures".

-Ian Edwards



LISA'S STORY & INTEREST IN THE REGENERATION PROJECT







June 2011 Storm on the Boston University Tanglewood Institute Campus in the Berskshire Mountains, Massachusetts, USA

Images by Lisa Naas

LISA'S STORY & INTEREST IN THE REGENERATION PROJECT



Image by Dennis Faleris

Photo from Lisa and Dave's wedding in December 2015 on the grounds down the street from the campus

LISA'S STORY & INTEREST IN THE REGENERATION PROJECT

Glass developed to reflect the fragility of our lives and the temporal quality of sorrow, memory, and beauty (available for use in this project)



Image by Alex Hall

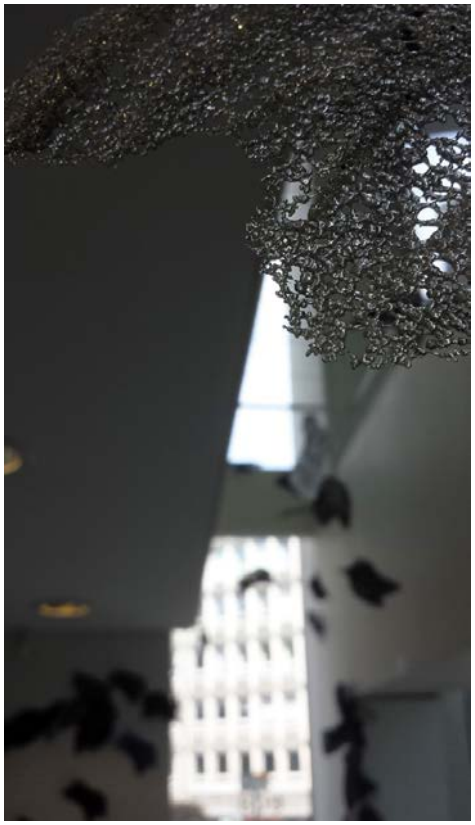


Image by David Faleris



Image by Lisa Naas

WHAT IS YOUR STORY?

WHAT DOES REGENERATION MEAN TO YOU?



WHAT IS YOUR GLASS EXPERIENCE?

www.rbge.org.uk

Royal
Botanic Garden
Edinburgh

after the storm: REFORM

28 September 2016

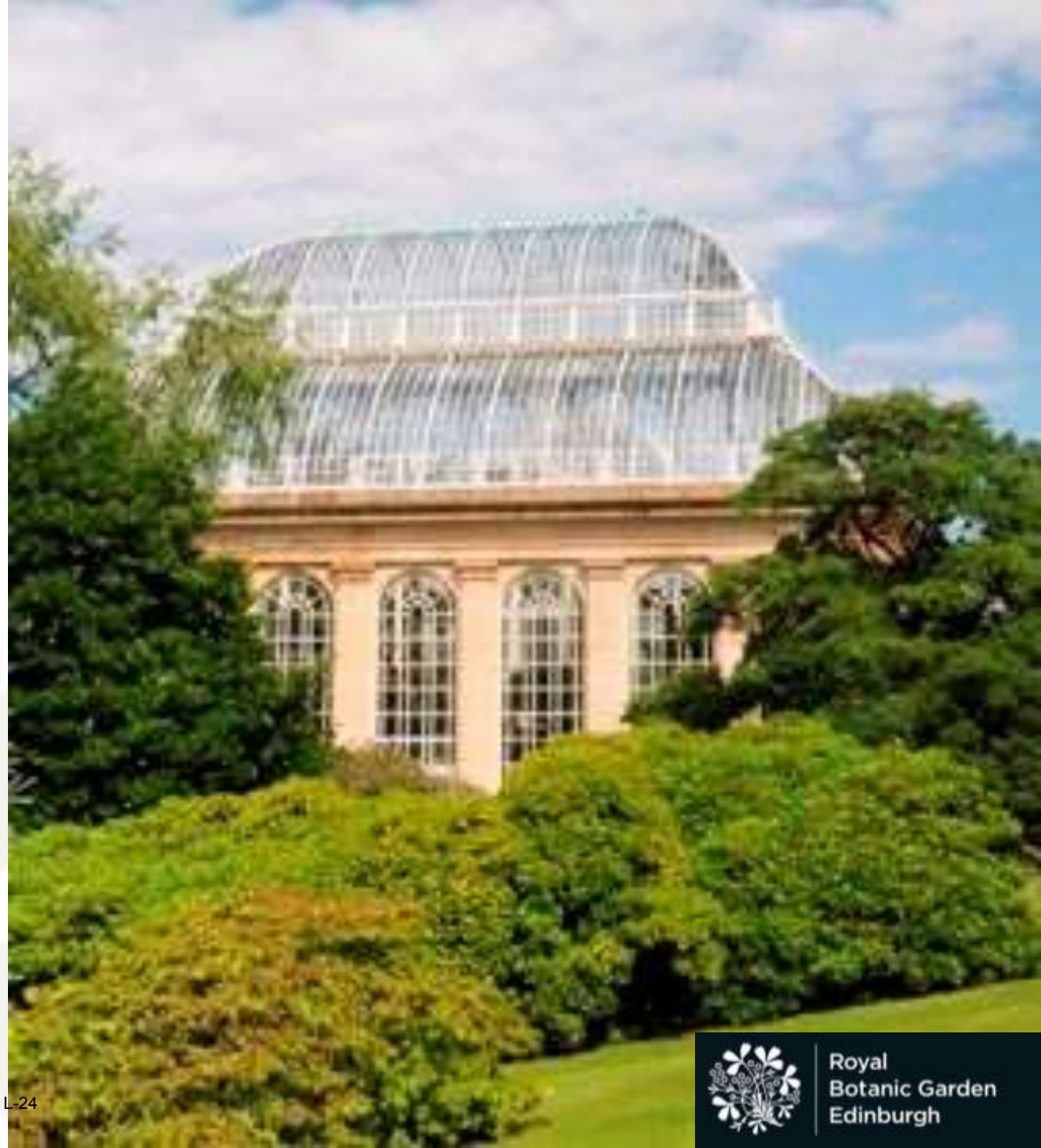
Project Idea Generation

<u>Proposals due 7 October</u>:

- 300-500 words about the project concept
- List the type of glass-making involved (hot-shop work, kiln work, cold working, sandblasting, casting, etc.)

  OR

  List the type of pre-made glass you want to use (e.g. Lisa's glass, found glass, broken bin glass from the hotshop
- List any other relevant support you think you might need (e.g. booking time in the hotshop, assistance making moulds, help with a certain machine)
- Name the space in the Gardens for which your project is intended
- Email your plan to Lisa and Jessamy by 7 October at 5pm



A Glass Life Cycle











A <u>Very</u> Brief History of Glass: Innovation, Forms, & Functions

3500 - 50 BC: tools, vessels, decoration, adornment, amulets



1400-1350 BC, Egypt



699-600 BC, Egypt



125-1 BC, Hellenistic Mosaic Bowl

Credit: www.cmog.org

Glass Blowing Technique Innovation 50 BC



1-99 AD, Roman bottle



300-499 AD, Roman Flask



800-999 AD, probably Iran

Credit: www.cmog.org

Stained Glass Windows/Architectural Glass



1248 AD Sainte-Chapelle

Credit: www.telegraph.co.uk

Refining Goblets, Drinking Vessels, Table or Function ware



1540-1570 AD, Venice or Austria

Credit: www.cmog.org

Mirrors and Chandeliers



1670s, Hall of Mirrors, Versailles

Credit: www.versailles3d.com

Music and Lenses



1761, Glass Armonica and 1784, Bifocals
Ben Franklin, inventor

Credit: www.ushistory.org

Scientific Models





1886, Harvard Glass Flowers
Leopold Blaschka and son

Credit: Harvard Natural History Museum

Beaux Arts, Home Décor and Lighting



Collection of Tiffany Lamps from the Virginia Museum of Fine Arts

Early 1900's

Studio Glass Art Movement





1960s Italy and United States
Lino Tagliapietra (left) and Dale Chihuly (above)

Credit: www.linotagliapietra.com and www.chihuly.com

Modern Home Goods



1971-1974 Corning Pyrex Casserole Dish

Credit: www.cmog.org

Modern Building



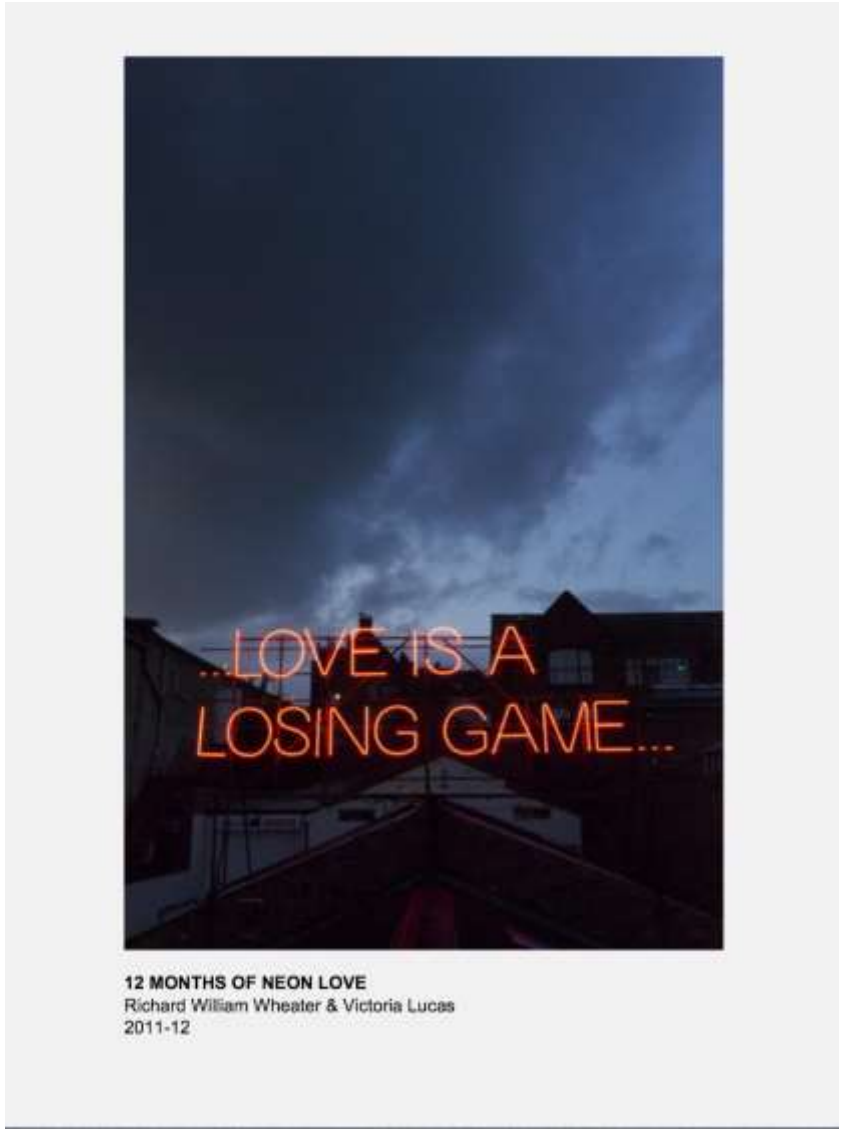
1976 John Hancock Tower, Boston

Credit: www.ottoluk.wordpress.com

Contemporary Sculpture/Neon



2011, Carrion, Javier Perez



Credit: www.incollect.com and
www.richardwheater.com

Communication Technology/Mobile Devices



2016, Apple iPad

Credit: www.apple.com

What's Next in Art? Design?

How can we combine glass with other disciplines?



Let's take this medium of innovation and approach it with two theories about creativity and idea production...
Association and Combination

Glass, Sound, Sensors

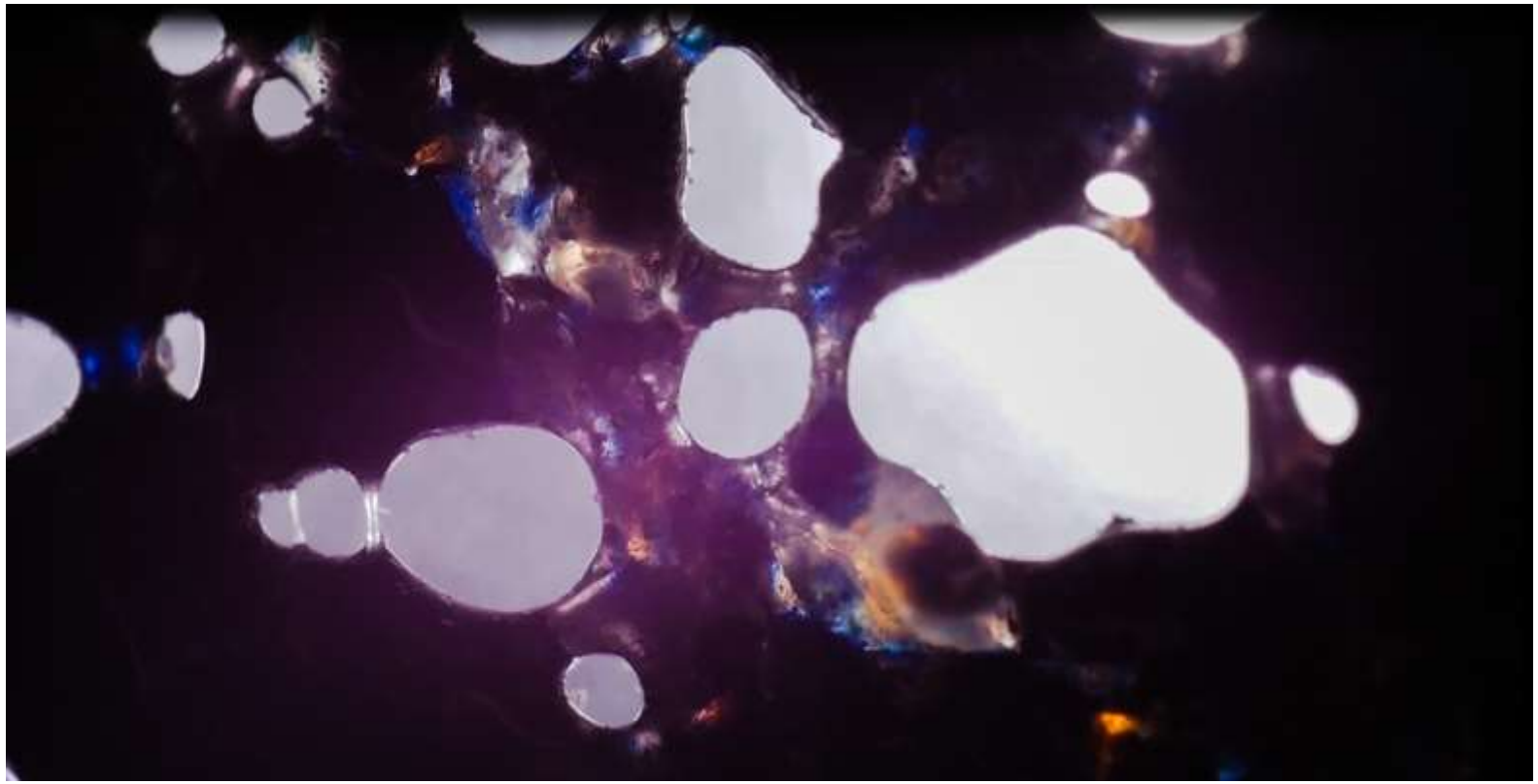




2015
The Sorrows Release Installation



Glass in Film



2015

SORROWS Film Still

http://www.inconcertwithglass.com/#!glass-whispers/cgho

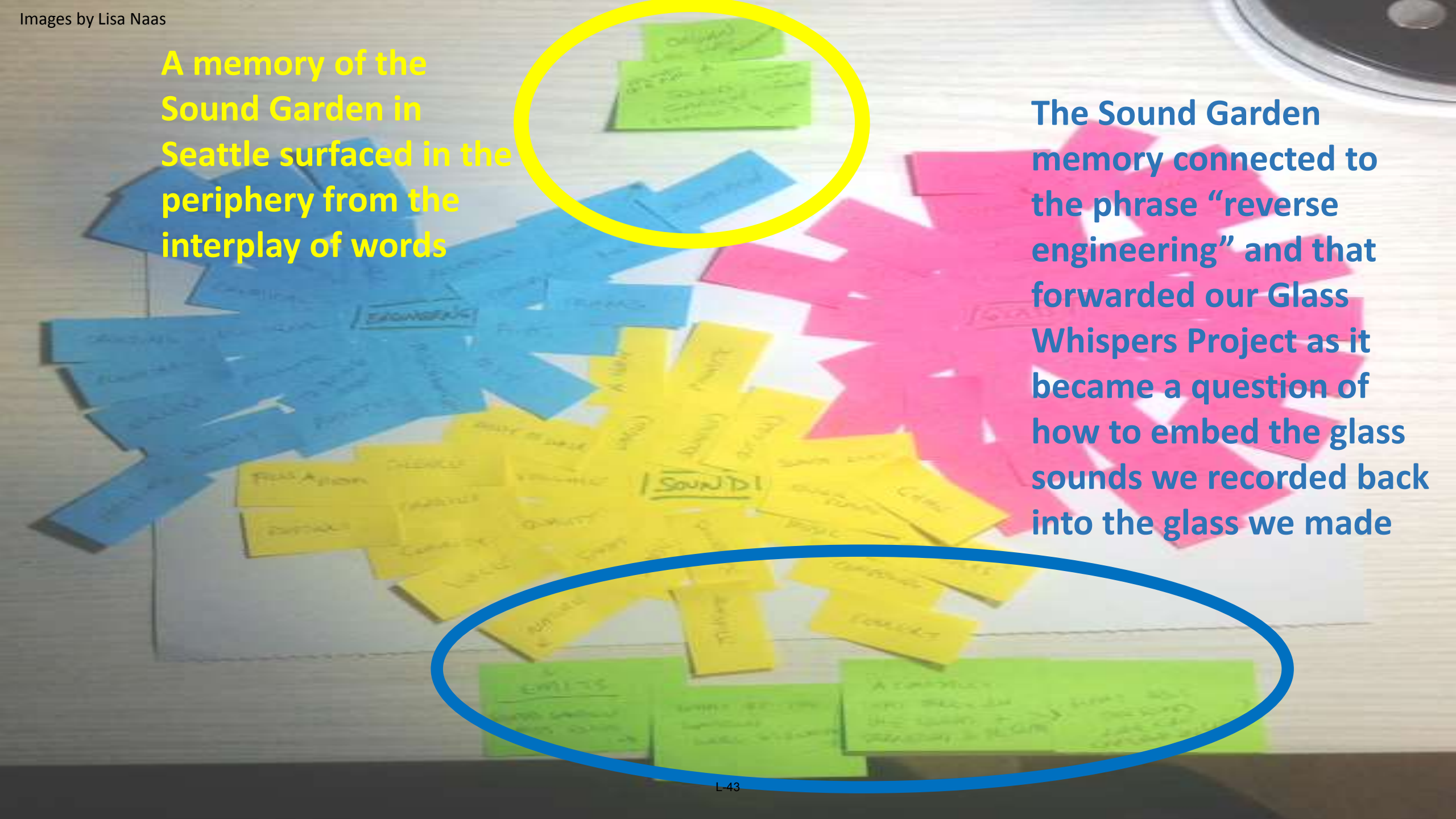
Recording Glass





2015-2016
Makers Marks

Images by Lisa Naas



A memory of the Sound Garden in Seattle surfaced in the periphery from the interplay of words

The Sound Garden memory connected to the phrase “reverse engineering” and that forwarded our Glass Whispers Project as it became a question of how to embed the glass sounds we recorded back into the glass we made

“Glass Whispers Project” Outputs

Glass pieces based on composer description of sound using visual, metaphorical language

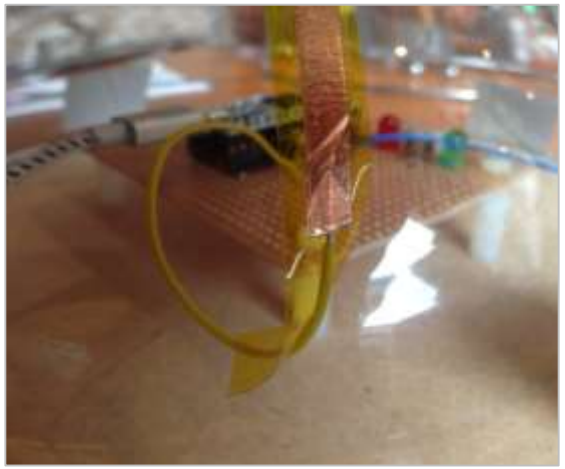






Glass piece allowing interaction with interior, programmed sound via human capacitance



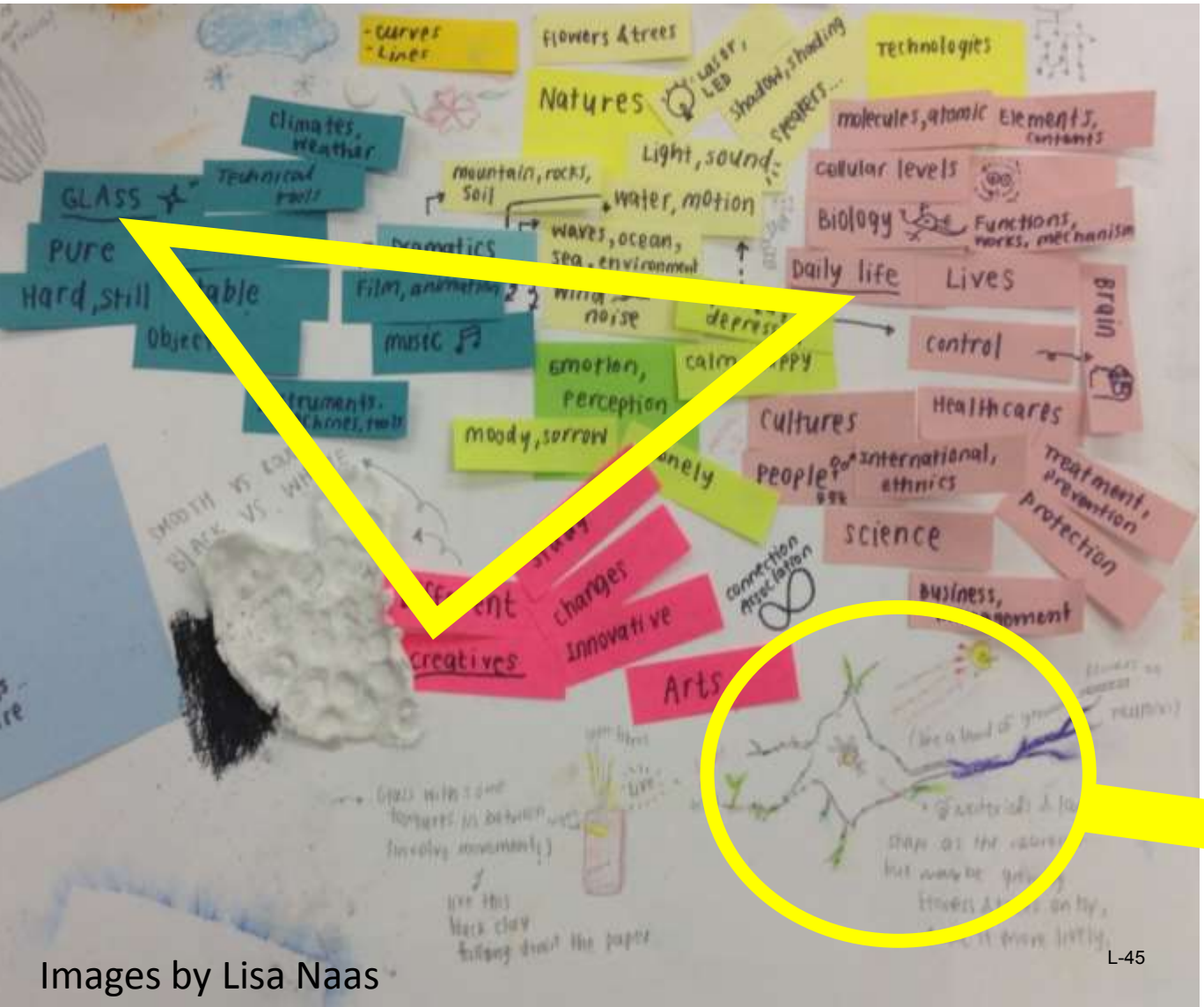




Images by Lisa Naas

WORD TRIANGULATION

A new method for idea generation





Images by Lisa Naas

Informed Consent Form For Lisa Naas, PhD Student, Design (ECA)

Name: Chuchen Wang

Address: [redacted]

Contact r

Email:

Date: 28 September 2016

Project Title: **after the storm: REFORM**

Project Summary: Student participants from various disciplines throughout the University will come together to contribute to ongoing research about the production of ideas at the intersection of disciplines. Students will be asked to consider "glass" from the lens of their discipline and alongside ideas of regeneration and storms by mapping, sketching, writing, or constructing ideas. A new, exploratory method for early idea production will be introduced as part of the discussion and session. As part of the workshop, a brief overview of glass as an innovative material will be shown and demonstrations in the hotshop will be offered. Skilled glass artists and the ECA glass technician will work together with the students to help students realize their project proposals from these early sketches over the course of a few months. The sketches, process, and outputs will be recorded.

Objectives

- To introduce participants to glass, to the hotshop, and to associative, creative thinking
- To explore what might happen to creative outputs if new-to-glass participants approach glass from a conceptual perspective, viewing it through the lens of their personal disciplines
- To create a hands-on learning environment that fosters creative thinking in an interdisciplinary group setting to encourage idea production

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution will be recorded and photographed for the purpose of inclusion in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of persona data obtained in this study (e.g.: name, age, and occupation).

Chuchen Wang
Participant's Name (Printed)

[redacted]

Lisa Naas

[redacted] rinted)

Signature of person obtaining consent

Informed Consent Form For Lisa Naas, PhD Student, Design (ECA)

Name: YI SHEN

[redacted]

Date: 28 September 2016

Project Title: **after the storm: REFORM**

Project Summary: Student participants from various disciplines throughout the University will come together to contribute to ongoing research about the production of ideas at the intersection of disciplines. Students will be asked to consider "glass" from the lens of their discipline and alongside ideas of regeneration and storms by mapping, sketching, writing, or constructing ideas. A new, exploratory method for early idea production will be introduced as part of the discussion and session. As part of the workshop, a brief overview of glass as an innovative material will be shown and demonstrations in the hotshop will be offered. Skilled glass artists and the ECA glass technician will work together with the students to help students realize their project proposals from these early sketches over the course of a few months. The sketches, process, and outputs will be recorded.

Objectives

- To introduce participants to glass, to the hotshop, and to associative, creative thinking
- To explore what might happen to creative outputs if new-to-glass participants approach glass from a conceptual perspective, viewing it through the lens of their personal disciplines
- To create a hands-on learning environment that fosters creative thinking in an interdisciplinary group setting to encourage idea production

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution will be recorded and photographed for the purpose of inclusion in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of persona data obtained in this study (e.g.: name, age, and occupation).

SHEN YI .....

Participant's Name (Printed)

[redacted]

Participant's signature

Lisa Naas

.....

Name of person obtaining consent (Printed)

[redacted] .....

Informed Consent Form For Lisa Naas, PhD Student, Design (ECA)

Name: Chengchen Zhang

[redacted]

Date: 28 September 2016

Project Title: **after the storm: REFORM**

Project Summary: Student participants from various disciplines throughout the University will come together to contribute to ongoing research about the production of ideas at the intersection of disciplines. Students will be asked to consider "glass" from the lens of their discipline and alongside ideas of regeneration and storms by mapping, sketching, writing, or constructing ideas. A new, exploratory method for early idea production will be introduced as part of the discussion and session. As part of the workshop, a brief overview of glass as an innovative material will be shown and demonstrations in the hotshop will be offered. Skilled glass artists and the ECA glass technician will work together with the students to help students realize their project proposals from these early sketches over the course of a few months. The sketches, process, and outputs will be recorded.

Objectives

- To introduce participants to glass, to the hotshop, and to associative, creative thinking
- To explore what might happen to creative outputs if new-to-glass participants approach glass from a conceptual perspective, viewing it through the lens of their personal disciplines
- To create a hands-on learning environment that fosters creative thinking in an interdisciplinary group setting to encourage idea production

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution will be recorded and photographed for the purpose of inclusion in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of persona data obtained in this study (e.g.: name, age, and occupation).

Chengchen Zhang

Participant's Name (Printed)

[redacted]

Lisa Naas

.....

Name of person obtaining consent (Printed)

[redacted]

.....

Signature of person obtaining consent

Informed Consent Form For Lisa Naas, PhD Student, Design (ECA)

Name: Andrés Basantes

[redacted]

Date: 28 September 2016

Project Title: **after the storm: REFORM**

Project Summary: Student participants from various disciplines throughout the University will come together to contribute to ongoing research about the production of ideas at the intersection of disciplines. Students will be asked to consider "glass" from the lens of their discipline and alongside ideas of regeneration and storms by mapping, sketching, writing, or constructing ideas. A new, exploratory method for early idea production will be introduced as part of the discussion and session. As part of the workshop, a brief overview of glass as an innovative material will be shown and demonstrations in the hotshop will be offered. Skilled glass artists and the ECA glass technician will work together with the students to help students realize their project proposals from these early sketches over the course of a few months. The sketches, process, and outputs will be recorded.

Objectives

- To introduce participants to glass, to the hotshop, and to associative, creative thinking
- To explore what might happen to creative outputs if new-to-glass participants approach glass from a conceptual perspective, viewing it through the lens of their personal disciplines
- To create a hands-on learning environment that fosters creative thinking in an interdisciplinary group setting to encourage idea production

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution will be recorded and photographed for the purpose of inclusion in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of persona data obtained in this study (e.g.: name, age, and occupation).

Andres Basantes

Participant's Name (Printed)

[redacted]

Lisa Naas

.....

Name of person obtaining consent (Printed)

[redacted] .....

Informed Consent Form For Lisa Naas, PhD Student, Design (ECA)

Name: CHLOE MILNER

[redacted]

Date: 28 September 2016

Project Title: **after the storm: REFORM**

Project Summary: Student participants from various disciplines throughout the University will come together to contribute to ongoing research about the production of ideas at the intersection of disciplines. Students will be asked to consider "glass" from the lens of their discipline and alongside ideas of regeneration and storms by mapping, sketching, writing, or constructing ideas. A new, exploratory method for early idea production will be introduced as part of the discussion and session. As part of the workshop, a brief overview of glass as an innovative material will be shown and demonstrations in the hotshop will be offered. Skilled glass artists and the ECA glass technician will work together with the students to help students realize their project proposals from these early sketches over the course of a few months. The sketches, process, and outputs will be recorded.

Objectives

- To introduce participants to glass, to the hotshop, and to associative, creative thinking
- To explore what might happen to creative outputs if new-to-glass participants approach glass from a conceptual perspective, viewing it through the lens of their personal disciplines
- To create a hands-on learning environment that fosters creative thinking in an interdisciplinary group setting to encourage idea production

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution will be recorded and photographed for the purpose of inclusion in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of persona data obtained in this study (e.g.: name, age, and occupation).

Chloe Milner
.....
Participant's Name (Printed)

[redacted]

Lisa Naas

.....
Name of person obtaining consent (Printed)

[redacted]

.....
Signature of person obtaining consent

Informed Consent Form For Lisa Naas, PhD Student, Design (ECA)

Name: Fiona Estwick

[redacted]

Date: 28 September 2016

Project Title: **after the storm: REFORM**

Project Summary: Student participants from various disciplines throughout the University will come together to contribute to ongoing research about the production of ideas at the intersection of disciplines. Students will be asked to consider "glass" from the lens of their discipline and alongside ideas of regeneration and storms by mapping, sketching, writing, or constructing ideas. A new, exploratory method for early idea production will be introduced as part of the discussion and session. As part of the workshop, a brief overview of glass as an innovative material will be shown and demonstrations in the hotshop will be offered. Skilled glass artists and the ECA glass technician will work together with the students to help students realize their project proposals from these early sketches over the course of a few months. The sketches, process, and outputs will be recorded.

Objectives

- To introduce participants to glass, to the hotshop, and to associative, creative thinking
- To explore what might happen to creative outputs if new-to-glass participants approach glass from a conceptual perspective, viewing it through the lens of their personal disciplines
- To create a hands-on learning environment that fosters creative thinking in an interdisciplinary group setting to encourage idea production

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution will be recorded and photographed for the purpose of inclusion in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of persona data obtained in this study (e.g.: name, age, and occupation).

Fiona Estwick.

.....

Participant's Name (Printed)

[redacted]

Lisa Naas

.....

Name of person obtaining consent (Printed)

[redacted]

.....

Signature of person obtaining consent

Informed Consent Form For Lisa Naas, PhD Student, Design (ECA)

Name: ALICE VALERE

[redacted]

Date: 28 September 2016

Project Title: **after the storm: REFORM**

Project Summary: Student participants from various disciplines throughout the University will come together to contribute to ongoing research about the production of ideas at the intersection of disciplines. Students will be asked to consider "glass" from the lens of their discipline and alongside ideas of regeneration and storms by mapping, sketching, writing, or constructing ideas. A new, exploratory method for early idea production will be introduced as part of the discussion and session. As part of the workshop, a brief overview of glass as an innovative material will be shown and demonstrations in the hotshop will be offered. Skilled glass artists and the ECA glass technician will work together with the students to help students realize their project proposals from these early sketches over the course of a few months. The sketches, process, and outputs will be recorded.

Objectives

- To introduce participants to glass, to the hotshop, and to associative, creative thinking
- To explore what might happen to creative outputs if new-to-glass participants approach glass from a conceptual perspective, viewing it through the lens of their personal disciplines
- To create a hands-on learning environment that fosters creative thinking in an interdisciplinary group setting to encourage idea production

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution will be recorded and photographed for the purpose of inclusion in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of persona data obtained in this study (e.g.: name, age, and occupation).

ALICE VALERE

Participant's Name (Printed)

[redacted]

Lisa Naas

Name of person obtaining consent (Printed)

[redacted]

Signature of person obtaining consent

Informed Consent Form For Lisa Naas, PhD Student, Design (ECA)

Name: MARZENA OSTROMECKA

[redacted]

Date: 28 September 2016

Project Title: **after the storm: REFORM**

Project Summary: Student participants from various disciplines throughout the University will come together to contribute to ongoing research about the production of ideas at the intersection of disciplines. Students will be asked to consider "glass" from the lens of their discipline and alongside ideas of regeneration and storms by mapping, sketching, writing, or constructing ideas. A new, exploratory method for early idea production will be introduced as part of the discussion and session. As part of the workshop, a brief overview of glass as an innovative material will be shown and demonstrations in the hotshop will be offered. Skilled glass artists and the ECA glass technician will work together with the students to help students realize their project proposals from these early sketches over the course of a few months. The sketches, process, and outputs will be recorded.

Objectives

- To introduce participants to glass, to the hotshop, and to associative, creative thinking
- To explore what might happen to creative outputs if new-to-glass participants approach glass from a conceptual perspective, viewing it through the lens of their personal disciplines
- To create a hands-on learning environment that fosters creative thinking in an interdisciplinary group setting to encourage idea production

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution will be recorded and photographed for the purpose of inclusion in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of persona data obtained in this study (e.g.: name, age, and occupation).

MARZENA OSTROMECKA

Participant's Name (Printed)

[redacted]

Lisa Naas

Name of person obtaining consent (Printed)

[redacted]

Signature of person obtaining consent

Informed Consent Form For Lisa Naas, PhD Student, Design (ECA)

Name: BHIMANSHU PANDEY

[redacted]

Date: 28 September 2016

Project Title: **after the storm: REFORM**

Project Summary: Student participants from various disciplines throughout the University will come together to contribute to ongoing research about the production of ideas at the intersection of disciplines. Students will be asked to consider "glass" from the lens of their discipline and alongside ideas of regeneration and storms by mapping, sketching, writing, or constructing ideas. A new, exploratory method for early idea production will be introduced as part of the discussion and session. As part of the workshop, a brief overview of glass as an innovative material will be shown and demonstrations in the hotshop will be offered. Skilled glass artists and the ECA glass technician will work together with the students to help students realize their project proposals from these early sketches over the course of a few months. The sketches, process, and outputs will be recorded.

Objectives

- To introduce participants to glass, to the hotshop, and to associative, creative thinking
- To explore what might happen to creative outputs if new-to-glass participants approach glass from a conceptual perspective, viewing it through the lens of their personal disciplines
- To create a hands-on learning environment that fosters creative thinking in an interdisciplinary group setting to encourage idea production

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution will be recorded and photographed for the purpose of inclusion in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of persona data obtained in this study (e.g.: name, age, and occupation).

BHIMANSHU PANDEY

[redacted]

Lisa Naas

.....

[redacted]

.....

Signature of person obtaining consent

Informed Consent Form For Lisa Naas, PhD Student, Design (ECA)

Name:

Address:

Contact number:

Email:

Date: 28 September 2016

Project Title: **after the storm: REFORM**

Project Summary: Student participants from various disciplines throughout the University will come together to contribute to ongoing research about the production of ideas at the intersection of disciplines. Students will be asked to consider "glass" from the lens of their discipline and alongside ideas of regeneration and storms by mapping, sketching, writing, or constructing ideas. A new, exploratory method for early idea production will be introduced as part of the discussion and session. As part of the workshop, a brief overview of glass as an innovative material will be shown and demonstrations in the hotshop will be offered. Skilled glass artists and the ECA glass technician will work together with the students to help students realize their project proposals from these early sketches over the course of a few months. The sketches, process, and outputs will be recorded.

Objectives

- To introduce participants to glass, to the hotshop, and to associative, creative thinking
- To explore what might happen to creative outputs if new-to-glass participants approach glass from a conceptual perspective, viewing it through the lens of their personal disciplines
- To create a hands-on learning environment that fosters creative thinking in an interdisciplinary group setting to encourage idea production

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution will be recorded and photographed for the purpose of inclusion in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of persona data obtained in this study (e.g.: name, age, and occupation).

ANNIE ELIASSON

Participant's Name (Printed)

[redacted]

Lisa Naas

Name of person obtaining consent (Printed)

[redacted]

Signature of person obtaining consent

Informed Consent Form For Lisa Naas, PhD Student, Design (ECA)

Name:

Address:

Contact number:

Email:

Date: 28 September 2016

Project Title: **after the storm: REFORM**

Project Summary: Student participants from various disciplines throughout the University will come together to contribute to ongoing research about the production of ideas at the intersection of disciplines. Students will be asked to consider "glass" from the lens of their discipline and alongside ideas of regeneration and storms by mapping, sketching, writing, or constructing ideas. A new, exploratory method for early idea production will be introduced as part of the discussion and session. As part of the workshop, a brief overview of glass as an innovative material will be shown and demonstrations in the hotshop will be offered. Skilled glass artists and the ECA glass technician will work together with the students to help students realize their project proposals from these early sketches over the course of a few months. The sketches, process, and outputs will be recorded.

Objectives

- To introduce participants to glass, to the hotshop, and to associative, creative thinking
- To explore what might happen to creative outputs if new-to-glass participants approach glass from a conceptual perspective, viewing it through the lens of their personal disciplines
- To create a hands-on learning environment that fosters creative thinking in an interdisciplinary group setting to encourage idea production

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution will be recorded and photographed for the purpose of inclusion in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of persona data obtained in this study (e.g.: name, age, and occupation).

Jessica McAlvany

Participant's Name (Printed)

[redacted]

Lisa Naas

Name of person obtaining consent (Printed)

[redacted]

Signature of person obtaining consent

Informed Consent Form For Lisa Naas, PhD Student, Design (ECA)

Name: ORLA STEVENS

[redacted]

Date: 23 September 2010

Project Title: **after the storm: REFORM**

Project Summary: Student participants from various disciplines throughout the University will come together to contribute to ongoing research about the production of ideas at the intersection of disciplines. Students will be asked to consider "glass" from the lens of their discipline and alongside ideas of regeneration and storms by mapping, sketching, writing, or constructing ideas. A new, exploratory method for early idea production will be introduced as part of the discussion and session. As part of the workshop, a brief overview of glass as an innovative material will be shown and demonstrations in the hotshop will be offered. Skilled glass artists and the ECA glass technician will work together with the students to help students realize their project proposals from these early sketches over the course of a few months. The sketches, process, and outputs will be recorded.

Objectives

- To introduce participants to glass, to the hotshop, and to associative, creative thinking
- To explore what might happen to creative outputs if new-to-glass participants approach glass from a conceptual perspective, viewing it through the lens of their personal disciplines
- To create a hands-on learning environment that fosters creative thinking in an interdisciplinary group setting to encourage idea production

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution will be recorded and photographed for the purpose of inclusion in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of persona data obtained in this study (e.g.: name, age, and occupation).

ORLA STEVENS

Participant's Name (Printed)

[redacted]

Participant's Signature

Lisa Naas

.....

Name of person obtaining consent (Printed)

[redacted]

.....

Signature of person obtaining consent

Informed Consent Form For Lisa Naas, PhD Student, Design (ECA)

Name: Megan Brown

Address:

[redacted]

Date: 28 September 2016

Project Title: **after the storm: REFORM**

Project Summary: Student participants from various disciplines throughout the University will come together to contribute to ongoing research about the production of ideas at the intersection of disciplines. Students will be asked to consider "glass" from the lens of their discipline and alongside ideas of regeneration and storms by mapping, sketching, writing, or constructing ideas. A new, exploratory method for early idea production will be introduced as part of the discussion and session. As part of the workshop, a brief overview of glass as an innovative material will be shown and demonstrations in the hotshop will be offered. Skilled glass artists and the ECA glass technician will work together with the students to help students realize their project proposals from these early sketches over the course of a few months. The sketches, process, and outputs will be recorded.

Objectives

- To introduce participants to glass, to the hotshop, and to associative, creative thinking
- To explore what might happen to creative outputs if new-to-glass participants approach glass from a conceptual perspective, viewing it through the lens of their personal disciplines
- To create a hands-on learning environment that fosters creative thinking in an interdisciplinary group setting to encourage idea production

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution will be recorded and photographed for the purpose of inclusion in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of persona data obtained in this study (e.g.: name, age, and occupation).

MEGAN BROWN

[redacted]

Lisa Naas

.....

Name of person obtaining consent (Printed)

[redacted]

.....

Signature of person obtaining consent

Informed Consent Form For Lisa Naas, PhD Student, Design (ECA)

Name:

Address:

Contact number:

Email:

Date: 28 September 2016

Project Title: **after the storm: REFORM**

Project Summary: Student participants from various disciplines throughout the University will come together to contribute to ongoing research about the production of ideas at the intersection of disciplines. Students will be asked to consider "glass" from the lens of their discipline and alongside ideas of regeneration and storms by mapping, sketching, writing, or constructing ideas. A new, exploratory method for early idea production will be introduced as part of the discussion and session. As part of the workshop, a brief overview of glass as an innovative material will be shown and demonstrations in the hotshop will be offered. Skilled glass artists and the ECA glass technician will work together with the students to help students realize their project proposals from these early sketches over the course of a few months. The sketches, process, and outputs will be recorded.

Objectives

- To introduce participants to glass, to the hotshop, and to associative, creative thinking
- To explore what might happen to creative outputs if new-to-glass participants approach glass from a conceptual perspective, viewing it through the lens of their personal disciplines
- To create a hands-on learning environment that fosters creative thinking in an interdisciplinary group setting to encourage idea production

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution will be recorded and photographed for the purpose of inclusion in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of persona data obtained in this study (e.g.: name, age, and occupation).

ALISON WIBMER

Participant's Name (Printed)

[redacted]

Lisa Naas

.....

Name of person obtaining consent (Printed)

[redacted]

.....

Signature of person obtaining consent

Informed Consent Form For Lisa Naas, PhD Student, Design (ECA)

Name:

Address:

Contact number:

Email:

Date: 28 September 2016

Project Title: **after the storm: REFORM**

Project Summary: Student participants from various disciplines throughout the University will come together to contribute to ongoing research about the production of ideas at the intersection of disciplines. Students will be asked to consider "glass" from the lens of their discipline and alongside ideas of regeneration and storms by mapping, sketching, writing, or constructing ideas. A new, exploratory method for early idea production will be introduced as part of the discussion and session. As part of the workshop, a brief overview of glass as an innovative material will be shown and demonstrations in the hotshop will be offered. Skilled glass artists and the ECA glass technician will work together with the students to help students realize their project proposals from these early sketches over the course of a few months. The sketches, process, and outputs will be recorded.

Objectives

- To introduce participants to glass, to the hotshop, and to associative, creative thinking
- To explore what might happen to creative outputs if new-to-glass participants approach glass from a conceptual perspective, viewing it through the lens of their personal disciplines
- To create a hands-on learning environment that fosters creative thinking in an interdisciplinary group setting to encourage idea production

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution will be recorded and photographed for the purpose of inclusion in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of persona data obtained in this study (e.g.: name, age, and occupation).

CARA WALKER

[redacted]

Lisa Naas

Name of person obtaining consent (Printed)

[redacted]

Signature of person obtaining consent

Informed Consent Form For Lisa Naas, PhD Student, Design (ECA)

Name:

Address:

Contact number:

Email:

Date: 28 September 2016

Project Title: **after the storm: REFORM**

Project Summary: Student participants from various disciplines throughout the University will come together to contribute to ongoing research about the production of ideas at the intersection of disciplines. Students will be asked to consider "glass" from the lens of their discipline and alongside ideas of regeneration and storms by mapping, sketching, writing, or constructing ideas. A new, exploratory method for early idea production will be introduced as part of the discussion and session. As part of the workshop, a brief overview of glass as an innovative material will be shown and demonstrations in the hotshop will be offered. Skilled glass artists and the ECA glass technician will work together with the students to help students realize their project proposals from these early sketches over the course of a few months. The sketches, process, and outputs will be recorded.

Objectives

- To introduce participants to glass, to the hotshop, and to associative, creative thinking
- To explore what might happen to creative outputs if new-to-glass participants approach glass from a conceptual perspective, viewing it through the lens of their personal disciplines
- To create a hands-on learning environment that fosters creative thinking in an interdisciplinary group setting to encourage idea production

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution will be recorded and photographed for the purpose of inclusion in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of persona data obtained in this study (e.g.: name, age, and occupation).

GEMMA LEAMY

[redacted]

Lisa Naas

.....

Name of person obtaining consent (Printed)

[redacted]

Informed Consent Form For Lisa Naas, PhD Student, Design (ECA)

Name:

Address:

Contact number:

Email:

Date: 28 September 2016

Project Title: **after the storm: REFORM**

Project Summary: Student participants from various disciplines throughout the University will come together to contribute to ongoing research about the production of ideas at the intersection of disciplines. Students will be asked to consider "glass" from the lens of their discipline and alongside ideas of regeneration and storms by mapping, sketching, writing, or constructing ideas. A new, exploratory method for early idea production will be introduced as part of the discussion and session. As part of the workshop, a brief overview of glass as an innovative material will be shown and demonstrations in the hotshop will be offered. Skilled glass artists and the ECA glass technician will work together with the students to help students realize their project proposals from these early sketches over the course of a few months. The sketches, process, and outputs will be recorded.

Objectives

- To introduce participants to glass, to the hotshop, and to associative, creative thinking
- To explore what might happen to creative outputs if new-to-glass participants approach glass from a conceptual perspective, viewing it through the lens of their personal disciplines
- To create a hands-on learning environment that fosters creative thinking in an interdisciplinary group setting to encourage idea production

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution will be recorded and photographed for the purpose of inclusion in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of persona data obtained in this study (e.g.: name, age, and occupation).

ANNA VESALUOMA

Participant's Name (Printed)

[redacted]

Lisa Naas

Name of person obtaining consent (Printed)

[redacted]

Signature of person obtaining consent

Informed Consent Form For Lisa Naas, PhD Student, Design (ECA)

Name: EMILY DUNLOP

[redacted]

Date: 28 September 2016

Project Title: **after the storm: REFORM**

Project Summary: Student participants from various disciplines throughout the University will come together to contribute to ongoing research about the production of ideas at the intersection of disciplines. Students will be asked to consider "glass" from the lens of their discipline and alongside ideas of regeneration and storms by mapping, sketching, writing, or constructing ideas. A new, exploratory method for early idea production will be introduced as part of the discussion and session. As part of the workshop, a brief overview of glass as an innovative material will be shown and demonstrations in the hotshop will be offered. Skilled glass artists and the ECA glass technician will work together with the students to help students realize their project proposals from these early sketches over the course of a few months. The sketches, process, and outputs will be recorded.

Objectives

- To introduce participants to glass, to the hotshop, and to associative, creative thinking
- To explore what might happen to creative outputs if new-to-glass participants approach glass from a conceptual perspective, viewing it through the lens of their personal disciplines
- To create a hands-on learning environment that fosters creative thinking in an interdisciplinary group setting to encourage idea production

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution will be recorded and photographed for the purpose of inclusion in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of persona data obtained in this study (e.g.: name, age, and occupation).

EMILY DUNLOP

[redacted]

Lisa Naas

.....

Name of person obtaining consent (Printed)

[redacted]

.....

Signature of person obtaining consent

Informed Consent Form For Lisa Naas, PhD Student, Design (ECA)

Name: KATHARINE DOYLE [redacted]

[redacted]

Date: 28 September 2016

Project Title: **after the storm: REFORM**

Project Summary: Student participants from various disciplines throughout the University will come together to contribute to ongoing research about the production of ideas at the intersection of disciplines. Students will be asked to consider "glass" from the lens of their discipline and alongside ideas of regeneration and storms by mapping, sketching, writing, or constructing ideas. A new, exploratory method for early idea production will be introduced as part of the discussion and session. As part of the workshop, a brief overview of glass as an innovative material will be shown and demonstrations in the hotshop will be offered. Skilled glass artists and the ECA glass technician will work together with the students to help students realize their project proposals from these early sketches over the course of a few months. The sketches, process, and outputs will be recorded.

Objectives

- To introduce participants to glass, to the hotshop, and to associative, creative thinking
- To explore what might happen to creative outputs if new-to-glass participants approach glass from a conceptual perspective, viewing it through the lens of their personal disciplines
- To create a hands-on learning environment that fosters creative thinking in an interdisciplinary group setting to encourage idea production

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution will be recorded and photographed for the purpose of inclusion in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of persona data obtained in this study (e.g.: name, age, and occupation).

KATHARINE DOYLE

Participant's Name (Printed)

[redacted]

Lisa Naas

Name of person obtaining consent (Printed)

[redacted]

Signature of person obtaining consent

Informed Consent Form For Lisa Naas, PhD Student, Design (ECA)

Name:

Address:

Contact number:

Email:

Date: 28 September 2016

Project Title: **after the storm: REFORM**

Project Summary: Student participants from various disciplines throughout the University will come together to contribute to ongoing research about the production of ideas at the intersection of disciplines. Students will be asked to consider "glass" from the lens of their discipline and alongside ideas of regeneration and storms by mapping, sketching, writing, or constructing ideas. A new, exploratory method for early idea production will be introduced as part of the discussion and session. As part of the workshop, a brief overview of glass as an innovative material will be shown and demonstrations in the hotshop will be offered. Skilled glass artists and the ECA glass technician will work together with the students to help students realize their project proposals from these early sketches over the course of a few months. The sketches, process, and outputs will be recorded.

Objectives

- To introduce participants to glass, to the hotshop, and to associative, creative thinking
- To explore what might happen to creative outputs if new-to-glass participants approach glass from a conceptual perspective, viewing it through the lens of their personal disciplines
- To create a hands-on learning environment that fosters creative thinking in an interdisciplinary group setting to encourage idea production

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution will be recorded and photographed for the purpose of inclusion in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of persona data obtained in this study (e.g.: name, age, and occupation).

Andreas Dimofavas

[redacted]

Lisa Naas

.....

Name of person obtaining consent (Printed)

[redacted]

.....

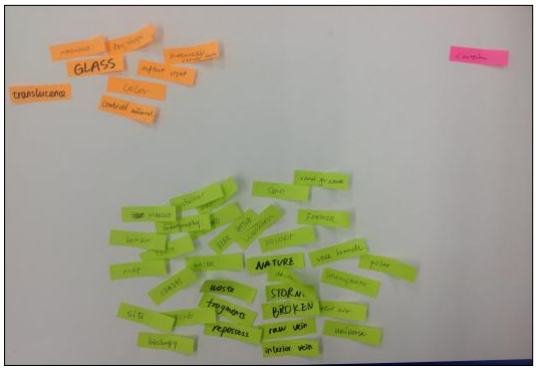
Signature of person obtaining consent

After the Storm Map-Sketches

















After the Storm: 'Reform' Idea Generation Workshop

Participant Questionnaire

Event Date: 28 September 2016

Year: 4 Undergraduate Student _____ MA/MFA Student _____ PhD Student _____ Other

Gender: ✓ Female _____ Male

Discipline/School: EDINBURGH COLLEGE OF ART (SCULPTURE)

Sketching/Ideas Workshop Questions

Did you try the Triangulation Word map/sketch? ✓ yes _____ no

If yes, what three words or triangulation points did you use? GLASS, SOUND, NATURE

If you tried Triangulation, did you try _____ individually ✓ or with a group?

Did you converse while you worked on your map/sketch or were you quiet?

After the session on 28 October, did you use your map/sketch again? _____ yes _____ no If yes, could you describe what more you did with your map/sketch? (i.e. Did you sketch more? Use it to help with talking points about your project? Etc) We used some of the ideas from our map to write our proposal.

Did you find the Triangulation method useful to developing your ideas or sketches? Yes

In a sentence or two, please describe any ideas that were derived from the Triangulation play: We thought about ~~listening~~ linking different concepts together which we would not have considered before.

Do you think you might try using this Triangulation mapping again in the future? Yes.

From the perspective of the project work you do in your discipline, how do you think you might use the Triangulation method? I would use it to link the technical aspects of my work with the more conceptual side.

Do you see any other application or use for this Triangulation map/sketching? Collaborative projects.

After the Storm: 'Reform' Idea Generation Workshop

Participant Questionnaire

Event Date: 28 September 2016

Year: 3 ~~Undergraduate Student~~ ✓ ____ MA/MFA Student ____ PhD Student ____ Other

Gender: ____ Female ____ Male

Discipline/School: textiles

Sketching/Ideas Workshop Questions

Did you try the Triangulation Word map/sketch? ____ yes ____ no

If yes, what three words or triangulation points did you use? balance, glass, mixed media.

If you tried Triangulation, did you try ____ individually ____ or with a group?

Did you converse while you worked on your map/sketch or were you quiet? converse.

After the session on 28 October, did you use your map/sketch again? ____ yes ____ no If yes, could you describe what more you did with your map/sketch? (i.e. Did you sketch more? Use it to help with talking points about your project? Etc) talking points, to focus proposal

Did you find the Triangulation method useful to developing your ideas or sketches? yes

In a sentence or two, please describe any ideas that were derived from the Triangulation play:

interactive objects
processes + materials
we could identify shared thoughts.

Do you think you might try using this Triangulation mapping again in the future? yes

From the perspective of the project work you do in your discipline, how do you think you might use the Triangulation method? it's good for very quick idea generation — whatever pops into mind, linking ideas together.

Do you see any other application or use for this Triangulation map/sketching? at any point where you hit a mind blank in a project, moving forwards

After the Storm: 'Reform' Idea Generation Workshop

Participant Questionnaire

Event Date: 28 September 2016

Year: 1 Undergraduate Student ____ MA/MFA Student ✓ PhD Student ____ Other

Gender: ✓ Female ____ Male

Discipline/School: GLASS.

Sketching/Ideas Workshop Questions

Did you try the Triangulation Word map/sketch? ✓ yes ____ no

If yes, what three words or triangulation points did you use? Glass, balance, Mixed Media.

If you tried Triangulation, did you try ____ individually ✓ or with a group?

Did you converse while you worked on your map/sketch or were you quiet?

After the session on 28 October, did you use your map/sketch again? ✓ yes ____ no If yes, could you describe what more you did with your map/sketch? (i.e. Did you sketch more? Use it to help with talking points about your project? Etc) We didn't look too closely at it but it produced ideas + key words / points we wanted to continue with.

Did you find the Triangulation method useful to developing your ideas or sketches? Yes.

In a sentence or two, please describe any ideas that were derived from the Triangulation play:

What was important to us as a group. Thinking about materials + process, interactive design.

Do you think you might try using this Triangulation mapping again in the future? yes.

From the perspective of the project work you do in your discipline, how do you think you might use the Triangulation method?

To mind map + produce ideas, finding key themes.

Do you see any other application or use for this Triangulation map/sketching?

finding a link between materials ✓.

After the Storm: 'Reform' Idea Generation Workshop

Participant Questionnaire

Event Date: 28 September 2016

Year: 1 Undergraduate Student ____ MA/MFA Student ✓ PhD Student ____ Other

Gender: ✓ Female ____ Male

Discipline/School: GLASS

Sketching/Ideas Workshop Questions

Did you try the Triangulation Word map/sketch? ✓ yes ____ no

If yes, what three words or triangulation points did you use? mixed media / balance / glass / interactive

If you tried Triangulation, did you try ____ individually ✓ or with a group?

Did you converse while you worked on your map/sketch or were you quiet?

After the session on 28 October, did you use your map/sketch again? ✓ yes ____ no If yes, could you describe what more you did with your map/sketch? (i.e. Did you sketch more? Use it to help with talking points about your project? Etc) we used it to full proof our final proposal

Did you find the Triangulation method useful to developing your ideas or sketches? Yes

In a sentence or two, please describe any ideas that were derived from the Triangulation play: To create an interactive piece from glass and metal using various processes. (casting + blowing)

Do you think you might try using this Triangulation mapping again in the future? Yes

From the perspective of the project work you do in your discipline, how do you think you might use the Triangulation method? I use mind maps for thought process and creative process

Do you see any other application or use for this Triangulation map/sketching? Any kinds of research.

After the Storm: 'Reform' Idea Generation Workshop

Participant Questionnaire

Event Date: 28 September 2016

Year: 4 Undergraduate Student ____ (MA/MFA Student) ____ PhD Student ____ Other

Gender: ____ (Female) ____ Male

Discipline/School: Intermedia ECA

Sketching/Ideas Workshop Questions

Did you try the Triangulation Word map/sketch? ____ (yes) ____ no

If yes, what three words or triangulation points did you use? glass, sound, nature

If you tried Triangulation, did you try ____ individually ____ or with a (group)?

Did you (converse) while you worked on your map/sketch or were you quiet?

After the session on 28 October, did you use your map/sketch again? ____ (yes) ____ no If yes, could you describe what more you did with your map/sketch? (i.e. Did you sketch more? Use it to help with talking points about your project? Etc) used it to ~~mate~~ write our project proposal

Did you find the Triangulation method useful to developing your ideas or sketches? yes

In a sentence or two, please describe any ideas that were derived from the Triangulation play:

the connections between the triangulation points — how they interlink — aided with our approach to the project.

Do you think you might try using this Triangulation mapping again in the future? yes, for projects

From the perspective of the project work you do in your discipline, how do you think you might use the Triangulation method? yes for brainstorming new ideas and project in my art.

Do you see any other application or use for this Triangulation map/sketching? for life decisions

After the Storm: 'Reform' Idea Generation Workshop
Participant Questionnaire
Event Date: 28 September 2016

Year: 4 Undergraduate Student _____ MA/MFA Student _____ PhD Student _____ Other

Gender: ✓ Female _____ Male

Discipline/School: School of Art / Painting

Sketching/Ideas Workshop Questions
Did you try the Triangulation Word map/sketch? _____ (yes) _____ no

If yes, what three words or triangulation points did you use? GLASS SOUND NATURE

If you tried Triangulation, did you try _____ individually ✓ or with a group?

Did you converse while you worked on your map/sketch or were you quiet? Converse

After the session on 28 October, did you use your map/sketch again? _____ (yes) _____ no If yes, could you describe what more you did with your map/sketch? (i.e. Did you sketch more? Use it to help with talking points about your project? Etc) We used it to help write our proposal and define our interests.

Did you find the Triangulation method useful to developing your ideas or sketches? Yes.

In a sentence or two, please describe any ideas that were derived from the Triangulation play:

The idea of a network - networks to do with underground tree roots and networks to do with sound and communication. These ideas ended up forming the basis of our proposal.

Do you think you might try using this Triangulation mapping again in the future? Yes.

From the perspective of the project work you do in your discipline, how do you think you might use the Triangulation method?

I've already used it briefly to make connections between areas of personal interest to form some ideas in my painting practice / research.

Do you see any other application or use for this Triangulation map/sketching? Way of 'mindmapping' for Dissertation. / future art projects.

After the Storm: 'Reform' Idea Generation Workshop
Participant Questionnaire
Event Date: 28 September 2016

Year: _____Undergraduate Student _____MA/MFA Student _____ PhD Student _____ Other

Gender: _____ Female _____ Male

Discipline/School: Contemporary Art Practice

Sketching/Ideas Workshop Questions
Did you try the Triangulation Word map/sketch? _____ yes _____ no

If yes, what three words or triangulation points did you use? Glass, Transcent, (fossil)

If you tried Triangulation, did you try _____ individually _____or with a group?
→ then in group

Did you converse while you worked on your map/sketch or were you quiet? Quiet, discuss after

After the session on 28 October, did you use your map/sketch again? _____ yes _____ no If yes, could you describe what more you did with your map/sketch? (i.e. Did you sketch more? Use it to help with talking points about your project? Etc) Tried to connect words, refine ideas, focused on the outcome

Did you find the Triangulation method useful to developing your ideas or sketches? Yes, bring the concept together

In a sentence or two, please describe any ideas that were derived from the Triangulation play:

Better understanding of thought process, multiple perspective, more critical speculation

Do you think you might try using this Triangulation mapping again in the future? Yes

From the perspective of the project work you do in your discipline, how do you think you might use the Triangulation method?

Starting Point, Reference Ideas

Do you see any other application or use for this Triangulation map/sketching? Keep track parallels, Problem solving, Including various aspects

Thank you so much for your time!

After the Storm: 'Reform' Idea Generation Workshop
Participant Questionnaire
Event Date: 28 September 2016

Year: _____Undergraduate Student _____MA/MFA Student _____ PhD Student _____ Other

Gender: _____Female_____ Male

Discipline/School: ECA School of Design : Glass

Sketching/Ideas Workshop Questions
Did you try the Triangulation Word map/sketch? _____yes_____ no

If yes, what three words or triangulation points did you use? GLASS, ELEMENTS, CYCLE

If you tried Triangulation, did you try _____ individually _____or with a group?

Did you converse while you worked on your map/sketch or were you quiet? CONVERVED

After the session on 28 October, did you use your map/sketch again? X yes _____ no If yes, could you describe what more you did with your map/sketch? (i.e. Did you sketch more? Use it to help with talking points about your project? Etc) Different project + added some extra key words to the old one

Did you find the Triangulation method useful to developing your ideas or sketches? Yes :)

In a sentence or two, please describe any ideas that were derived from the Triangulation play:

See Alice's

Do you think you might try using this Triangulation mapping again in the future? Yes definitely

From the perspective of the project work you do in your discipline, how do you think you might use the Triangulation method? To narrow down ideas for the final project/ dissertation

Do you see any other application or use for this Triangulation map/sketching? Any brainstorming/ ideas

Thank you so much for your time!

After the Storm: 'Reform' Idea Generation Workshop
Participant Questionnaire
Event Date: 28 September 2016

Year: _____Undergraduate Student _X_ MA/MFA Student _____ PhD Student _____ Other

Gender: _X_ Female _____ Male

Discipline/School: GLASS

Sketching/Ideas Workshop Questions
Did you try the Triangulation Word map/sketch? _X_ yes _____ no

If yes, what three words or triangulation points did you use? GLASS, ELEMENTS, CYCLE

If you tried Triangulation, did you try _____ individually _X_ or with a group?

Did you converse while you worked on your map/sketch or were you quiet? CONVERSED

After the session on 28 October, did you use your map/sketch again? _X_ yes _____ no If yes, could you describe what more you did with your map/sketch? (i.e. Did you sketch more? Use it to help with talking points about your project? Etc) WE ADDED MORE IDEAS TO IT AND TALKED OVER IT. WE ENDED UP USING THE "OUTER" WORDS AS STARTING POINT FOR OUR PROJECT

Did you find the Triangulation method useful to developing your ideas or sketches? YES!!

In a sentence or two, please describe any ideas that were derived from the Triangulation play:

WE DECIDED TO DEVELOP THE IDEA OF CYCLE (START - END, LIFE-DEATH) AND WE CAME UP WITH THE IDEA OF A SORT OF "BIG BANG" SEEN AS THE BEGINNING OF EVERYTHING (NEW BEGINNING, LIKE AFTER A STORM!). WE ALSO DEVELOPED THE IDEA OF NETWORK, CONNECTIONS.

Do you think you might try using this Triangulation mapping again in the future? YES!

From the perspective of the project work you do in your discipline, how do you think you might use the Triangulation method? I THINK THIS METHOD IS VERY USEFUL TO FIND NEW IDEAS, STARTING POINTS, FOR A PROJECT. IT HELPS TO HAVE A BROADER IDEA OF WHAT YOU ARE GOING TO BE WORKING WITH, AND IT PULLS OUT IDEAS YOU WOULDN'T HAVE THOUGHT ABOUT

Do you see any other application or use for this Triangulation map/sketching? I THINK IT COULD BE USEFUL ANYTIME YOU HAVE TO FIND NEW IDEAS OR CONCEPTS AROUND A CERTAIN TOPIC (EG. PLANNING AN ESSAY, RESEARCH PROJECT ETC.)

After the Storm: 'Reform' Idea Generation Workshop

Participant Questionnaire

Event Date: 28 September 2016

Year: 3 (Undergraduate Student) ✓ MA/MFA Student _____ PhD Student _____ Other

Gender: _____ (Female) ✓ Male

Discipline/School: TEXTILES

Sketching/Ideas Workshop Questions

Did you try the Triangulation Word map/sketch? _____ (yes) _____ no

If yes, what three words or triangulation points did you use? REGENERATION | GLASS | ENVIRONMENT

If you tried Triangulation, did you try _____ individually _____ or with a group?

Did you converse while you worked on your map/sketch or were you quiet? YES

After the session on 28 October, did you use your map/sketch again? _____ (yes) _____ no If yes, could you describe what more you did with your map/sketch? (i.e. Did you sketch more? Use it to help with talking points about your project? Etc) We used it to jog more ideas and draw up loose sketches and plans for the project

Did you find the Triangulation method useful to developing your ideas or sketches? YES

In a sentence or two, please describe any ideas that were derived from the Triangulation play: We were able to explore possible techniques from defining exactly the themes + materials we wished to explore - made pin pointing things easier - film ideas, glass + mixed media encorporation.

Do you think you might try using this Triangulation mapping again in the future? Yes.

From the perspective of the project work you do in your discipline, how do you think you might use the Triangulation method? I'd use it in the same format as this; the initial planning stage as it's a great method to generate initial ideas.

Do you see any other application or use for this Triangulation map/sketching? At end of a project, remain are to reflect on project outcomes?

After the Storm: 'Reform' Idea Generation Workshop
Participant Questionnaire
Event Date: 28 September 2016

Year: ____Undergraduate Student ✓ MA/MFA Student ____ PhD Student ____ Other

Gender: ✓ Female ____ Male

Discipline/School: Performance Costume

Sketching/Ideas Workshop Questions
Did you try the Triangulation Word map/sketch? ✓ yes ____ no

If yes, what three words or triangulation points did you use? regeneration, glass, environment

If you tried Triangulation, did you try ____ individually ✓ or with a group?

Did you converse while you worked on your map/sketch or were you quiet? conversed

After the session on 28 October, did you use your map/sketch again? ✓ yes ____ no If yes, could you describe what more you did with your map/sketch? (i.e. Did you sketch more? Use it to help with talking points about your project? Etc) used it as a jumping off point for further discussion/ elaboration at a later meeting

Did you find the Triangulation method useful to developing your ideas or sketches? yes

In a sentence or two, please describe any ideas that were derived from the Triangulation play:

we came up with concepts that we wanted to focus on including memory and perception as well as aesthetic choices to incorporate recycling and found objects

Do you think you might try using this Triangulation mapping again in the future? yes.

From the perspective of the project work you do in your discipline, how do you think you might use the Triangulation method? I might use it in conjunction with reference images. and use character traits as words to design for character.

Do you see any other application or use for this Triangulation map/sketching?

you could use it for all types of creative application or even decision making

After the Storm: 'Reform' Idea Generation Workshop

Participant Questionnaire

Event Date: 28 September 2016

Year: 4 Undergraduate Student ✓ MA/MFA Student _____ PhD Student _____ Other

Gender: ✓ Female _____ Male

Discipline/School: Sculpture

Sketching/Ideas Workshop Questions

Did you try the Triangulation Word map/sketch? ✓ yes _____ no

If yes, what three words or triangulation points did you use? Glass, contrast, function

If you tried Triangulation, did you try _____ individually ✓ or with a group?

Did you converse while you worked on your map/sketch or were you quiet?

After the session on 28 ~~October~~ Sept, did you use your map/sketch again? ✓ yes _____ no If yes, could you describe what more you did with your map/sketch? (i.e. Did you sketch more? Use it to help with talking points about your project? Etc) to refer back to "function" considering function of botanic gdns, and what might visually symbolise this → drawings

Did you find the Triangulation method useful to developing your ideas or sketches? Useful to help us focus our ideas as a group

In a sentence or two, please describe any ideas that were derived from the Triangulation play:

Working out what keywords we wanted — the triangulation tool made us discuss this and helped us discern what we considered to be key factors for us.

Do you think you might try using this Triangulation mapping again in the future? Yes — it would be interesting to try individually v/s as a group.

From the perspective of the project work you do in your discipline, how do you think you might use the Triangulation method? Perhaps to help find a link between key themes and materials — I think it has the advantage of enabling us to keep ideas broad + open.

Do you see any other application or use for this Triangulation map/sketching? — too early to say — will experiment using it in my research — In 4th yr undergrads we have to submit "research projects" anything

Thank you so much for your time!

After the Storm: 'Reform' Idea Generation Workshop

Participant Questionnaire

Event Date: 28 September 2016

Year: ____Undergraduate Student ✓ MA/MFA Student ____ PhD Student ____ Other

Gender: ✓ Female ____ Male

Discipline/School: product Design (ECA)

Sketching/Ideas Workshop Questions

Did you try the Triangulation Word map/sketch? ✓ yes ____ no

If yes, what three words or triangulation points did you use? Glass, Exercise, Regeneration

If you tried Triangulation, did you try ____ individually ✓ or with a group?

Did you converse while you worked on your map/sketch or were you quiet?

✓ Yes.

After the session on 28 October, did you use your map/sketch again? ____ yes ✓ no If yes, could you describe what more you did with your map/sketch? (i.e. Did you sketch more? Use it to help with talking points about your project? Etc) ____

Did you find the Triangulation method useful to developing your ideas or sketches? YES, I did.

In a sentence or two, please describe any ideas that were derived from the Triangulation play:

Regeneration means give the power again to some dead plants.

Do you think you might try using this Triangulation mapping again in the future? YES.

From the perspective of the project work you do in your discipline, how do you think you might use the Triangulation method? It can help us to create more interesting ideas.

Do you see any other application or use for this Triangulation map/sketching? No.

After the Storm: 'Reform' Idea Generation Workshop
Participant Questionnaire
Event Date: 28 September 2016

Year: 1 Undergraduate Student ____ MA/MFA Student ✓ PhD Student ____ Other

Gender: ✓ Female ____ Male

Discipline/School: Product Design.

Sketching/Ideas Workshop Questions
Did you try the Triangulation Word map/sketch? ✓ yes ✓ no

If yes, what three words or triangulation points did you use? Glass, Exercise, Regeneration.

If you tried Triangulation, did you try ____ individually ✓ or with a group?

Did you converse while you worked on your map/sketch or were you quiet?
YES. We conversed.
After the session on 28 October, did you use your map/sketch again? ____ yes ✓ no If yes, could you describe what more you did with your map/sketch? (i.e. Did you sketch more? Use it to help with talking points about your project? Etc) ____

Did you find the Triangulation method useful to developing your ideas or sketches? YES.

In a sentence or two, please describe any ideas that were derived from the Triangulation play:
We learn to how to think an issue more widely and more useful, we also got to know more relevant knowledge from the discussion with our group mates.

Do you think you might try using this Triangulation mapping again in the future? YES.

From the perspective of the project work you do in your discipline, how do you think you might use the Triangulation method? I think at the beginning of my design project, I can apply this method helping me thinking the problem more widely and get more possible design direction.

Do you see any other application or use for this Triangulation map/sketching? YES.

Thank you so much for your time!

After the Storm: 'Reform' Idea Generation Workshop
Participant Questionnaire
Event Date: 28 September 2016

Year: ____Undergraduate Student __✓__MA/MFA Student ____ PhD Student ____ Other

Gender: __✓__ Female ____ Male

Discipline/School: Edinburgh College of Art.

Sketching/Ideas Workshop Questions
Did you try the Triangulation Word map/sketch? __✓__ yes ____ no

If yes, what three words or triangulation points did you use? Exercice Regeneration Glass

If you tried Triangulation, did you try ____ individually __✓__ or with a group?

Did you converse while you worked on your map/sketch or were you quiet?

After the session on 28 October, did you use your map/sketch again? __✓__ yes ____ no If yes, could you describe what more you did with your map/sketch? (i.e. Did you sketch more? Use it to help with talking points about your project? Etc) It helps me to open my mind and connect more other directions for my work.

Did you find the Triangulation method useful to developing your ideas or sketches? Yes. It helps a lot.

In a sentence or two, please describe any ideas that were derived from the Triangulation play:

The regeneration idea came from the play and let me to explore more about using the material wood and glass.

Do you think you might try using this Triangulation mapping again in the future? Yes.

From the perspective of the project work you do in your discipline, how do you think you might use the Triangulation method? Since I am a Product design student. I'd like to use it to come up with some ideas when start my project.

Do you see any other application or use for this Triangulation map/sketching? Mind map before come up with a solution to Product design.

Thank you so much for your time!

After the Storm: 'Reform' Idea Generation Workshop
Participant Questionnaire
Event Date: 28 September 2016

Year: 2016 Undergraduate Student ____ MA/MFA Student ✓ PhD Student ____ Other

Gender: ____ Female ✓ Male

Discipline/School: GLASS

Sketching/Ideas Workshop Questions
Did you try the Triangulation Word map/sketch? ✓ yes ____ no

If yes, what three words or triangulation points did you use? GLASS, ELEMENTS, CYCLE

If you tried Triangulation, did you try ____ individually ✓ or with a group?

Did you converse while you worked on your map/sketch or were you quiet?

After the session on 28 October, did you use your map/sketch again? ✓ yes ____ no If yes, could you describe what more you did with your map/sketch? (i.e. Did you sketch more? Use it to help with talking points about your project? Etc) SKETCH MORE

Did you find the Triangulation method useful to developing your ideas or sketches? YES

In a sentence or two, please describe any ideas that were derived from the Triangulation play: THE WHOLE IDEA OF INSTALLATION RELATING IT WITH DIFFERENT IDEAS & SENSIBILITIES WITH THE GROUP PEOPLE

Do you think you might try using this Triangulation mapping again in the future? MAYBE

From the perspective of the project work you do in your discipline, how do you think you might use the Triangulation method? IT'S A GOOD START OR TO PUSH YOUR IDEA TO SOMETHING MORE CONCRETE

Do you see any other application or use for this Triangulation map/sketching? —

AFTER THE STORM – PROJECT PROPOSAL

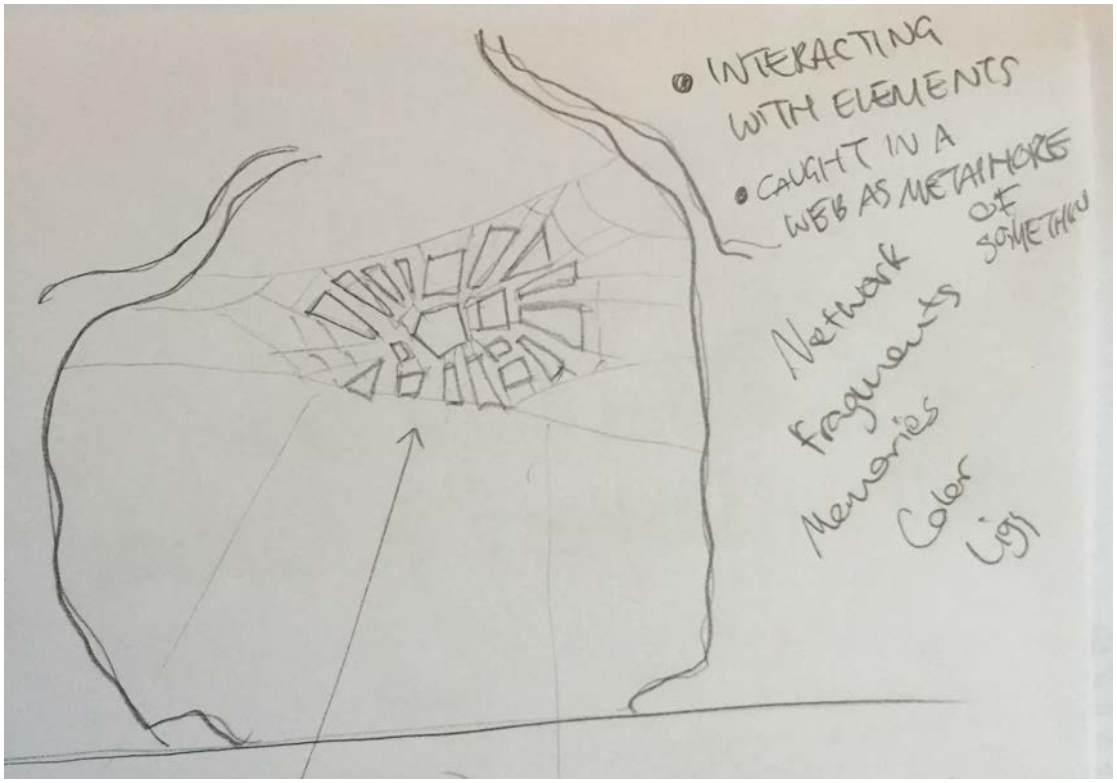
Group members:
Alice Valfre di Bonzo (MA Glass)
Marzena Ostromecka (MFA Glass)
Bhimanshu Pandel (MFA Glass)

ABOUT THE PROJECT

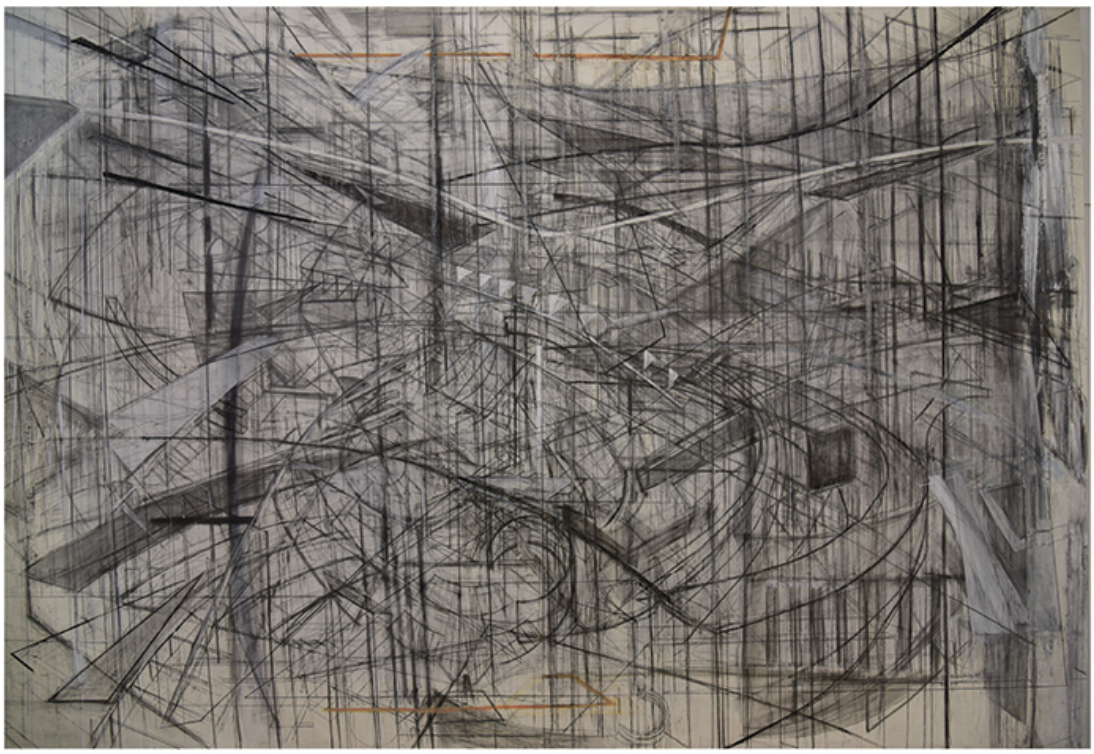
Following our mind-mapping exercise, we came up with a concept of a web/ network, which then got transformed into a vision of broken/shuttered glass. We are referring visually to a big bang theory, where the massive explosion gave birth to life. During our brainstorm we kept referring to an idea of cycle (end - beginning; death – life; destruction – new form).
We propose to create a two-dimensional installation that is to be suspended in space that will look like an explosion. We plan to use recycled colour sheet glass (stained and possibly fused) as well as clear blown glass (shaped and deformed rods), the glass to be connected with wire and iron rods (facilities permitting). The colour glass pallet is to be a warm autumnal tones that also refer to concepts such as glow, fire and heat (properties also associated with a process of making glass).
We also plan to incorporate the use of mirrors to introduce the idea of self-reflection, identification with the destruction happening/being witnessed. We intend to capture a form in suspended motion and would like the audience to witness the process. We are trying to convey an idea of presence and absence, a continuum of life cycle and the concept of rebirth and reconstruction.



The final mind-map



Original sketch of a glass web suspended between the trees


A graphic representation of a big bang idea with dynamic lines and shapes (painting by Bhimanshu Pandel)

TECHNIQUES:

- Glass painting (shading)
- Glass sandblasting (creating patterns and textures)
- Glass cutting and polishing
- Blowing/ manipulating hot glass

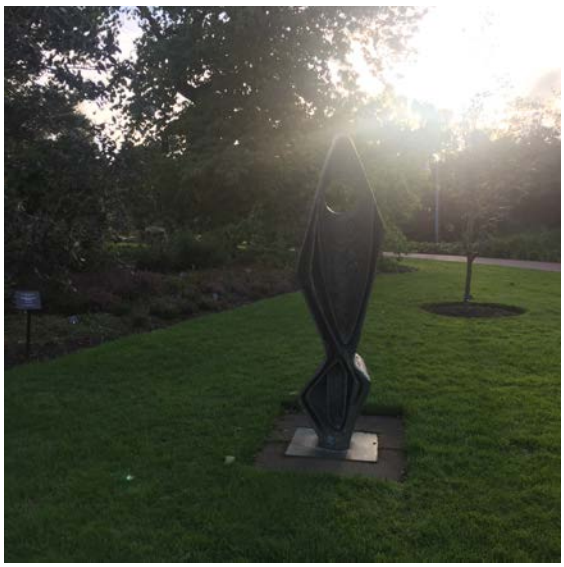
SPECIAL REQUIREMENTS:

- Use of hot shop
- Use of cold shop
- Use of sandblaster
- Kiln room (to fire painted glass)
- Large space (a table for glass cutting/painting/ assembly)
- Can we use the architectural glass from the glass department? How much can we use if yes? Marzena has some glass from her previous projects but we will need a lot of it.
- Will we be able to photograph the installation on site at the Royal Botanical Gardens prior to the exhibition at ECA? We would like to display the photographs if possible

LOCATION:

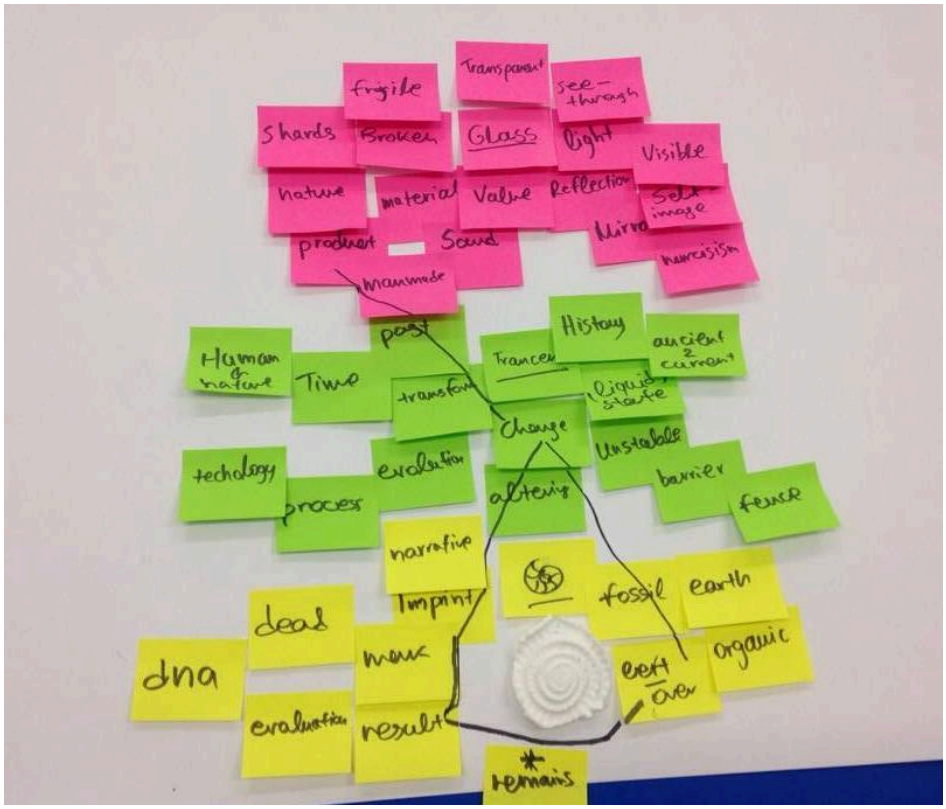
We don't have a specific location in mind but we would like it to be exhibited outside in the open space. The element of suspension is the key (either between the trees or as a free-standing construction) and we would like the installation to interact with the surrounding nature.
We would very much like the natural light to be a feature that enhances the experience of the glass installation. We are looking at a possibility of placing the installation facing either east or west for the sunrise or sunset to come into play with the glass (lighting it from behind) and adding the element of a spiritual experience (referring to stained glass windows in churches).





After The Storm
Project Brief

Team Members: Andreas [redacted]



Our ideas regarding this project, are concerned with the analogy of the stages that a piece of glass goes through, as a material, with the biological circle of the outdoor environment. We aim to study how one can capture/record the phases of these parallel transcendences. We are focusing on the metaphor of the 'remains' or what is left-behind, and their renaissance as a momumentalization act.

The glass making processes we wish to experiment through, involve the hotshop facilities, the kiln work or casting (moulding). Ready-made materials can be: found pieces of glass, broken bin glass from the hotshop and wood remains from the site itself. Therefore, it would be essential to book sometime in the in the hotshop, and be supervised during making the moulds.

Regarding further support, we are intending to use digital equipment (i.e camera, sound recorder etc.) as part of our research. We are keen to get use of technology, not only as a documenting medium, but as well as a means to represent the 'change' over time (time based media).

The outcome of our project is flexible, raging from single object to multimedia installation. Thus the location can vary as well, from the outside gardens to the palmhouse or the inside galley space. This will be defined later on, once we get introduced with the workshop techniques, which would essentially lead us to the result. We envision revisiting the gardens, inspecting different conditions from different perspectives to collect samples and audiovisual material that can be part of the final product.

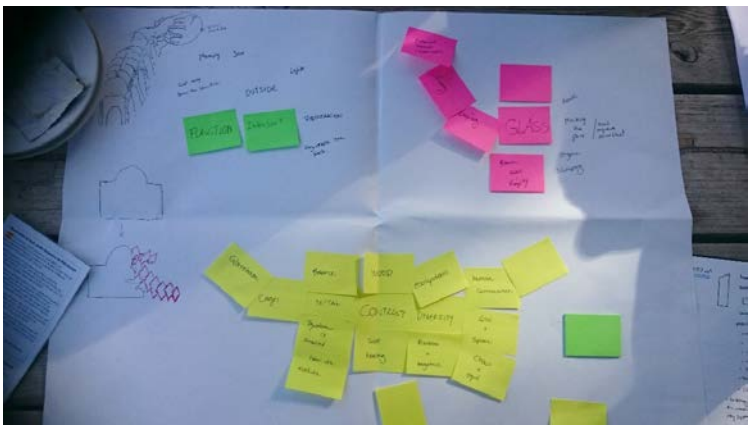
Andres Basantes
Fiona Estwick
Chloe Milner

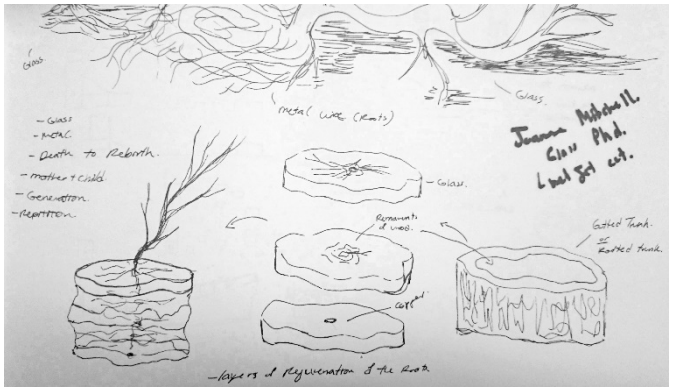
Regeneration: After the Storm

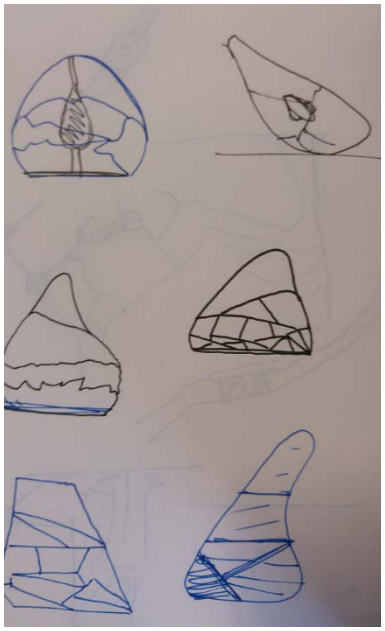
For the After the Storm project, our group is considering the ideas of regeneration and rebirth coming out of destruction, and the gradual settling after the chaos. We would like to make something to be sited outdoors in the Botanic Gardens and use at least 2 contrasting materials, such as glass, wood, and copper. Our idea is to use a combination of fused layers of glass, with different concentrations of colour; these might be seen to represent the progressions of seed or plant growth, rebirth and regeneration, or the gradual settling of activity after the storm. We want to try embedding copper pieces (possibly seed shapes) in between layers of glass, and also to engrave/cut out bits of the glass (using wet jet) before fusing layers, so as to create an air bubble inside the glass, and also to create images/motifs that refer to the theme of regeneration.

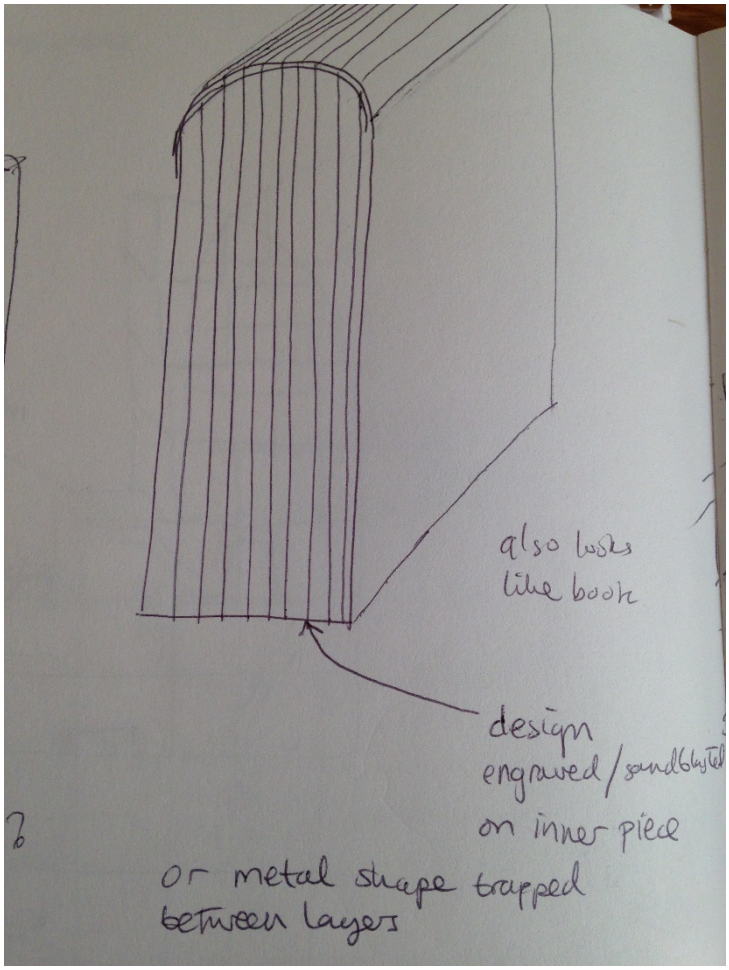
Our group have considered different options for the shape of the piece – it could be that we use a hollow tree stump as a mould, or that we create a gel mould from the tree stump, 3d printing and silicon moldes are also options we have in mind; an alternative shape we have considered is the arched shape of the windows in the Victorian glass house; we have also considered using a different shape, more like the form of a seed, and that rather than different layers, we use different fragments of the form re-joined together (fused or using glue). At least some of the outer glass surfaces would be polished so that it is possible to see the different layers/materials inside. We might consider making an organic, perhaps bark like, texture on some of the outer glass surface.

Clearly, there are still many decisions to make regarding shape, size and processes. We expect to be able to narrow these down once we have tried out the different things. We will probably start by using scraps of glass from the workshop for our initial experiments.




Glass
Glass
metal wire (Roots)
- Glass
- metal.
- Death to Rebirth.
- mother + child
- Generation.
- Repetition.
- Glass.
Remnants of wood.
Cutted Trunk.
or
Rotted trunk.
- layers of Regeneration of the Roots.





Processes and support needed:
Engraving glass
Cutting out shapes using wet jet
Fusing panes of glass
Using colour powder
Kiln work ‘burn out’ process

Contributors:
Anna Vesaluoma, Emily Dunlop, Katharine Doyle aka ‘Underground Collective’

‘After The Storm’ – Proposal

Our project is inspired by the interconnecting underground systems of roots and fungi also known as ‘the wood-wide web’ which form a communication network between trees. Through this, trees are able to share nutrients and nurture each other which a process that commonly occurs after the destruction brought about by stormy periods. They also compete with each other for space and minerals; through this they form a diverse ecosystem.

Our visit to the Botanical Gardens solidified these interests when we encountered the John Muir Sequoia Tree Grove (see Figure 1). The space is a clearing surrounded by enormous sequoia trees in a circular formation. This particular site has become a point of interest to this project because of the spatial relationship of the trees with the invisible root network connecting them. It is significant because John Muir was one of the early advocates of preservation of wilderness, therefore it seems appropriate that a piece commemorating regeneration should reference this site.


Figure 1

We propose to make a site specific installation with casts, a central piece and sound (see Figure 2).

In the centre of the clearing we aim to create a piece re-using wood from the storm. We would like to use a remnant of a tree affected by the storm (cut plank or stump) and cut a cellular pattern of trees into the wood which we would then inlay with glass (possibly coloured) representing roots and the connecting systems of trees.

The other aspect of the piece would incorporate glass casting from the surrounding sequoia trees. These casts would slot into the grooves of the tree-trunks. Through including glass within these trees, we aim to link the central artwork to the land.

We plan to incorporate sound into the work by recording the sounds of trees captured with Zoom h4n or Zoom h2 sound recorder. We would manipulate these sounds to reflect the complexity of invisible tree communication through looping and layering recordings. The completed sound would follow the structure of the Fibonacci sequence which is the mathematical sequence used to describe the natural growth of tree roots and branches.

We noticed that the area currently has speakers set up around the trees which we would request to use for our sound installation if possible.

In terms of technical support we would need to use the following processes and materials:

Contributors:
Anna Vesaluoma, Emily Dunlop, Katharine Doyle aka ‘Underground Collective’

- Direct casting onsite
- Repurposed plank of wood
- Laser-cut/wood carving
- Assistance in inlaying glass into wood-plank.
- Technical assistance regarding sound

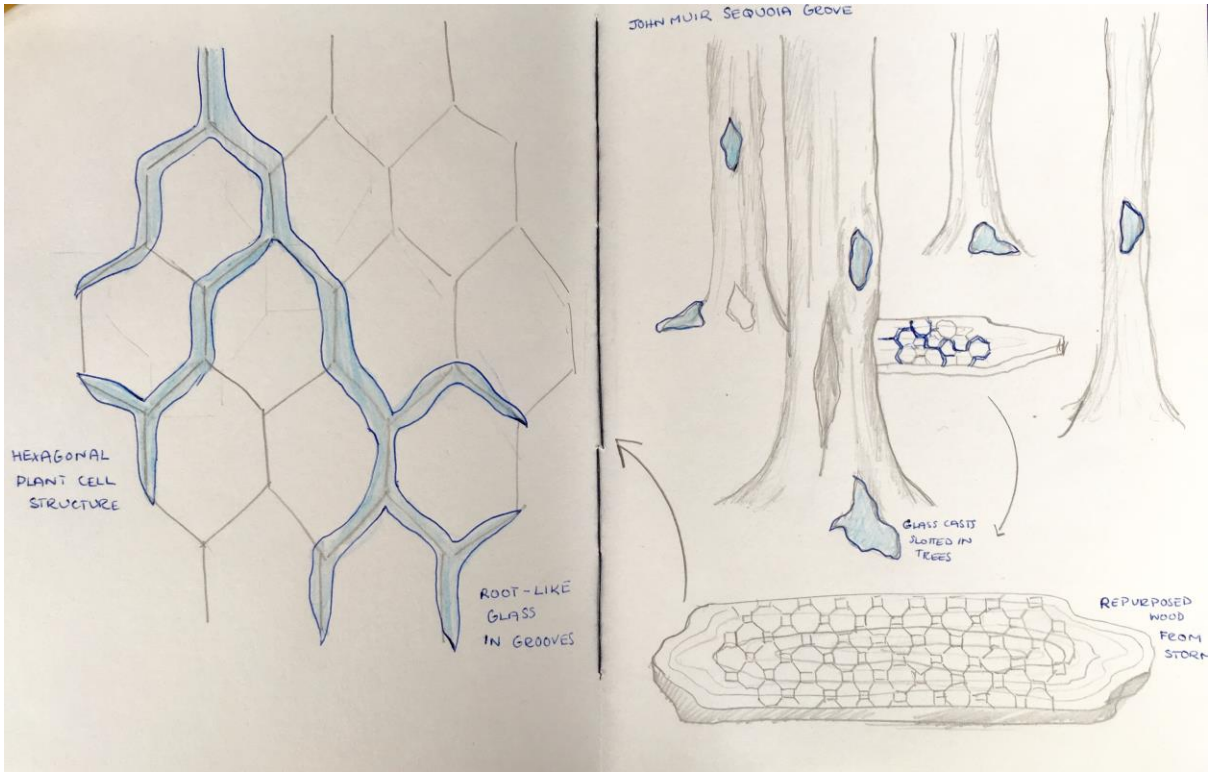


Figure 2

Left: Drawing of hexagonal cellular structure carved into the wood with glass roots (indicated by blue colouring)

Right: Drawing of sequoia clearing with central piece and inlaid glass casts on the trees.

After the Storm Group Proposal.

Cara Walker, Megan Brown, Ali Wibmer, Gemma Leamy

We would like to propose an interactive piece of work, based in the Botanics Gardens and linking with the gallery/shop. It will focus on the interaction between a person and their surroundings. The Botanics is often a place people go to escape and gather their thoughts, playing an essential part in health and wellbeing in the community. Our work will draw parallels with this in creating a 'trail' whereby a small object or token would be collected at the shop or gallery and added to a larger vessel located in the gardens; provided a way of occupying and focusing whilst spending time outdoors at the Botanics and creating a reason to be there.

We would like to create installations into spaces around the gardens; a glass 'vessel' that can be added to over time which will gradually change and evolve as it interacts with the surroundings and weather conditions. Adding to the object links to the idea of growth and evolution, whilst the participants also use this as a way of collecting themselves and 'regenerating'.

The project will incorporate mixed media, drawing on each group member's experience, skills and interests; using metals, blown and cast glass techniques. As a starting point we will begin to collect small materials and observe how the garden is used by people, how they create their own trails around the gardens and how we can use this to influence the areas we would be interested in using as part of our project.







Glass Workshop Proposal

Group member: Chuchen Wang [redacted] [redacted]

The idea of our group is re-use the material left in the Garden after storm. Since in our group, we are all product design student, we are interested in combining the material of the glass and wood. We have experienced beauty of this combination. The Duffy London design group has exhibited their new exploration of the material, which shows below. The article they presented shows a great harmony using the wood and glass. And this also give us a clue to display something beauty and pure in the Roya Botanic Gardens.







(All pictures assessed from: https://duffylondon.com/product/tables/abyss-horizon/)

For our project, regeneration is our main theme. Since we heard the story of the seeds need the power of the storm to be fully activated. So we are now exploring the things that can express this idea precisely and nicely- the power of life.

It can be seen that if we want to combine the wood and glass there will be some problems about the assembly, such as how to connect these two materials without destroy the structure and how to control the temperature etc. Also the process to

form the shape we want would be problem for us since we are still not familiar with the manufacturing process yet. As for the type of glass-making involved, in our opinion, hot-shop work is necessary. And casting may be applied to for the geometry we want. Also the quality of surface finish should be highly controlled to a desired level.

From here, we can see that we still need a lot of help to start our project. The cognition of glass processing is still limited. So we may need all types of help that provided from you. For example, the moulds making assistance, booking time in the hot shop, helping with the casting etc.

We are fully grateful for the project offered by the glass department and will devote our passion to finish this project.

After the Storm Proposal 1 4/10/16

Annie, Orla, Jess

Using a combination of found objects, reclaimed wood from storm damage, and repurposed and reshaped glass objects we aim to explore the following themes; memory and the distortion of memories, traditional healing through nature, and the project theme of Regeneration. The latter theme will be illustrated through recycled glass, by adapting three man-made glass objects: transforming the bottom half of the object into different textures and shapes, to explore how material handles changing circumstances and can adapt. We wish to explore different methods via experimentation as to how we can warp these ready-formed objects. These reformed glass vessels will be displayed by hanging the bottlenecks through holes in a wooden shelf, made of the found wood to provide a strong and stable display.

The shelf acts as a narrative divide between what's on the top of the shelf; man made indistinct bottle-necks surrounded in a cabinet of curiosity; found junk, to represent the 'storm' and people's memories. Below, suspended, is the altered material who's warped shape illustrates the influence and result the past chaos has had on its structure, changing from a similar form to one with individual identity. We were also keen to portray how people's memories can become distorted, which will be demonstrated through the texture and clarity of the glass (if you can see through or not).

Film is also aimed to be incorporated, by projecting from above, through the vessels onto the floor beneath. The content will be a combination of our process and experimentation, visualisation of our theme through nature imagery and natural healing processes. We were keen to use film, as light is another thing that creates clarity or distortion, and could potentially affect or emphasize the vessels changed shape, and create interesting drawings around the installation.

We were considering using glassblowing, mould techniques from the melted down glass in the hot shop, and were looking to incorporate some metals in the glass. These metals were going to be found metals, but perhaps we can get some advice on which types to incorporate that will work. We were also keen to be able to add texture to the glass, so perhaps chiselling or moulding over or in textured objects. None of the members in our group have experience working with glass, so help especially in the hot-shop, and perhaps the do's and don'ts of mould making would be greatly appreciated.

Our project is imagined for an exhibition space, or to be shown within the greenhouses in the botanic gardens, situating it back into the environment that started the ideas for this project.



You are invited to a preview of *After the Storm*, a new exhibition by students and staff from Edinburgh College of Art.

As part of the wider *After the Storm* project at RBGE considering the legacy of Cyclone Andrea in 2012, the exhibition focuses on the aftermath of a storm to change or 're-seed' our perceptions and understanding of the world around us.

Preview: Thursday 27 April, 4 – 6pm,
with a live performance at 4:30pm
in the Lower Temperate Glasshouse.
RSVP: events@rbge.org.uk

The exhibition will run from 28 April to 21 May 2017, 10am – 6pm, in the Real Life Science Studio and from 28 April to 28 May, 10am – 6pm, in the lower level of the Temperate Glasshouse.

Admission free.

AFTER THE STORM

Supported by Forestry Commission Scotland, The Scottish Furniture Maker's Association and Woodland Heritage. Produced in partnership with Edinburgh College of Art.

The Real Life Science Studio
/ Lower Temperate Glasshouse,
Royal Botanic Garden Edinburgh,
Arboretum Place/ Inverleith Row,
Edinburgh. EH3 5LR

Telephone: 0131 248 2844
www.rbge.org.uk

Royal Botanic Garden Edinburgh

Forestry Commission Scotland
Coimisean na Coilltearachd Alba

Woodland Heritage

SFMA

The University of Edinburgh
Edinburgh College of Art

Image: Mark Barnett, *Let Misery Lead You Home*, 2017. Large Paper Collages.

Botanics update and a personal request

NAAS Lisa <[redacted]>
Wed 3/1/2017 9:53 AM

To: DIMOFANOUS Andreas [redacted]
VESALUOMA Anna <[redacted]>; DOYLE Katharine [redacted]
DUNLOP Emily <[redacted]>MILNER Chloe [redacted]
[redacted]; Douglas Mackie <doug.mackie@yahoo.co.uk>

Hello everyone,
As promised, I am following-up with what information I have for the Botanics exhibit and work selection. My understanding is that Sophia and Kevin are meeting again with the Botanics people this week and they are still deliberating on how best to move the exhibit forward. It does sound like they will be contacting everyone directly, but likely not until next week now.

On a personal note, I just found out that the paper I wrote about the map-sketch tool I developed (and our work in the opening session for 'after the storm') was accepted to the Design for Next Conference in Rome in April. So, that's very exciting. I still have the month to make updates to the paper and am hoping to quote a few of you about your experience with it. I have some words from the questionnaires of course, but I was wondering if you might be willing to reflect on your experience of using my word triangulation method as the start of this project? Would you mind offering me a line or two in answer to the following question:

Now that you have completed the work and taken your projects through to exhibition, could you comment on the map-sketch exercise and/or the role it played for you, looking back at it from your finished project?

Also, do I have your permission to cite your projects using the images you shared? I took a few of my own, but I think that some of yours were better.

Thank you very much for any assistance...I really appreciate it!
All the best,
Lisa

Lisa Naas
PhD Student, Design (2015-2018)
Edinburgh College of Art at the University of Edinburgh
http://www.inconcertwithglass.com/
http://www.eca.ed.ac.uk/school-of-design/lisa-naas
https://twitter.com/inconcert_glass

Re: Botanics update and a personal request

DIMOFANOUS Andreas [redacted]
Thu 3/2/2017 3:41 PM
To: NAAS Lisa [redacted]

Hello Lisa,

Please find the comments bellow.

-

Feedback on the word triangulation / map-sketch technique:

I believe this technique worked really efficiently at the start of the project, and I might use it again for a next task. Initially it started as an 'ice-breaker' with the blank page, since we are always a bit scared to firstly write something down. Then, having three initial starting points - keywords, felt a bit more playful, and the connections occurring between those sections lead us to interesting cognitive paths.

Reflecting back, after seeing the finish piece, it still has a direct link to the mind map. But it wasn't due to following strictly those ideas, but as we were always having them at the back of our minds. This helped us to keep a coherent connection between the themes that initially interested us.

-

Best wishes,

Andis

> On 1 Mar 2017, at 9:53 AM, NAAS Lisa <[redacted] wrote:
>
> Hello everyone,
> As promised, I am following-up with what information I have for the Botanics exhibit and work selection. My understanding is that Sophia and Kevin are meeting again with the Botanics people this week and they are still deliberating on how best to move the exhibit forward. It does sound like they will be contacting everyone directly, but likely not until next week now.
>
> On a personal note, I just found out that the paper I wrote about the map-sketch tool I developed (and our work in the opening session for 'after the storm') was accepted to the Design for Next Conference in Rome in April. So, that's very exciting. I still have the month to make updates to the paper

and am hoping to quote a few of you about your experience with it. I have some words from the questionnaires of course, but I was wondering if you might be willing to reflect on your experience of using my word triangulation method as the start of this project? Would you mind offering me a line or two in answer to the following question:

Now that you have completed the work and taken your projects through to exhibition, could you comment on the map-sketch exercise and/or the role it played for you, looking back at it from your finished project?

Also, do I have your permission to cite your projects using the images you shared? I took a few of my own, but I think that some of yours were better.

Thank you very much for any assistance...I really appreciate it!
All the best,
Lisa

Lisa Naas
PhD Student, Design (2015-2018)
Edinburgh College of Art at the University of Edinburgh
http://www.inconcertwithglass.com/
http://www.eca.ed.ac.uk/school-of-design/lisa-naas
https://twitter.com/inconcert_glass

Re: Botanics update and a personal request

VESALUOMA Anna [redacted]
Thu 3/2/2017 2:47 PM
To: NAAS Lisa [redacted]

Hi Lisa,

Congratulations on the conference! That is such great news.

Of course you can use our photos and here are some reflections I wrote about the map-making exercise:

Now that we have completed the project, I can see that the word exercise was important in setting the framework for our thinking. The three words we picked (sound, nature, glass) all still very much tie to our final piece. Despite not having directly referred to the map since the initial exercise, it definitely helped us realize our key interests that shaped the way the rest of the project developed.
I think especially in a collaborative situation the map-making activity was very helpful, as it allowed us to link all our different individual ideas to start to draw links between our respective interests. I have since used the map-making activity on my own, which was also helpful, but I think in particular when working with other people, it can be a useful way to generate collective ideas. We were also discussing our ideas while making the map, and this form of discussion continued throughout the project – always assessing each others ideas, making connections and evaluating our decisions. We were always thinking about our decisions in relation to our original idea and the message we wanted to get across, so in that sense the map stayed with us throughout the project even though we physically did not go back to it. I would consider using this kind of mind-mapping for future projects too.

Hope this is helpful, and best of luck with the conference!

Best,

Anna

From: NAAS Lisa
Sent: 01 March 2017 09:53:27
To: DIMOFANOUS Andreas; [redacted] VESALUOMA Anna; DOYLE Katharine; DUNLOP Emily; MILNER Chloe; ESTWICK Fiona; [redacted] Douglas Mackie
Subject: Botanics update and a personal request

Hello everyone,
As promised, I am following-up with what information I have for the Botanics exhibit and work selection. My understanding is that Sophia and Kevin are meeting again with the Botanics people this week and they are still deliberating on how best to move the exhibit forward. It does sound like they will be contacting everyone directly, but likely not until next week now.

On a personal note, I just found out that the paper I wrote about the map-sketch tool I developed (and our work in the opening session for 'after the storm') was accepted to the Design for Next Conference in Rome in April. So, that's very exciting. I still have the month to make updates to the paper and am hoping to quote a few of you about your experience with it. I have some words from the questionnaires of course, but I was wondering if you might be willing to reflect on your experience of using my word triangulation method as the start of this project? Would you mind offering me a line or two in answer to the following question:

Now that you have completed the work and taken your projects through to exhibition, could you comment on the map-sketch exercise and/or the role it played for you, looking back at it from your finished project?

Also, do I have your permission to cite your projects using the images you shared? I took a few of my own, but I think that some of yours were better.

Thank you very much for any assistance...I really appreciate it!
All the best,
Lisa

Lisa Naas
PhD Student, Design (2015-2018)
Edinburgh College of Art at the University of Edinburgh
http://www.inconcertwithglass.com/
http://www.eca.ed.ac.uk/school-of-design/lisa-naas
https://twitter.com/inconcert_glass

Appendix M.
Glass-Music-Dance Collaboration

Informed Consent Form For Lisa Naas, PhD Student, Design (ECA)

Name:

Address:

Contact number:

Email:

Date: 11 February 2017

Project Title: **Glass-Music-Dance Collaboration**

Project Summary: Two professional artists (a musician/composer and a dancer/choreographer) will join Lisa Naas to participate in an idea generation session as part of her collaborative studio practice. Participants will be asked to consider "glass" from the lens of their discipline, seeking to join glass, music, and dance in a creative output, by mapping, sketching, writing, or constructing ideas together. A new, exploratory method for early idea production will be introduced as part of the discussion and session. As part of the workshop, a brief overview of glass as an innovative material will be shown (demonstrations in the hotshop will be offered at a later date). The sketches, process, and outputs will be recorded.

Objectives

- To introduce participants to associative, creative thinking th[redacted]iangulation
- To generate a map-sketch of ideas to develop at a later date
- To explore what might happen to creative outputs when participants ap[redacted]ach glass from a conceptual perspective, viewing it through the lens of their personal disciplines
- To collaborate in the idea generation process

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution will be recorded and photographed for the purpose of inclusion in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of persona data obtained in this study (e.g.: name, age, and occupation).

SUBHASH VIMAN ..... DAVID FALERIS

Participant's Name (Printed)

[redacted]

Lisa Naas

.....

Name of person obtaining consent (Printed)

[redacted]

.....

Signature of person obtaining consent

Dance, Music, Glass Collaborative Project
Participant Questionnaire
Event Date: 11 February 2017

Year: _____Undergraduate Student _____MA/MFA Student _____ PhD Student __X__ Other

Gender: _____ Female __X__ Male

Discipline/School: _____Music, N/A_____

Sketching/Ideas Workshop Questions
Did you try the Triangulation Word map/sketch? __X__ yes _____ no

If yes, what three words or triangulation points did you use?____Music, Glass, Dance_____

If you tried Triangulation, did you try _____ individually ___X__or with a group?

Did you converse while you worked on your map/sketch or were you quiet? Quiet

After the session on 11 February, did you use your map/sketch again? _____ yes ____X____ no

Did you find the Triangulation method useful to developing your ideas or sketches? Yes, I made some surprising mental jumps that were fun to note, especially off of others' words/ideas… and as a group, it seemed to lead us to a good result. I found, however, that because we used two 'performing arts' words – music and dance – many of my words and associations really could have gone in either category. I wanted 'music' to be central to the project, but if I had to do the exercise again, I'd consider choosing something like 'sound' instead, as it may lead to yet more variety (e.g., "waves", "timbre", "density"…)

In a sentence or two, please describe any ideas that were derived from the Triangulation play: In the collaborative aspect of this, I responded to words being placed in surprising ways. For example, Subhash's "emotion" led to Lisa's "emoji" which led to my "Imogen" (Imogen Heap) which then fed into Lisa attaching "hand gestures". Another example within the "dance" area, I wrote "decisive" to which Subhash replied with "on point" and I attached "en pointe". During the recap, in the conversation after doing the exercise, Lisa had talked about the "body as the vessel of emotion" and shortly thereafter the word "offerings" came up, I think I had an image in my head of traditional Catholic offering of the gifts during Mass. You had that on one hand and on the other hand, we had been talking about the fragility of glass, that's where I thought of the dancer as being immortal (god or demi-god) with the glass symbolizing or serving as the vessels of mortals. I think of the glass vessel as the body or the vessel carrying the soul with the soul being further depicted by the emission of music or light.

Do you think you might try using this Triangulation mapping again in the future? Yes I would try it again, especially solo

From the perspective of the project work you do in your discipline, how do you think you might use the Triangulation method? I'm a composer and I tend to gravitate to telling a story with my music. I do not, however, often have a story in mind to tell… and this is a real stumbling block when I begin a new project. This could be a nice way to overcome that.

Do you see any other application or use for this Triangulation map/sketching? As this is a tool for creative idea generation, I honestly don't see really any *limits* to its use.

Thank you so much for your time!

Dance, Music, Glass Collaborative Project
Participant Questionnaire
Event Date: 11 February 2017

Year: _____Undergraduate Student _____MA/MFA Student _____ PhD Student _____ Other

Gender: Male

Discipline/School: _____

Sketching/Ideas Workshop Questions
Did you try the Triangulation Word map/sketch? Yes

If yes, what three words or triangulation points did you use? Movement, Fluid & Break

If you tried Triangulation, did you try individually or with a group? Group

Did you converse while you worked on your map/sketch or were you quiet? Quiet

After the session on 11 February, did you use your map/sketch again? Yes If yes, could you describe what more you did with your map/sketch? (i.e. Did you sketch more? Use it to help with talking points about your project? Etc) I was working with a young Bharatanatyam dancer on her graduation piece for CAT project based in Birmingham. She wanted to do a piece about how social media affects us humans in today's society. I tried many research methods, one of which was the triangulation method as I found it to have an interesting approach to the way we dancers think.

Did you find the Triangulation method useful to developing your ideas or sketches? We have just started working on her material, in fact it is her who needs to choreograph the work and my job is to mentor her. I gave her the words we pulled out from the method, only time will tell if these became useful.

In a sentence or two, please describe any ideas that were derived from the Triangulation play. We talked about a few possible ideas, one of which was about celestial bodies and spirits. I liked the idea of glass shattering and also the sounding glass, maybe there is something here which links this all up. However I feel the fact that ideas was flowing through is a good sign.

Do you think you might try using this Triangulation mapping again in the future? I will definitely add it to one of my approaches to choreography and see how things develop.

From the perspective of the project work you do in your discipline, how do you think you might use the Triangulation method? We as dancers approach choreography in many different ways. We draw from all possible mediums and try any which way to get the mind thinking about movement. The triangulation approach was very interesting as it allows one to bounce off one another and at times delve you in to a place you would not have thought of otherwise.

Do you see any other application or use for this Triangulation map/sketching? As of now, I can only think of choreography. However the method is so vast, I'm sure it can be applied to many art forms such as drama and music.

Thank you so much for your time!

15 February 2017
Collaborative Word Triangulation: Glass, Music, Dance

Introduction

Just like with the Innovative Learning sessions and the 'after the storm' project, I began by showing some pieces of the glass I make as an example of how glass might be different than the glass in everyday use. I proceeded to present the same Power Point slide show with a brief history of glass as a material, as shaping society through innovation and as the basis for my practice. I then introduced the Word Triangulation tool using my own glass, sound, and engineering map-sketch as an example. We also spent a bit of time looking around at our www.inconcertwithglass.com website as well as the Jacob's Pillow Dance site to give Subash more background on David and me, our shared personal histories, my PhD work, and our interest in dance and working with him.

Map-Sketch

We began the Triangulation using the words of Glass, Music, and Dance. We decided that our intention for the exercise was to answer the question: How might we combine the elements of dance, music, and glass? And we decided that we would undertake the sketch in silence and respond only to the written words, drawings, or whatever else occurred on the page. I also asked Dave and Subhash if they wanted to work on one word and then move on to the others. They both responded that they wanted to do a free form exploration.

Challenges/Differences with the other three studies

- Environment (room with low light, candles, Buddha head and shrine to Vishnu; starkly different than my desk at home and the Seminar room for use with the student studies
- The table was too small to fit all of us on one side and there wasn't another to use even though I requested a large table
- Part of the triangle was upside down for each of us
- I was the only one who moved around the table to change perspective on the map
- I used different paper for the large map for the three of us and for some reason, the post-its kept curling up in response to the paper…it was very distracting and made it difficult to see the words being placed; it was distracting to try to respond
- I also felt like my lead was being followed a bit in that no one drew anything or varied their method even though I brought along all sorts of other drawing/constructing utensils; it wasn't until after I drew lines and placed other post-its off the triangle that they started doing the same even though I showed other examples
- I personally found it very difficult to focus because of the free-form nature…I couldn't see all the words being placed…it was too much information for me to take in

When it was clear that we had all come to a pause point (all three of us had stopped writing and had paused from working on the map), I suggested a pause or a break and that we talk about what we had done so far. I asked Subhash and David how they found the exercise…if anything interesting happened for them while they were working on it.

As we talked, we all continued to explore and flesh out the thoughts that we had put on paper and I added our new ideas outside of the triangle of words.

David said a few things happened for him:

1. Music and dance were very similar and that he found that a lot of words he attached to one he could have put in the other. He said that he wasn't certain the same thing would have happened if he had used 'sound' v. music but he had really wanted to focus on music as a key element of the project. If it had been "sound" for example, he would have used words like "waves", "timbre", "density". For Dave both music and dance share similarities in storytelling which may have been why there was such a large cross-over.

2. In the collaborative aspect of this, I responded to words being placed in surprising ways. For example, Subhash's "emotion" led to Lisa's "emoji" which led to my "Imogen" (Imogen Heap) which then fed into Lisa attaching "hand gestures". Another example within the "dance" area, I wrote "decisive" to which Subhash replied with "on point" and I attached "en pointe".

3. During the recap, in the conversation after doing the exercise, Lisa had talked about the "body as the vessel of emotion" and shortly thereafter the word "offerings" came up, I think I had an image in my head of traditional Catholic offering of the gifts during Mass. You had that on one hand and on the other hand, we had been talking about the fragility of glass, that's where I thought of the dancer as being immortal (god or demi-god) with the glass symbolizing or serving as the vessels of mortals. I think of the glass vessel as the body or the vessel carrying the soul with the soul being further depicted by the emission of music or light.

   David says he gravitates toward telling a story or a narrative in his music.

Subhash did not really talk at length about specifics that happened for him while he was working on the map, but he mentioned some themes that kept surfacing for him. Most predominantly, he talked of ideas "to carry the souls" and his interest in portraying a human fragility. This seemed to come from him thinking about my earlier work of the body pieces as he regularly returned to the body pieces from our discussions before the mapping. From there he talked about shock events, breaking glass, reflecting with the glass, or constructing glass walls and mirroring those walls with light in order to make the audience face themselves.

Lisa's Connection Moment

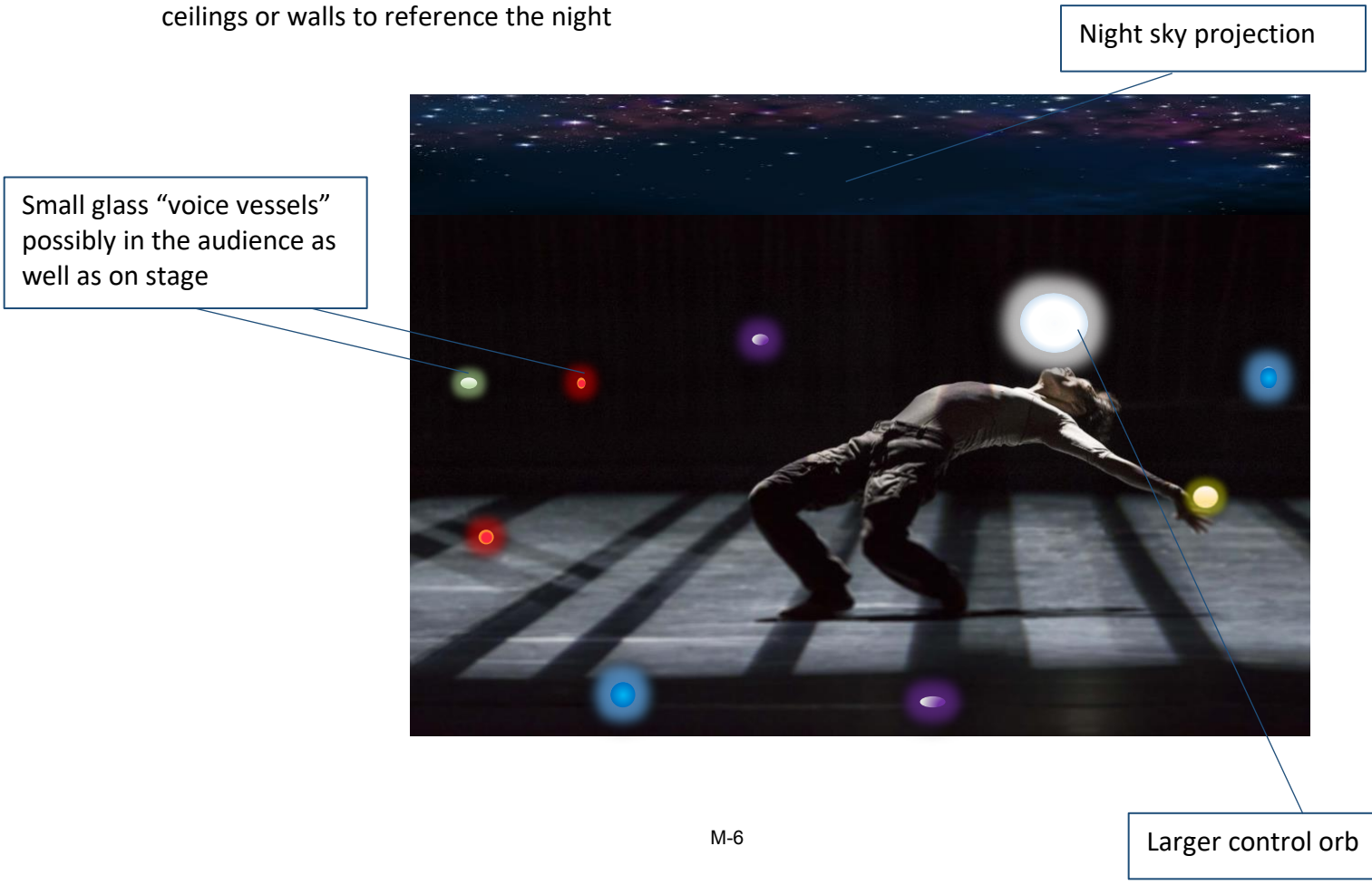
I didn't think I would get there, but I did have a connection moment which came in a series of questions. After I put down vessel connected to either Dave's or Subhash's "bottle" on "glass", I also put down "vessel/emotion" which is how I had been looking at glass in my personal practice. But from all the interplay with music and dance I realized that the other disciplines had "vessel" in common as well. Musical instruments are vessels of emotion and sound. In my stream of thought I asked questions about the vessel and emotion in dance. Was the body the vessel and the gesture the enactment of emotion?

I also had running thoughts about “three” and spirituality next to these questions that were based off Subhash’s “souls” and Dave’s “demi-gods”. What escaped me then, but hit me after the session was that the obvious wasn’t stated though we implied it in our conversations: “Bodies are also vessels for souls”.

At the point during our session when we were discussing Dave’s story of “demi-gods” and then Subhash’s “souls” and my “vessels”, I also came to a visual which I sketched by cgi below. The words “celestial bodies” were in mind as a response to Dave’s story of demi-gods and Subhash’s thoughts on human souls and fragility and mine on spirituality. There would be one larger orb shape that would be Subhash’s; it would be the “controller orb”. There would be a dozen or more smaller orbs of varying shapes and sizes and perhaps colours hung from invisible fishing wire. Subhash could interact or “control” all of them but also put them into the audience. The orbs could all be outfitted to emit music and/or light upon touch with capacitance sensors or through other sensor interaction.

The thought is that the orbs would be like “voice boxes” or the “vessels of voices” or the “souls” that we discussed. If we permitted audience members to hold them, they would be holding the voice boxes/souls in their hands. They would feel that the orbs are made of glass and understand additional ideas of fragility around the pieces. The audience could also participate more in the performance if we allowed them to control some parts of the music emission, with potential improvisation by Subhash? Another thought is that the orbs could clink together to sound like chimes at times to showcase their glass qualities. A “shock event” such as the breaking of the glass might take place as well, further highlighting the glass element.

I see this being staged in an intimate black box theatre, possibly using projections on the ceilings or walls to reference the night



Session Conclusion

We ended the session having agreed that the theme of human fragility was found throughout our associations and common ground for all of us with the work. We also ended the session with a few threads that we could potentially follow.

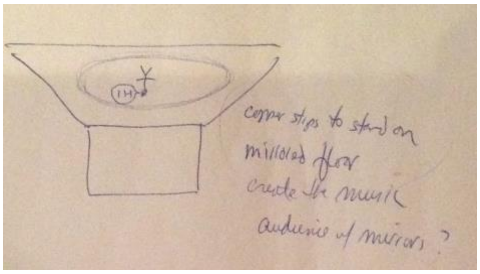
Possible threads to follow:

- Utilising our sensor technology alongside the vessel conversation: “Celestial Bodies” is the visual that I developed above based on associations I was making from Dave and Subhash discussing gods and souls and connecting that to the other common ground I found in vessels, with our three disciplines and word associations.

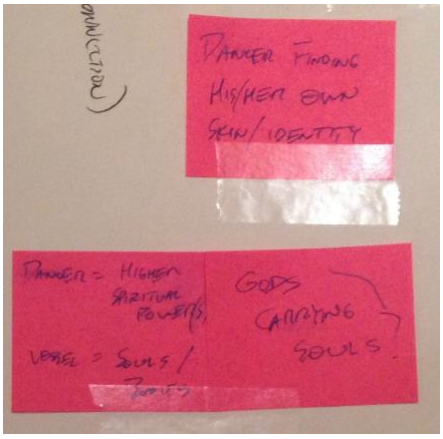
- Reflection was a possibility and common ground for all three disciplines. We talked for a time about a stage floor with mirrored pieces that might incorporate our sensors/music technology

Older ideas resurfaced around using my body pieces or a shock/glass break event (I included drawings on the next pages for these)

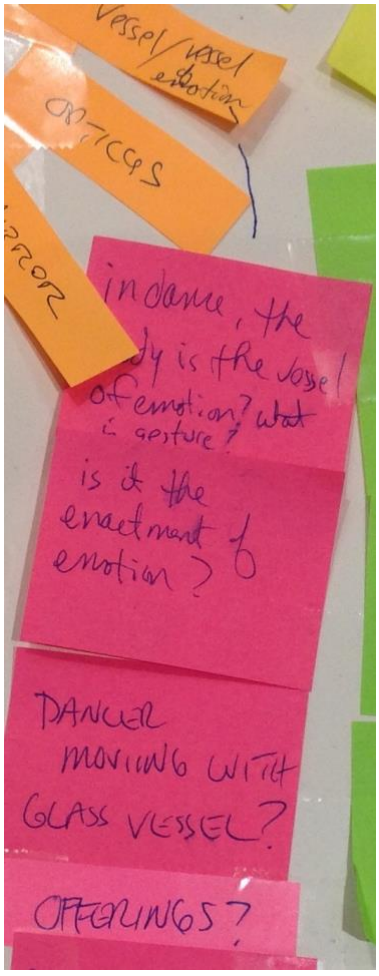
Stage drawing with mirror floor notes



gods and souls and higher powers



vessel connections



Appendix N.

‘Voicing Perspective’ Auto-ethnographic Writing

Voicing Perspective: A Dialogue in Creativity

Written by: Lyrilis (Lisa Naas) with contributions from Analis (also Lisa Naas) and Lisa Naas

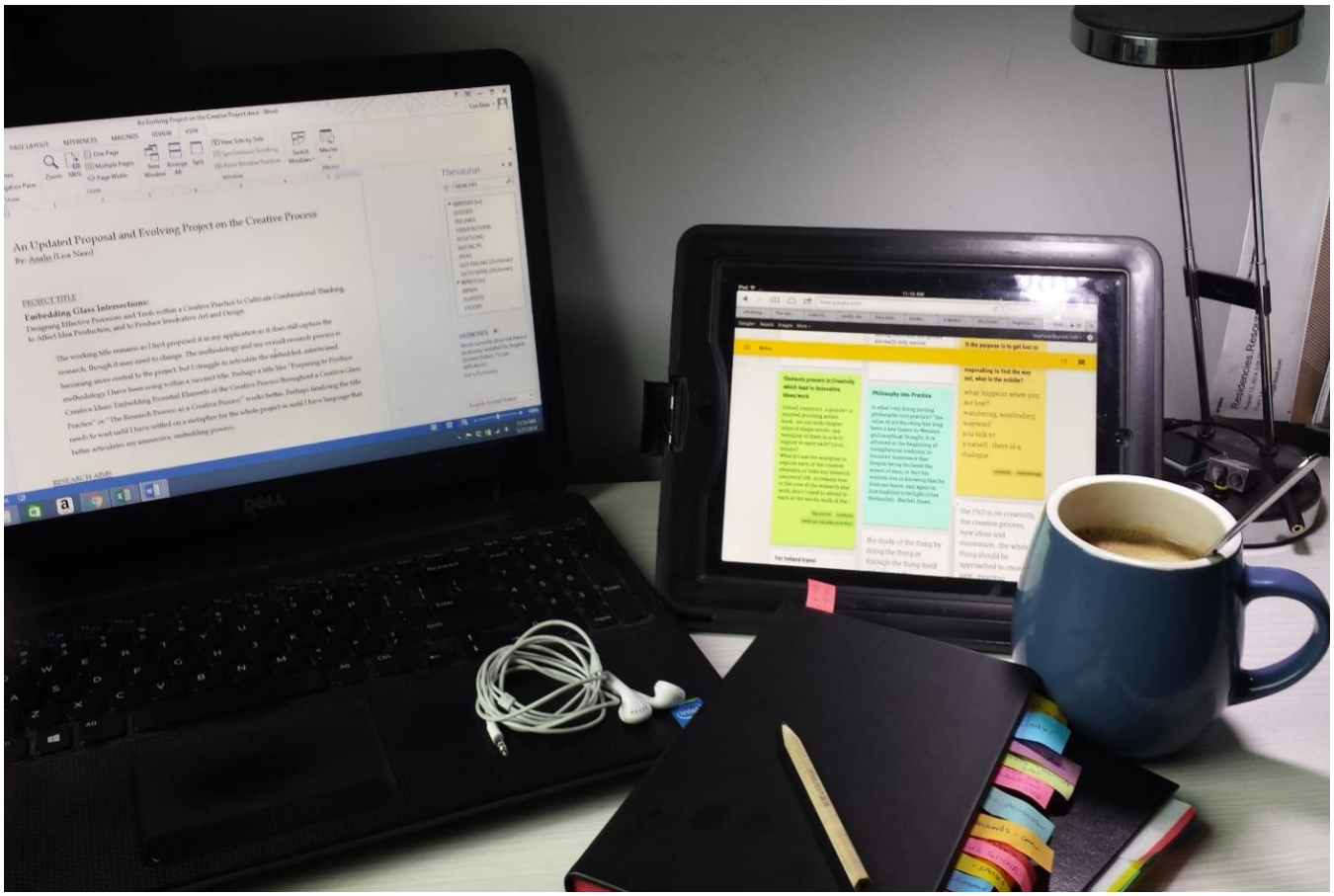
A scholar-artist and reflective practitioner, ***Lisa Naas*** *is a first-year, fulltime PhD Student in Design at the University of Edinburgh. She is based in the studios of the Glass Department at Edinburgh College of Art as her MFA is in Glass and her creative medium is primarily glass with mixed media. Her doctoral research, however, focuses on the creative process at the point just before the creative idea is fully formed. Readers can view her* ***abstract here****. She uses her practice in glass to stage projects and tests relating to these studies in order to design creative process tools and methods, but her practice itself has evolved to incorporate and center on word-working this past year. Lisa has embedded herself within her doctoral work, likening her perspective on the research and exploration of the creative process to that of an actress developing a character through method acting: she intends for all aspects of her PhD to reflect her research into creativity and to express the personal creative process she experiences through the practice-based study, including this first-year PhD review report. Lisa has spent much of this first PhD year developing a working relationship with Analis and Lyrilis, who reside in her mind and together comprise her process.*

Analis *is the analytical side of Lisa. A vertical thinker, she offers the traditional, academic perspective and research using logic and justified process steps to develop her arguments and propositions. She seeks answers to Lisa's questions through famous texts, obscure texts, and hidden journal articles. She writes with citations and often speaks with them as well. Serious and formal, the voice of reason, Analis is keen to organize and find order among the facts of her research.*

Lyrilis *is the creative soul and the divergent thinker within Lisa. She puzzles and plays, tapping into lateral thinking and analogical thinking to offer idea after idea, often in lyrical response to the issues Lisa raises. She works in all media, including words, and enjoys the near chaos she creates in the studio by following so many lines of inquiry. Lyrilis relies upon personal experience, memory, and a vivid imagination to develop her work, which she refuses to label or categorize. Lyrilis thrives when she encounters the strange, the foreign, and the unfamiliar.*

Introduction: Face to Face

After many months of working together, Analis, Lisa, and I sat down for a conversation to discuss the year's research to date, its challenges, and evolution since its proposal in February 2014. During the meeting, Analis took careful notes and wrote **"An Updated Proposal and Evolving Project on the Creative Process"** in her voice as a companion piece to this article. We reached agreement on our priorities and furthered our efforts to move our project forward together as a collaborative, seamless endeavor among us. What follows is a partial accounting of our meeting from my perspective and key bits of dialogue that took place. The conversation became particularly interesting when we began discussing the heart of our project and how Analis and I work together.



"Our Meeting of Minds", May 2016

Intertwined: Process within Product

Lisa commented on the unusual nature of our meeting by saying that while Analis and I "chat" often, it really was a remarkable and rare thing to have us all present in the same room together. Analis picked up on the word "chat" and needed to clarify our working relationship.

Analis: Well, "chat" is not the right word for it, however, we do require one another for work. I read copious amounts of text and strive to organize and assimilate the concepts, while Lyrilis understands those texts through various lyrical and artistic ways. Her responses always hold clues to the next readings for me and her insights have led us to texts based in art and design but also in psychology, philosophy, advertising, writing, neuroscience, business management, network science, artificial intelligence, and even mathematics (see Appendix A for a list of key texts). Quite a bit of math actually. As you know, one of the breakthroughs in our research happened when Lyrilis took key quotations I was making for our writing fragment "when my words converse" (Appendix D) and put them in this simple "if, then" proof statement that Lisa, you were then able to complete:

I have a theory.

If

as Zwicky writes,

"metaphor is the linguistic expression of the results of focused analogical thinking" and characteristic of the lyric (2013: 19)

And

analogical thinking is the mode necessary or inherent to creativity and innovation

as Holyoak and Thagard (1999), Boden (2004), and de Bono (1988) have theorized,

Then

the lyric is the language of creativity;

Therefore

Lyric inquiry and its resulting texts are well-suited to communicate a written PhD dissertation on the subject of the creative process.

Lisa: Yes, that was a significant moment for us all wasn't it? That small piece of writing demonstrates our creative process together. I would actually even go so far as to say that "I have a theory" encapsulates a good portion of our research to date. It is so interesting to me how much is communicated non-verbally through the form of the writing in the mathematical proof.

Me: I agree Lisa…and thank you Analis! That was certainly an exciting moment and it wouldn't have happened without all three of us working together. But Analis, I would say that we do "chat"… I would certainly call our interaction "dialogue" and to me it is an ever-present conversation. It just isn't always in words or complete sentences! There are images, sounds, and memories that I offer too. The new concepts from your books, the new words, and their connotations and associations…it is fascinating to me what happens when they collide with me. I try to convey this in my poem *When my words converse:*

When my words converse among themselves,
Their chatter is familiar,
Quiet roaming, disquieted by routine
They seek to be noticed but go unseen.

When my words play with your words
Wrested thoughts converge,
A bit mangled they are for the mingling
But happy refreshed, recombobulating.

Lisa: At one point, I think we said the poem contains and describes inherent elements of our creative process.

Analis: We did, and it led me to dig deeper into the literature and to search for themes of Association and Combination within texts and studies about the creative process. It also highlighted the importance of words to us, which also directed my searching. But Lisa, I prefer our **abstract** as a proper summary of our work, rather than "I have a theory". You'll certainly include it in any write-up you do, correct?

Lisa: Absolutely Analis. But you raise a serious issue that I think we must address. Our work together− yours, mine, and Lyrilis's− is so intertwined. I think it would be ridiculous and fictional to separate our voices! It is imperative that we find a way for all three of us to be equally represented and intertwined as collaborators, even within the final outputs, including the written dissertation. I think we need to showcase the critical roles our three voices have played in the progress of the research and in the creative process itself.

Striving to Innovate

Me: I agree Lisa. We've always adhered to the idea that the form of a thing should be designed to suit and reflect its function, but be developed alongside the function of the thing, rather than simply following it.

Analis: I think we align closely with Frank Lloyd Wright's integrated ideology and I think we have done so ever since our introduction to his work back when we were pursuing our undergraduate studies.

Me: Yes, that's true too Analis. And we decided back in January that even the form of our process and methodology had to suit and reflect this project; that's when I developed "Thingness" to clarify our method:

> ***"To understand the Thing, I will research the Thing through the Thing itself, trying to embody its Thingness while peering at the Thing through the lens of the Thing".***

Lisa: I have taken to likening this "Being the Thing" to a sort of method acting. Analis, I know you are mentioning Emergent Methodology in your write-up and that is perhaps somewhat related, but I feel there is no current terminology or category of process for what it is we are doing. I believe what we are doing is unique and part of our contribution to new knowledge in our field.

Analis: You both know that I am on board with this, but it is difficult for me. I struggle with these new writing forms. And if it is difficult for me, then you can imagine how difficult it might be for others in academia who are most familiar and comfortable with my style of thinking and writing as opposed to Lyrilis's. So what do you suggest we do to move the project forward and continuing developing it?

Lisa: I think Lyrilis should keep writing and lyrically responding and trying out new forms of dialogue and I should try out new ways to connect our voices and embed our research into our process. Even as we have been having this discussion, Analis, you've been writing your half of the report. Everything we say here informs your work and as your report has been forming, I have watched Lyrilis grab some key words and tuck them away. We learn by doing together and our ideas and insights develop as we participate and interact with the research itself.

Analis: But we don't have the specific answer yet as to the form and structure of the dissertation.

Lisa: I think that's okay for now. We do know that to satisfy us, the form and structure must reflect what we learn through the research, which means we might need to develop further one of the metaphors we have already been using. I think even the language we use right now to talk about the project should be more reflective. For instance, Analis, in your report, do we have to write "chapters" of our PhD? Could we at least refer to them for now as "segments" since we do not know how they will all fit together in our new form?

Me: Segments…segments…hang on. Let me think on segments for a bit. Segments… … … …. Fragments…essays…what are chapters? Parts of a whole…parts of the book… particles… fractals…fractions…parts of a whole…directional…sundial images…a pie image…pieces of that pie…image of a book opening up to a pop-out pie of segments…fragments…my writing fragments…a collection…a collection of my essays…oh! Well that's an anthology, now isn't it? What if we structure our dissertation as a collection of diverse writings on our research? We could use various voices and various writing forms. It would be a collection of voices…except not. As it would all be Lisa. What do you think?

Analis: I like the idea as it would allow for more freedom with the writing for all of us…and perhaps more opportunities for me to write without having to worry about how to incorporate your lyrical voice into the lines of my writing (and vice versa).

Lisa: My thoughts exactly! It would allow the reader to enter and access the writing at many different points. It would also allow for different perspectives on the research. An internal dialogue could happen among the voices/writing forms based on their organization and placement between the covers. Perhaps we could even explore the associative leap, the writers' device, as it relates to the creative leap? It would not be necessary to read front to back although we could organize it so that various ways of reading it could offer different layers or levels of meaning. Something to consider. It might also ease concerns about me pushing boundaries or trying to bend rules too much.

Analis: I am surprised you are worrying about that so much. If we are to embed the elements of creativity into the process, we will have to be provocative…we will have to disrupt the usual patterns as de Bono encourages, in order to allow for restructuring and new ideas to develop (1988: 11).

Lyrilis: I wonder what new thing could come of writing this way? All those voices associating with one another? The analytical associating with the lyrical? Will we discover something from the writing of the PhD itself?

Lisa: This would clearly be very ambitious…is it too much?

Analis: Ambitious, yes. But achievable if we make a decision to focus on the elements of creativity that we have uncovered so far: Association, Combination, and the Metaphor. Our studies and tests have begun and have pathways…we have tested Triangulation personally (Appendix F) and with students (Appendix J) and should have another opportunity to do with students for the "after the storm" project ((Appendix L) with the Royal Botanic Garden. Expressions (Appendix G) is coming along, though it may need some prodding. We've settled on the third sub-project to search the texts for metaphorical language used by famous creators. Our overall project timeline (Appendix ___) is in good shape.

Lisa: Perhaps Association, Combination, and the Metaphor could be sub-categories within the structure and form of the writing?

Me: I love it! Do you realize that centering on Association, Combination, and the Metaphor allows for another Triangulation of three? Three is a highly charged number…with religious and mathematical significance.

Lisa: Yes, but Lyrilis, we can't go running off in too many directions! Remember…you just said it…we are centering. Let's use the three to center now.

But it's never the center of things that interest me…it's always the periphery…the edge of things. This was one potential finding with our research and Triangulation this year: ***the outliers hold the keys to new ideas.*** *I want to walk the thin lines between disciplines and peer up close at those blurry forms that have no names and press against boundaries.*

(To connect with Lyrilis, look for her on Twitter @Word_Playing)

Word Count: 2262

Appendix O.
Writing Form and Book Format Mockups

MOCK-UP 1

Creativity and Idea Theory

In Steven Johnson's *Where Good Ideas Come From*, a book about the patterns of the spaces and environments in which good ideas develop, Johnson borrows the phrase "adjacent possible" from Stuart Kauffman to discuss how elements, thoughts, and older ideas combine and recombine to create new ones (2010, pp.30-31). Johnson, an author and start-up creator, says the term "captures the limits and the creative potential of change and innovation" (2010, pp.30-31). He uses "adjacent possible" to refer to that which is nearby for tapping into and developing these new combinations. Once formed, these new combinations push and extend the boundaries of the adjacent possible, in turn, to allow for additional combinations (Johnson, 2010, p.31).

The space of the adjacent possible provides the building blocks for creativity and offers potential combinations by association, be it physically, geographically, literally, figuratively, virtually, or intangibly, but is also limited by those same associations. It is a critical theory of the creative process and is related to Frans Johansson's "Medici effect". "Medici effect" is Johansson's term for the breakthrough insights that occur at the intersection of ideas, concepts, and cultures; it is the innovation that can result from devising "intersectional ideas which combine concepts from different fields to lead in new directions" (2004, p.73). Johansson, a corporate thinker and leadership trainer who uses case studies in business to support his ideas, states explicitly that innovation requires intersectional ideas which combine concepts from different fields, requiring interaction with diverse groups of people (2004, p.73). In other words, the association of diverse concepts and peoples drives new ideas and innovation based upon various combinations of the associating components. Creativity flourishes in diversity. The diverse interactions and intersections of Johansson's "Medici effect" will expand and push the boundaries of Johnson's "adjacent possible" to allow for greater possibility in new combinations for ideas, art works, and designs.

In 1761, Benjamin Franklin completed his invention of the glass armonica, by working with a glassblower in London. The Glass armonica was Franklin's new musical instrument made of a series of spinning glass bowls. The bowls were tuned to notes by their varying sizes and fitted one within the next by cork and held in place by a rod. They were played by hand and spun by foot pedal. His travels prior to his armonica work had taken him to Paris and London where he had enjoyed popular concerts of music played on glasses filled with water.

(Franklin Institute, 2016)

Stained Glass Reflected in Organ Pipes

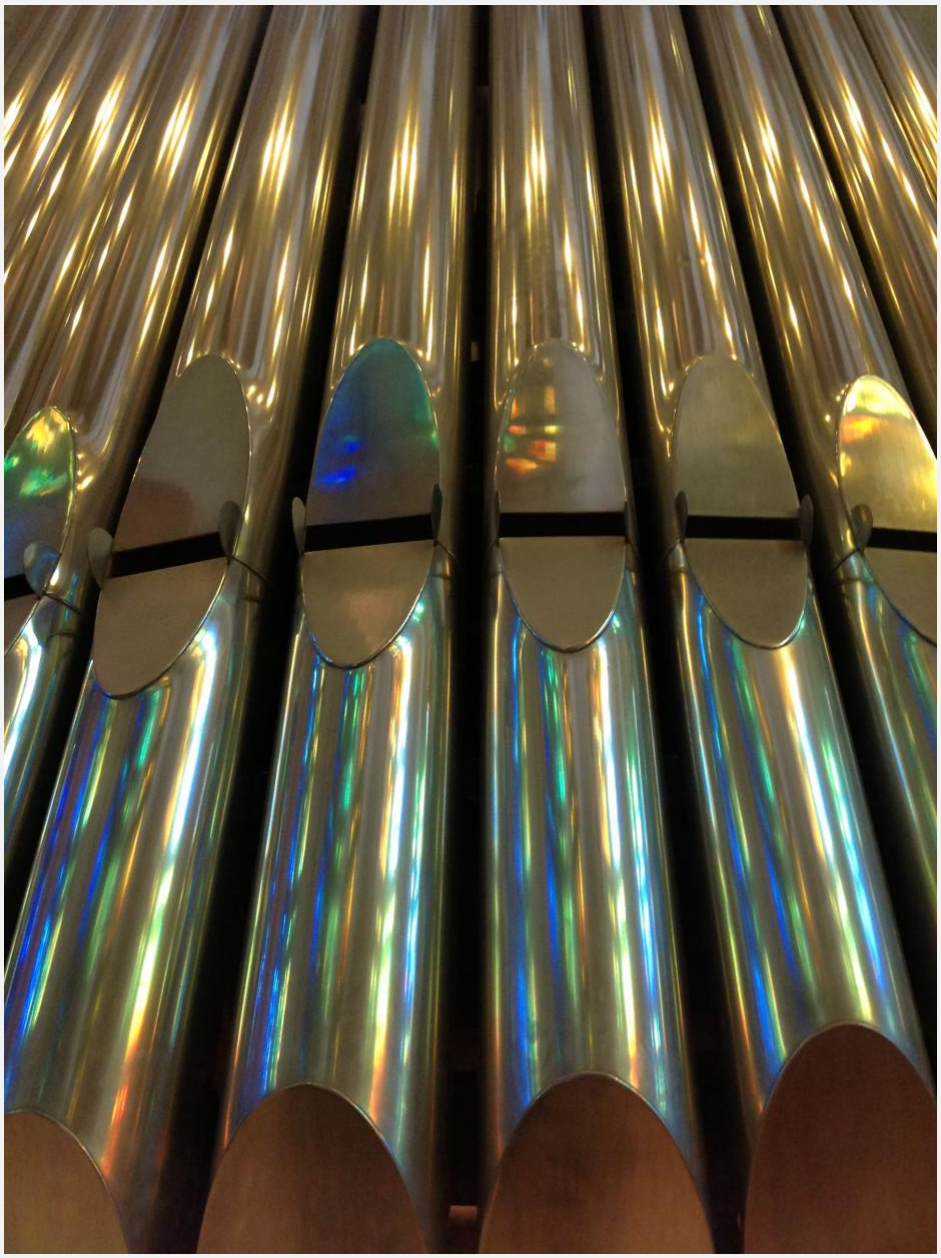


Image by author, who traveled to Barcelona, Spain to rendezvous with partner and composer David Faleris.

Sagrada Familia, 28 September 2013

The intersectional aspect of the "Medici effect" and the associative elements of the "adjacent possible" are also evident in an earlier theory of creativity based in the field of psychology. Tackling the spaces and environments of the mind, Arthur Koestler was a professional psychologist, who undertook a major, systematic study of the creative process. Recognised not only for his work in psychology, but also for his creative work as a novelist and essayist, he is believed to have been the first person with a creative practice to study the creative process (1964, p.17). In 1964, he published his theories and findings in *The Act of Creation*, which centers on "bisociation," a term he coined to "make a distinction between the routine skills of thinking on a single 'plane'…and the creative act", which he asserts "always operates on more than one plane" (1964, pp.35-36). He writes that the creative act is "linked not only to associative context, but bisociated with two" (1964, p.35). Koestler argues that when two associative contexts (two frames of reference or two systems of thought) interact, one of three outcomes is possible: "[when] two matrices of perception or reasoning interact with each other the result…is either a collision ending in laughter, or their fusion in a new intellectual synthesis, or their confrontation in an aesthetic experience" (Koestler, 1964, p.45).

The work by Koestler, Johannson, and Johnson demonstrates that diverse relationships and their possible interactions and associations are inherent to the creative process. Writing decades earlier, advertising expert James Webb Young published *A Technique for Producing Ideas* in the 1940s, now considered a classic missive for his industry. In it, he asserts that "the capacity to bring old elements into new combinations depends largely on the ability to see relationships" and this ability is key to producing new ideas (2003, p.32). To "see relationships" is to see associations, to see shared traits, commonalities, or differences among various elements, and to see links or connections that are possible among them. He reminds his reader that "words are, themselves, ideas" and that "they might be called ideas in a state of suspended animation" (2003, p.65). Young urges his readers to collect words as the foundation for producing ideas because as words are symbols of ideas, he explains that one can "collect ideas by collecting words" (2003, p.65).

When my words converse among themselves,
Their chatter is familiar,
Quiet roaming, disquieted by routine
They seek to be noticed but go unseen.

When my words play with your words
Wrested thoughts converge,
A bit mangled they are for the mingling
But happy refreshed, recombobulating.

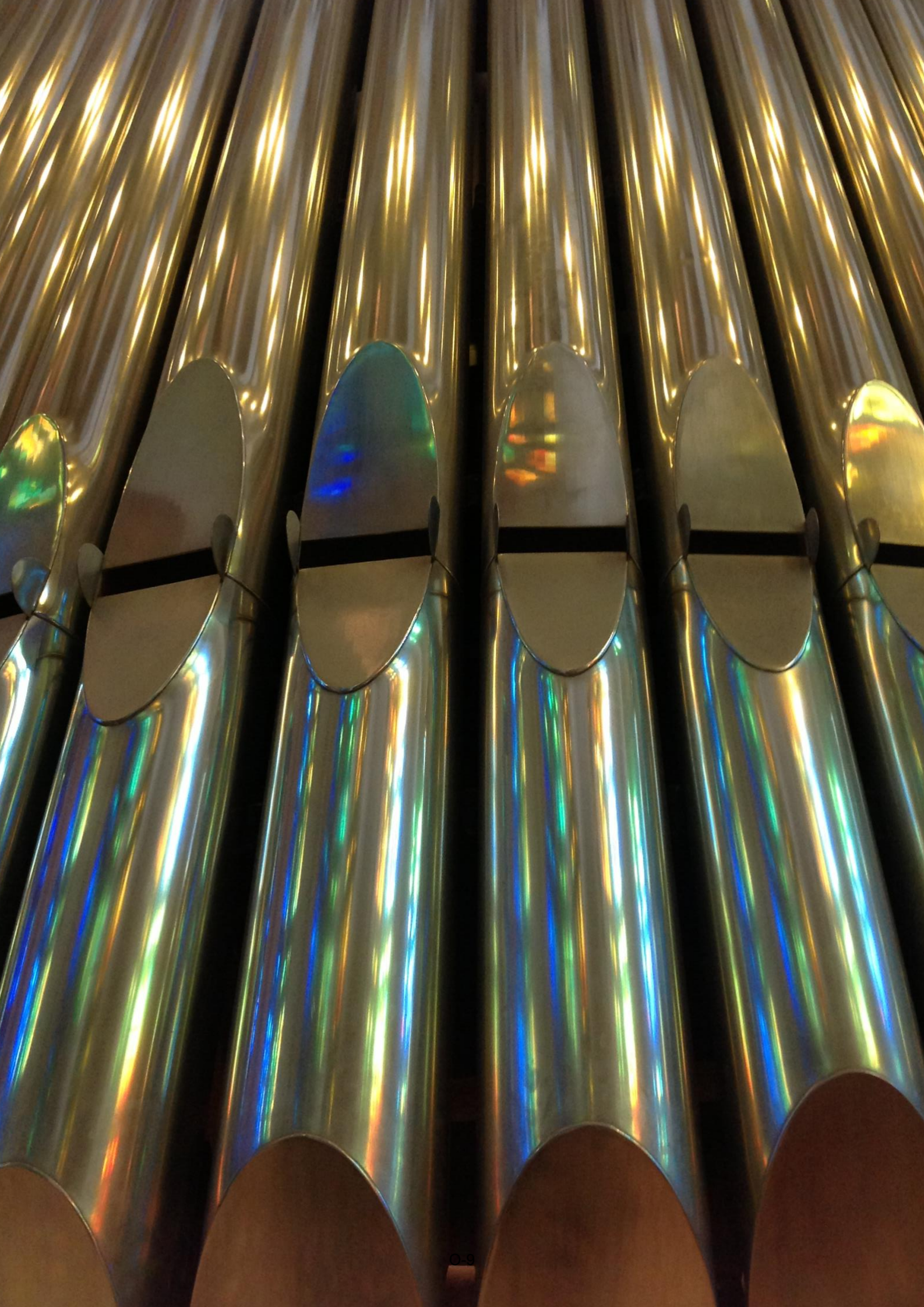
(Naas, 2016)

Carroña (Carrion)



Image courtesy The Corning Museum of Glass of Javier Pérez's work: blown glass chandelier, assembled, broken, taxidermied crows, thread.

Murano, Italy, 2011



Glass Intersections
history, technology, concepts, practice,
process, materials, people, invention

Intersections
crossroads, junctures, punctuation,
parenthetical, signage, travel, coding,
math, geometry, crosswords,
interruption, connections

Parenthetical (parentheses)
interludes, pauses, intervals, inserted,
extensions, constructions, interrupts

Braces {Curly Brackets}
notation, math, music, programming

24 January 2017

Chapter 2
CREATIVITY CONTEXT

2.1 Creativity and Idea Assumptions

"Creative" is synonymous with "original" and "imaginative". Creativity is the act of being creative and it extends beyond the fields of art and design. It can be found within every discipline and is required of every student who pursues a doctorate, intending to contribute new, "original" knowledge or ideas.

The creative process is generally understood and referred to as the physical activity of making, designing, crafting, building, and undertaking an artist's work. Within the research context of this paper, however, the assumption is that the creative process runs across disciplines and is the activity concerned with the making of new ideas, new art works, new inventions, new designs, new concepts, and so forth. It encompasses the mental activity (both conscious and unconscious) that takes place in developing these new ideas, art works, inventions, designs, and concepts (de Bono 1988; Johnson 2010; Holyoak & Thagard 1999).

Within this research context, it is accepted that ideas are new combinations of older ideas, facts, and other elements such as memories and experiences (de Bono 1988; Young 2003; Johnson 2010). New ideas underpin innovation in every discipline, including art and design.

Microsoft Word

THESIS

glass history

type/s p a c e

transparent**/opaque**

framing/breaking

grammar

hot/cold/fl

language

ow

punctuation!

ing

process

books

glass

making

margins

life cycle

wordsmithing

innovation

artist book

Beginning

middle

enD

virtual paper

virtual glass

31 January 2017

2.2 Association: A perspective on Creativity & Idea Generation Theory

In Steven Johnson's *Where Good Ideas Come From*, a book about the patterns of the spaces and environments in which good ideas develop, Johnson borrows the phrase "adjacent possible" from Stuart Kauffman to discuss how elements, thoughts, and older ideas combine and recombine to create new ones (2010, pp.30-31). Johnson, an author and start-up creator, says the term "captures the limits and the creative potential of change and innovation" (2010, pp.30-31). He uses "adjacent possible" to refer to that which is nearby for tapping into and developing these new combinations. Once formed, these new combinations push and extend the boundaries of the adjacent possible, in turn, to allow for additional combinations (Johnson, 2010, p.31).

The space of the adjacent possible provides the building blocks for creativity and offers potential combinations by association, be it physically, geographically, literally, figuratively, virtually, or intangibly, but is also limited by those same associations. It is a critical theory of the creative process and is related to Frans Johannson's "Medici effect". "Medici effect" is Johannson's term for the breakthrough insights that occur at the intersection of ideas, concepts, and cultures; it is the innovation that can result from devising "intersectional ideas which combine concepts from different fields to lead in new directions" (2004, p.73). Johannson, a corporate thinker and leadership trainer who uses case studies in business to support his ideas, states explicitly that innovation requires intersectional ideas which combine concepts from different fields, requiring interaction with diverse groups of people (2004, p.73).

In other words, the association of diverse concepts and peoples drives new ideas and innovation based upon various combinations of the associating components. Creativity flourishes in diversity. The diverse interactions and intersections of Johannson's "Medici effect" will expand and push the boundaries of Johnson's "adjacent possible" to allow for greater possibility in new combinations for ideas, art works, and designs.

The intersectional aspect of the "Medici effect" and the associative elements of the "adjacent possible" are also evident in an earlier theory of creativity based in the field of psychology. Tackling the spaces and environments of the mind, Arthur Koestler was a professional psychologist, who undertook a major, systematic study of the creative process. Recognised not only for his work in psychology, but also for his creative work as a novelist and essayist, he is believed to have been the first person with a creative practice to study the creative process (1964, p.17). In 1964, he published his theories and findings in *The Act of Creation*, which centers on "bisociation," a term he coined to "make a distinction between the routine skills of thinking on a single 'plane'…and the creative act", which he asserts "always operates on more than one plane" (1964, pp.35-36). He writes that the creative act is "linked not only to associative context, but bisociated with two" (1964, p.35). Koestler argues that when two associative contexts (two frames of reference or two systems of thought) interact, one of three outcomes is possible: "[when] two matrices of perception or reasoning interact with each other the result…is either a collision ending in laughter, or their fusion in a new intellectual synthesis, or their confrontation in an aesthetic experience" (Koestler, 1964, p.45).

What if I were to write as if I were making glass?

31 January 2017

Exaptation…

The work by Koestler, Johannson, and Johnson demonstrates that diverse relationships and their possible interactions and associations are inherent to the creative process. Writing decades earlier, advertising expert James Webb Young published *A Technique for Producing Ideas* in the 1940s, now considered a classic missive for his industry. In it, he asserts that "the capacity to bring old elements into new combinations depends largely on the ability to see relationships" and this ability is key to producing new ideas (2003, p.32). To "see relationships" is to see associations, to see shared traits, commonalities, or differences among various elements, and to see links or connections that are possible among them. He reminds his reader that "words are, themselves, ideas" and that "they might be called ideas in a state of suspended animation" (2003, p.65). Young urges his readers to collect words as the foundation for producing ideas because as words are symbols of ideas, he explains that one can "collect ideas by collecting words" (2003, p.65).

Then I would have an initial period of flow and instability where the words would feel like honey slipping off their sentences.

31 January 2017

Intersectional
interlude

paranthetical
pause

crossroads
crossed words
junctioned

traffic flows
traffic stops

maps
mapped
ways found
wayfinding

train tracks
lined time
timelines
shaped
graphs
geo metrics

geometry

math
music
coding
encoded.

31 January 2017

Collecting ideas through words expands the “adjacent possible” and opens intersectional or “bisociation” possibilities. For Edward de Bono, physician, psychologist, author, and developer of “lateral thinking”, words are also at the heart of these associations. Throughout the 1960s-1980s, he developed word gameplay and theories of creativity around word association. De Bono’s lateral thinking underlies his focus on seeing relationships. He explains that lateral thinking is an “insight tool” and is “the process of using information to bring about creativity and insight restructuring” (1988, pp.7-10).

Lateral thinking is concerned with restructuring patterns and provoking new ones (1988, p.13). Edward de Bono writes that “language itself is the most obvious code system with the words themselves as triggers” (1988, p.26). Breaking patterns of familiarity or restructuring systems like language can open up possibility for new associations, relationships, and patterns for new insights. In his *How to Have Creative Ideas* (2007), de Bono’s exercises and gameplay in word association offer practice in seeing the relationships that both he and Young describe as necessary to creating the partial ideas that eventually become the big ideas (Young, 2003, p.47; de Bono, 1988).

Metaphor-analogy as a tool…

Analogical thinking continued…

Glass Writing

Pen to paper. Place the words.
Define the structure.
    Subject verb object.
Inflate them.
Preposition and postposition.
Build the paragraph.
Draft and shape.
    Subject verb object.
Inflate them more.
Adverbs and adjectives add in bits.
Offer meaning.
Reframe and rework.
    Edit. Edit again.
Make it stronger. Temper the tone.
Transcribe in Word.

1 February 2017



Stained Glass Reflected in Organ Pipes

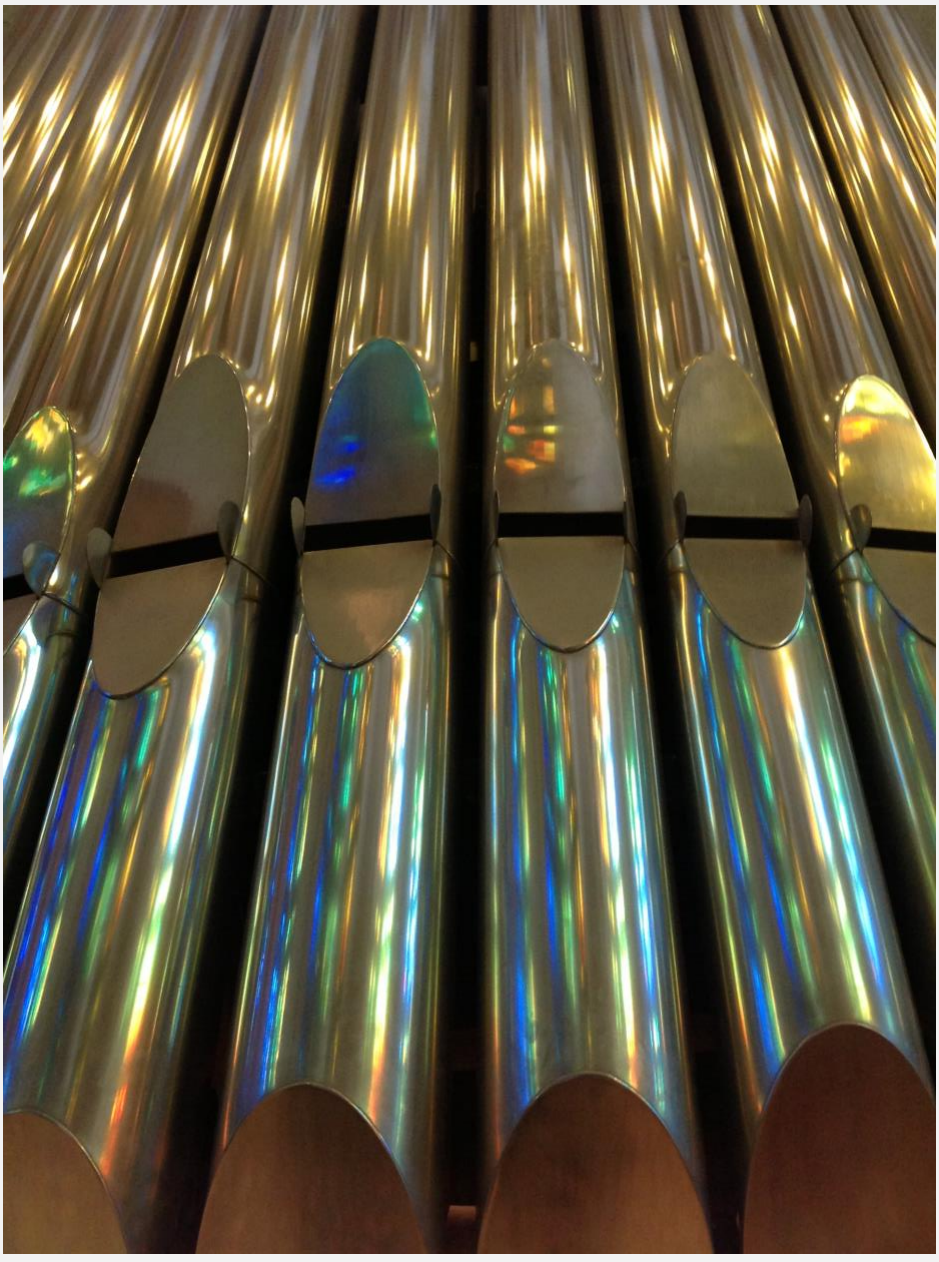


Image by author, who traveled to Barcelona, Spain to rendezvous with partner and composer David Faleris.

Sagrada Familia, 28 September 2013

Creativity and Idea Theory

In Steven Johnson's *Where Good Ideas Come From*, a book about the patterns of the spaces and environments in which good ideas develop, Johnson borrows the phrase "adjacent possible" from Stuart Kauffman to discuss how elements, thoughts, and older ideas combine and recombine to create new ones (2010, pp.30-31). Johnson, an author and start-up creator, says the term "captures the limits and the creative potential of change and innovation" (2010, pp.30-31). He uses "adjacent possible" to refer to that which is nearby for tapping into and developing these new combinations. Once formed, these new combinations push and extend the boundaries of the adjacent possible, in turn, to allow for additional combinations (Johnson, 2010, p.31).

The space of the adjacent possible provides the building blocks for creativity and offers potential combinations by association, be it physically, geographically, literally, figuratively, virtually, or intangibly, but is also limited by those same associations. It is a critical theory of the

> In 1761, Benjamin Franklin completed his invention of the glass armonica, by working with a glassblower in London. The Glass armonica was Franklin's new musical instrument made of a series of spinning glass bowls. The bowls were tuned to notes by their varying sizes and fitted one within the next by cork and held in place by a rod. They were played by hand and spun by foot pedal. His travels prior to his armonica work had taken him to Paris and London where he had enjoyed popular concerts of music played on glasses filled with water.
>
> (Franklin Institute, 2016)

creative process and is related to Frans Johannson's "Medici effect". "Medici effect" is Johannson's term for the breakthrough insights that occur at the intersection of ideas, concepts, and cultures; it is the innovation that can result from devising "intersectional ideas which combine concepts from different fields to lead in new directions" (2004, p.73). Johannson, a corporate thinker and leadership trainer who uses case studies in business to support his ideas, states explicitly that innovation requires intersectional ideas which combine concepts from different fields, requiring interaction with diverse groups of people (2004, p.73). In other words, the association of diverse concepts and peoples drives new ideas and innovation based upon various combinations of the associating components. Creativity flourishes in diversity. The diverse interactions and intersections of Johannson's "Medici effect" will expand and push the boundaries of Johnson's "adjacent possible" to allow for greater possibility in new combinations for ideas, art works, and designs.

The intersectional aspect of the "Medici effect" and the associative elements of the "adjacent possible" are also evident in an earlier theory of creativity based in the field of psychology. Tackling the spaces and environments of the mind, Arthur Koestler was a professional psychologist, who undertook a major, systematic study of the creative process. Recognised not only for his work in psychology, but also for his creative work as a novelist and essayist, he is believed to have been the first person with a creative practice to study the creative process (1964, p.17). In 1964, he published his theories and findings in *The Act of Creation*, which centers on "bisociation," a term he coined to "make a distinction between the routine skills of thinking on a single 'plane'…and the creative act", which he asserts "always operates on more than one plane" (1964, pp.35-36). He writes that the creative act is "linked not only to associative context, but bisociated with two" (1964, p.35). Koestler argues that when two associative contexts (two frames of reference or two systems of thought) interact, one of three outcomes is possible: "[when] two matrices of perception or reasoning interact with each other the result…is either a collision ending in laughter, or their fusion in a new intellectual synthesis, or their confrontation in an aesthetic experience" (Koestler, 1964, p.45).

Carroña (Carrion)



Image courtesy The Corning Museum of Glass of Javier Pérez's work: blown glass chandelier, assembled, broken, taxidermied crows, thread.

Murano, Italy, 2011

The work by Koestler, Johannson, and Johnson demonstrates that diverse relationships and their possible interactions and associations are inherent to the creative process. Writing decades earlier, advertising expert James Webb Young published *A Technique for Producing Ideas* in the 1940s, now considered a classic missive for his industry. In it, he asserts that "the capacity to bring old elements into new combinations depends largely on the ability to see

relationships" and this ability is key to producing new ideas (2003, p.32). To "see relationships" is to see associations, to see shared traits, commonalities, or differences among various elements, and to see links or connections that are possible among them. He reminds his reader that "words are, themselves, ideas" and that "they might be called ideas in a state of suspended animation" (2003, p.65). Young urges his readers to collect words as the foundation for producing ideas because as words are symbols of ideas, he explains that one can "collect ideas by collecting words" (2003, p.65).

When my words converse among themselves,
Their chatter is familiar,
Quiet roaming, disquieted by routine
They seek to be noticed but go unseen.

When my words play with your words
Wrested thoughts converge,
A bit mangled they are for the mingling
But happy refreshed, recombobulating.

(Naas, 2016)

CONTINUED Context

CONTINUED Context



Creativity and Idea Theory

In Steven Johnson's *Where Good Ideas Come From*, a book about the patterns of the spaces and environments in which good ideas develop, Johnson borrows the phrase "adjacent possible" from Stuart Kauffman to discuss how elements, thoughts, and older ideas combine and recombine to create new ones (2010, pp.30-31). Johnson, an author and start-up creator, says the term "captures the limits and the creative potential of change and innovation" (2010, pp.30-31). He uses "adjacent possible" to refer to that which is nearby for tapping into and developing these new combinations. Once formed, these new combinations push and extend the boundaries of the adjacent possible, in turn, to allow for additional combinations (Johnson, 2010, p.31).

The space of the adjacent possible provides the building blocks for creativity and offers potential combinations by association, be it physically, geographically, literally, figuratively, virtually, or intangibly, but is also limited by those same associations. It is a critical theory of the creative process and is related to Frans Johannson's "Medici effect". "Medici effect" is Johannson's term for the breakthrough insights that occur at the intersection of ideas, concepts, and cultures; it is the innovation that can result from devising "intersectional ideas which combine concepts from different fields to lead in new directions" (2004, p.73). Johannson, a corporate thinker and leadership trainer who uses case studies in business to support his ideas, states explicitly that innovation requires intersectional ideas which combine concepts from different fields, requiring interaction with diverse groups of people (2004, p.73).

In other words, the association of diverse concepts and peoples drives new ideas and innovation based upon various combinations of the associating components. Creativity flourishes in diversity. The diverse interactions and intersections of Johannson's "Medici effect" will expand and push the boundaries of Johnson's "adjacent possible" to allow for greater possibility in new combinations for ideas, art works, and designs.

In 1761, Benjamin Franklin completed his invention of the glass armonica, by working with a glassblower in London. The Glass armonica was Franklin's new musical instrument made of a series of spinning glass bowls. The bowls were tuned to notes by their varying sizes and fitted one within the next by cork and held in place by a rod. They were played by hand and spun by foot pedal. His travels prior to his armonica work had taken him to Paris and London where he had enjoyed popular concerts of music played on glasses filled with water.

(Franklin Institute, 2016)

The intersectional aspect of the "Medici effect" and the associative elements of the "adjacent possible" are also evident in an earlier theory of creativity based in the field of psychology. Tackling the spaces and environments of the mind, Arthur Koestler was a professional psychologist, who undertook a major, systematic study of the creative process. Recognised not only for his work in psychology, but also for his creative work as a novelist and essayist, he is believed to have been the first person with a creative practice to study the creative process (1964, p.17). In 1964, he published his theories and findings in *The Act of Creation*, which centers on "bisociation," a term he coined to "make a distinction between the routine skills of thinking on a single 'plane'…and the creative act", which he asserts "always operates on more than one plane" (1964, pp.35-36). He writes that the creative act is "linked not only to associative context, but bisociated with two" (1964, p.35). Koestler argues that when two associative contexts (two frames of reference or two systems of thought) interact, one of three outcomes is possible: "[when] two matrices of perception or reasoning interact with each other the result…is either a collision ending in laughter, or their fusion in a new intellectual synthesis, or their confrontation in an aesthetic experience" (Koestler, 1964, p.45).

The work by Koestler, Johannson, and Johnson demonstrates that diverse relationships and their possible interactions and associations are inherent to the creative process. Writing decades earlier, advertising expert James Webb Young published *A Technique for Producing Ideas* in the 1940s, now considered a classic missive for his industry. In it, he asserts that "the capacity to bring old elements into new combinations depends largely on the ability to see relationships" and this ability is key to producing new ideas (2003, p.32). To "see relationships" is to see associations, to see shared traits, commonalities, or differences among various elements, and to see links or connections that are possible among them. He reminds his reader that "words are, themselves, ideas" and that "they might be called ideas in a state of suspended animation" (2003, p.65). Young urges his readers to collect words as the foundation for producing ideas because as words are symbols of ideas, he explains that one can "collect ideas by collecting words" (2003, p.65).

A menagerie of reflection and mirror,
historic ceilings raised and shattered.
Through the looking, let us wander,
wondering into the colour stained light.

(Naas, 2017)

A menagerie of reflection and mirror,
historic ceilings raised and shattered.
Through the looking, let us wander,
wondering into the colour stained light.

(Naas, 2017)

Collecting ideas through words expands the “adjacent possible” and opens intersectional or “bisociation” possibilities. For Edward de Bono, physician, psychologist, author, and developer of “lateral thinking”, words are also at the heart of these associations. Throughout the 1960s-1980s, he developed word gameplay and theories of creativity around word association. De Bono’s lateral thinking underlies his focus on seeing relationships. He explains that lateral thinking is an “insight tool” and is “the process of using information to bring about creativity and insight restructuring” (1988, pp.7-10).

Lateral thinking is concerned with restructuring patterns and provoking new ones (1988, p.13). Edward de Bono writes that “language itself is the most obvious code system with the words themselves as triggers” (1988, p.26). Breaking patterns of familiarity or restructuring systems like language can open up possibility for new associations, relationships, and patterns for new insights. In his *How to Have Creative Ideas* (2007), de Bono’s exercises and gameplay in word association offer practice in seeing the relationships that both he and Young describe as necessary to creating the partial ideas that eventually become the big ideas (Young, 2003, p.47; de Bono, 1988).

Exaptation…

Two Dutch eyeglass and instrument makers, living in the same town in 1608, claimed credit for developing the first telescope. The Dutch government however, awarded Hans Lippershey the patent for the first telescope, which he made with a concave eye piece aligned with a convex lens to magnify distant objects. Zacharias Jansen was given credit for the compound microscope. But it was Galileo Galilei who first turned the telescope to the sky for the beginnings of modern space exploration.

(Space.com, 2013)



Metaphor

Appendix P.
Early Reflection on Writing the Dissertation

Writing the Dissertation-fusing the creative process and the research process

My questions for the writing of my dissertation are the following:

How can I design my dissertation to reflect my creative subject matter, when there are such heavy traditions, rules, and restrictions in place around the writing format and the book itself?

How can I use the creative process theories to make a new piece of writing that upholds tradition but breaks with it enough to be original? To be original not just in the contribution of the project, but in the actual writing of it, in the process of creating it, in the format of it, in product, and the experience of it?

In answer to these questions, I have been exploring with lyric inquiry and analogical thinking, beginning with the word "intersection". I have been making and playing with various associations and combinations of ideas. I have turned the outline on its side and drawn it visually to see intersections as we see them on roadmaps (see "Outline" and "Roadmap Outline". The horizontal outline looked like a timeline to me and allowed me to continue to associate on various levels, building a repertoire of words around my question.

"Lyric and Innovation Mock-ups"
Part of my title "Embedding Glass Intersections" brought me back to glass and my perspective on the use of it in innovation. Initially I thought I would focus the intersections (images and writings) only on history and the glass innovations that have had an impact on society. I talked about this in our last couple of meetings. "Lyric and Innovation Mock-ups3" is an example of how I might take my formal academic text and juxtapose it against my lyric bits focused on glass in this way. Each lyric intersection (text and image) was purposefully placed opposite specific academic text for associative purposes as it is read. But to me, it seemed as if this were missing an intangible something-it didn't feel dynamic enough in the process of making it. I had begun writing it prior to my experiences at the Glasgow writing workshop and at the British Library.

When I participated in "Critical and Creative Voices" and when I visited the British Library Treasures exhibition, I had my own intersectional experience of sorts. The writing workshop centered on creating of a piece of writing for performance. The teaching that I received focused on performing the written word and leaving room for improvisation. I was pushed not to structure everything or mark off all timings in my performance. Leaving room for improvisation allowed new things to happen with the work each time it was performed. It left room for creative responses as I reacted to the audience and the other actors. This idea connected for me with Johnson's and de Bono's theories that there needs to be tension between "structure" and "chaos" for creativity. The generative act occurs in the space between tension and chaos.

If my thesis writing is to be a new, creative design, then there needs to be some tension between structure (tradition) and chaos (pushing boundaries). This can happen within the writing and also in the formatting. I want the book to be an experience for the reader and personal to each reader depending upon how much he or she engages with it. I want to allow room for responses to the book and the writings to carve out space for generative acts.

“Lyric and Innovation Mock-ups with Glass Writing”

From my British Library visit, I walked away with Leonardo da Vinci’s notebooks in mind. He used mirror writings in his sketchbooks and he was very interested in glass material and lenses. This served as a reminder to me to go back to my glass practice and my perspective on glass that includes more than the history and innovation, but also the material properties and intangible qualities that I associate with those properties and try to exploit in my work.

Shortly after the British Library visit, I attended “Producing a Thesis Using Microsoft Word 2013” and this served as another intersectional point for me. The class focused on Word and dug into its capabilities around the creation of large publications. I was especially interested in the various ways text could be linked to other text and objects in the document. This had me thinking about the actual platform of my writing and if there were ways I could exploit the platform or consider the writing process from a different perspective.

This served to generate another design question which became:

How can I write as if I were making glass?

This was the jumping off point for the second prototype thesis writing called “Lyric and Innovation Mock-ups with glass writing”. I used the same academic text as in the first, but responded to it with this question in mind.

A brief page by page breakdown of “Lyric and Innovation Mock-ups with Glass Writing”

- “Glass Intersections” page-this is my page of notes as I was making early associations to start this lyric writing; I placed it opposite the assumptions as these words are my experiences and elements…the “older ideas” that a new idea might be made of
- “Microsoft Word” page is laid out as a jumble of words as I was trying to visually describe the “adjacent possible” in 2.2…seeking the answers to my original design questions of how can I design my thesis to reflect my subject matter
- “What if I were to write as if I were making glass?” came as the result of the intersections I described above; it was derived from the adjacent possible words and is opposite the text that describes the Medici effect intersections; the parenthesis are a type of sign post that suits the lyric work
- “Then I would have an initial period” was my immediate response to this question of how to write as if I were making glass. It allowed me to begin structuring the pages of “Lyric and Innovation Mock-ups with Glass Writing”. I had to show the period of instability I had in the process to get to that question
- Opposite “analogical thinking” I pushed the metaphor of “Glass Writing” and thought about the process in the hotshop of blowing, shaping, and reheating

Ideas in development for the writing
I think there is room in the dissertation to incorporate my full perspective on glass: the material properties, the intangible associated qualities, as well as the innovation and historical implications of glass in society.

These are possible ideas I am playing with:

Ode to Glass-A poem could develop as I write the dissertation based on the history and image intersections written in response to the academic content. It will be read by the reader in whole if the reader turns the book upside down and finds all the parts (I put an example in the first mock-up). The reader will be able to read the poem itself in various ways.

A list of the image intersections could appear as an appendix and the descriptions will form another lyric writing piece.

The history bits could form a timeline in a grayscale.

I could choose various ways to write "in glass" for each chapter: I could write reflectively; I could write in a fractured way; I could write as if I were making glass as in my second example.

A book requires the reader…and if the reader picks up any of the signs that I embed and acts upon them, turning the book, etc, then the book will be performed by the reader and essentially become another kind of creative act.

In the end, the hope is that I will have also demonstrated my creative process.

Appendix Q.
Writing Charts

Day	Date	Word Goal	#Words Written	Section Goal	Section Written	Content	Idea Events	Writing Hours	Time Spent	Affect/Valence Chart	Notes/Feelings on the Day
Start count as of	Mar-06	6,382	6,382	goal was trialing triangulation/formatting	Front material, Ch 7, delta logs, and biblio	academic text, lyric bits, idea events	several	not tracked	not tracked	not tracked	not tracked, writing on ch 7 was over several days in summer 2017, along with the delta logs, the front material was written over many days in Fall 2017, biblio is an ongoing compliaton
Wed	Mar-07	500	545	Ch 2	495 Ch2, 50 Bib	academic text, 1 lyric line, formatting	none	10-12:30, 1:30-2:30, 3:30-4:30	4.5 hrs	DNC	still somewhat sick/fatigued and I was worried about meeting the word count
Thur	Mar-08	0	0	-	-	-	-	-	0	DNC	Teaching 4th years in Edinburgh, scheduled day off writing
Fri	Mar-09	500	510	Ch 2	413 Ch2, 42 Bib	academic text	none	10:15-12:30, 2:15-4:30	4.5 hrs	DNC	still somewhat sick/fatigued and I was worried about meeting the word count
Sat	Mar-10	0	0	-	-	-	-	-	0	DNC	scheduled day off writing
Sun	Mar-11	0	245	-	Outliers Log	idea event	1 outlier	8:45pm-8:55pm	10 min	DNC	occurred while I was straightening the flat &thinking about the overall dissertation and my intention
Mon	Mar-12	850	894	Ch 2	441 Ch2, 45 Delta, 408 Ch 1	academic text, 1 lyric line, 1 idea event, formatting	1 delta indirect	10-12:30, 2:10-3:30	3 hrs. 50 min	DNC	favorite part of the day was writing the two lyric lines for ch 2; worried about word count, but purposfully considered the intention to get to an idea; also about half the word count was cut and pasted from previous writing fragments to get a start for ch.1
Tue	Mar-13	850	826	Ch 1	442 Ch1, 384 Outliers	academic text, 1 idea event	1 outlier	9:35-10:05, 10:30-11, 11:45-12:15	1.5 hrs	DNC	worrying and focusing on the intention in between the writing minutes allowed me to remember the idea event that I had last night as I was falling asleep, I cut and pasted from my first year review to get to the word count, segments to edit and hone tomorrow
Wed	Mar-14	850	869	Ch 1 Aims/Obj/Cont	295 Ch1, 204 Ch3, 370 Ch4	academic text, 2 lyric lines and lyric notes	none	9:45-12:15, 1:55-2:25, 2:45-3:30	3 hrs. 45 min	DNC	the entire morning work was really dedicated to writing just 2 lyric lines in ch. 1 and it was quite frustrating. I think the premise of the lines is solid, but it was difficult to open with a phrase that everyone knows how to finish while trying to make it my own. Ch 3 and Ch 4 were begun with word placements from previously written fragments.
Thur	Mar-15	850	1244	Ch 1 Aims/Obj/Cont	161 Ch1, 54 Ch3, 1029 Ch4	academic text	none	9:30-10:15, 11:00-12:00, 2-2:15	2 hrs	DNC	I was very distracted today…early (annoying) emails from Edinburgh distracted me and I never was able to regain the same focus from the morning; I cut and pasted a lot from my writing fragment "when my words converse" for ch.4 (it's interesting reflecting on that pieces, as it looks like I was having idea events within the writing then, but wasn't calling them that at the time)-hoping to make tomorrow an editing day to work with what I've dropped in
Fri	Mar-16	850	468	Ch 1 Aims/Obj & Ch 4 Edits	7 Ch1, 461 Ch4	edited ch. 1 and the 2 lyric lines which became 3, academic text ch4	none	9:30-10:45, 11:05-11:30	1 hr. 40 min	(-x-y)	I did quite a bit of writing during the first hour but it was mostly editing and rewriting with a focus on the two lyric lines from Wed 14, so in the end I added only a couple of words to the word count in Ch 1; for ch4 I started organising and dropping in more academic paragraphs that I had previously written. I wasn't feeling well today though and decided the afternoon needed to focus on feeling better
Sat	Mar-17	0									scheduled day off writing
Sun	Mar-18	0	0		Outliers Log	idea event	1 outlier	11:30pm-11:35	5 min	DNC	scheduled day off writing: logged the idea in shorthand form to myself…will write it out tomorrow
Mon	Mar-19	350	376		178 Ch 4 with edits, 198 Outliers log	academic text, 2 lyric lines and lyric notes	none	9:30-11:30, 3:15-3:45	2.5 hrs	(-x+y) morning, (x-y) afternoon	lower word goal to accommodate 4th year dissertation readings; struggled with a headache this morning, doubts over my writing, and anxiety about 15 April and potential lack of funding
Tues	Mar-20	350	346		20under Ch 1 with edits, 366 Ch 2	academic text	none	9:30-11:05	1 hr. 35 min	(x+y)	lower word goal to accommodate 4th year dissertation readings; I felt better and I did quite a bit editing chapter 1 while pulling in notes to chapter 2 from other fragments
Wed	Mar-21	350	1078	Ch 2, Ch 4 edits, Pull notes into Ch 9	43 Ch 2, 1035 Ch8 (or maybe 2?)	academic text	none	9:30-12:00	2.5 hrs	(-x-y)	lower word goal to accommodate 4th year dissertation readings; woke with a headache, struggled severely to write with the headache and construction noise outside my window, copied and pasted a fragment that I think will work for ch8 and possibly bits for ch 2; I think since I have enough words for the week, I will probably work on editing what I have over the next couple of days
Thur	Mar-22	350	56	Edit what I have	56, Ch 2	academic text	none	10:00-11:30	1.5 hrs	(-x-y)	lower word goal to accommodate 4th year dissertation readings; still a headache and the feeling that I need to read a bit more if I am going to continue chapter 2 in a linear fashion as requested by supervisors
Fri	Mar-23	350	0	Read article on concepts to cont linear	reading	none	none	none	0	(-x-y)	lower word goal to accommodate 4th year dissertation readings; still a slight headache; needed to read and take notes instead of write
Sat	Mar-24	0									scheduled day off writing
Sun	Mar-25	0									scheduled day off writing

March - April 2018

Day	Date	Word Goal	#Words Written	Section Goal	Section Written	Content	Idea Events	Writing Hours	Time Spent	Affect/Valence Chart	Notes/Feelings on the Day
Mon	Mar-26	150	225	Write/edit ch. 2, add concepts, Biblio	Ch2 concepts	academic text	none	9:50-10:20, 10:30-11:00	1 hr	(x-y)	lower word goal to accommodate 4th year dissertation markings; found it difficult to get into the writing again after three days off, but particularly difficult to try to articulate definitions for idea, concepts and how I use them in the dissertation
Tue	Mar-27	150	0	biblio	none	none	none	none	none	(-x-y)	lower word goal to accommodate 4th year dissertation markings; had to go to Edinburgh for a seminar on publishing which I didn't time properly to allow for writing
Wed	Mar-28	150	267		Outliers Log	1 idea event	1 outlier	8:55am-9:10am	15 min	(x-y)	lower word goal to accommodate 4th year dissertation markings
Thur	Mar-29	150	533		finished yesterday outlier entry, plus 1 new	finsihed yesterday's outlier entry, 1 idea event	1 outlier	9:00pm-9:15pm, 10:30-10:55	40 min	(x-y)	lower word goal to accommodate 4th year dissertation markings
Fri	Mar-30	150	0		none	none	none	none	0		lower word goal to accommodate 4th year dissertation markings
Sat	Mar-31	0									scheduled day off writing
Sun	Apr-01	0									scheduled day off writing
Mon	Apr-02	0									Easter holiday
Tues	Apr-03	0									no word goal to accommodate 4th year dissertation marking responsibilities
Wed	Apr-04	0									no word goal to accommodate 4th year dissertation marking responsibilities
Thurs	Apr-05	0									lower word goal to accommodate 4th year dissertation marking responsibilities
Fri	Apr-06	860	726		Ch 7-Word Triangulation Guidelines	academic text	none	9:45-10:45am	1 hr	(-x-y)	pulled up the word triangulation guidelines and dropped those in as the text in chapter 7 as I need to work with them today for a presentation for the MasterCard Scholars Program; not feeling great with abdominal pain
Sat	Apr-07	0									scheduled day off writing
Sun	Apr-08	0									scheduled day off writing
Mon	Apr-09	500	0		none	none	none	none	0		Day was a bit derailed with additional marking requests and triple checks for the tutor position
Tue	Apr-10	850	78		ch 2	academic text	none	none	1 hr	(-x-y)	Day a bit derailed by new position with/work for Mastercard Scholars program
Wed	Apr-11	0									Day dedicated to Mastercard Scholars Design Day meeting
Thur	Apr-12	500	787		ch. 1, ch. 2	academic text, edited lyric lines	none	12-12:30, 1:00-1:30, 2:00-2:50	1 hr. 50 min	(-x-y)	Not feeling well, but trying hard to get into the work again; editing and new writing in ch 2.1 plus dropped in fragments to 2.2 picked up more research yesterday and need to read if I am to keep writing in a linear fashion on Ch 2
Fri	Apr-13	500	251		outliers Log	1 idea event	1 outlier	7-7:30pm	30min	(x-y)	Feeling a bit better, slow to start…ulitmately decided to have a reading day and relax a bit because I need to pull more supporting statements for next writing section
Sat	Apr-14	0									scheduled day off writing
Sun	Apr-15	0									scheduled day off writing
Mon	Apr-16	0									delayed spring break holiday day; Dave and I disconnected in order to deal with the funding news
Tue	Apr-17	0									delayed spring break holiday day; Dave and I disconnected in order to deal with the funding news and make timeline/financial plans
Wed	Apr-18	850	682	ch 2, biblio	ch 2, biblio	academic text	none	9:30-11:50am, 4:45-6:00pm, 7:30-8pm	4 hr. 5 min	(-x+y) morning, (x-y) afternoon	decent writing day though a bit distracted with construction outside in the neighborhood and the difficult results from my funding application
Thur	Apr-19	850	755	ch 2, biblio	ch 2, biblio	academic text, lyric bits	none	9:45-12:15, 5:00-6:30pm, 8:40-9:00pm	4 hr. 20 min	(x-y)	I had a good writing day, something of an idea developed for the poem…I noticed I've referenced two children's stories…wonder if each chapter could have a story related to glass? Wonder if there are enough out there
Fri	Apr-20										I had to shift the schedule and take this day off in order to work on the Triangulation presentation for the MC Scholars Program
Sat	Apr-21	0									scheduled day off writing
Sun	Apr-22	0									scheduled day off writing
Mon	Apr-23	500	418	ch 1 and 2	edits ch 1, bibliography	academic text	none				not a real writing day…mostly formatting to get ready to print for supervisor hand-in and then adding entries to bibliography
Tue	Apr-24	500	324	ch 2	edits ch 1, ch 2	academic text	none	9:30-12:30	3 hrs	(x+y)	I had a good writing day in the morning, but spent most of the afternoon on printing and binding as I started to feel poorly
Wed	Apr-25	0	174	print and bind for supervisory mtg	bibliography	academic text	none	9:15-10:25	1hr 10min	(-x-y)	primarily printing and putting binders together
Thur	Apr-26	0		deliver printed copies for supervisory mtg							
Fri	Apr-27	0									tentative holiday dates for family visiting Scotland
Sat	Apr-28	0									scheduled day off writing

April - May 2018

Day	Date	Word Goal	#Words Written	Section Goal	Section Written	Content	Idea Events	Writing Hours	Time Spent	Affect/Valence Chart	Notes/Feelings on the Day
Sun	Apr-29	0									scheduled day off writing
Mon	Apr-30	0									tentative holiday dates for family visiting Scotland
Tue	May-01	0									tentative holiday dates for family visiting Scotland
Wed	May-02	0									tentative holiday dates for family visiting Scotland
Thur	May-03	0									tentative holiday dates for family visiting Scotland
Fri	May-04	0									tentative holiday dates for family visiting Scotland
Sat	May-05	0									scheduled day off writing
Sun	May-06	0									scheduled day off writing
Mon	May-07	0									tentative holiday dates for family visiting Scotland
Tues	May-08	500	569		ch 7.9	academic text	none	4:30-5:00pm	30 min	(-x+y)	cut and pasted observations from MCF scholars design day…needs editing attention; agitated because of issues with annual review
Wed	May-09	850	1107	Ch 7.5	ch 7.5	academic text	none	10:00-10:15	15 min	(-x-y)	cut and pasted writing fragment from innovative learning…needs much editing attention, but I need to do more reading today in order to do new writing tomorrow
Thur	May-10	850	1203		ch 7.6	academic text	none	9:45-10:10	25 min	(-x-y)	cut and pasted several writing fragments from the after the storm project…needs much editing attention, but I needed to give myself one more reading day…will write new words tomorrow
Fri	May-11	850	426		ch 2.2 and biblio	academic text	none	10:00am-12:pm, 4:30-5:10pm	2 hrs, 40 min	(-x-y)	had a difficult day writing, realised I still needed more research for this section, but regardless, just had trouble putting words to the page…week was long and I am still tired from the parent visit
Sat	May-12	0									scheduled day off writing
Sun	May-13	0									scheduled day off writing
Mon	May-14	850	679	Ch 2	Ch 2 and biblio	academic text	none	9:30-12:00pm, 4:30-5:30, 8:15-8:45	4 hours	(-x-y)	difficult writing but only because I've done the least work so far in terms of fragment writing for this section
Tues	May-15	850	605		Ch 2	academic text and 1 lyric line with notes	none	10-12pm, 3:00-4:30pm	3.5 hours	(-x+y)	distracted and not feeling well; Dave home sick, and writing routine interrupted
Wed	May-16	850	0	cut, paste frag ch. 5, see 1st yr rev, yest lyric note	none	none	none	none	0		traveled to Edinburgh for supervisors meeting and Mastercard Design Day debrief…was completely wiped out when I got home and had no energy or mental alertness for writing
Thurs	May-17	850	2992		463 ch7.9, 1032 ch.5, 1286 ch. 9, 211 ch.10	academic text	1 related to 3rd yr pres	9:30-12:00	2.5 hrs	(-x-y)	Still feeling beaten up and fatigued from yesterday, but had a lot of thoughts from the meeting and was able to pull quite a bit from previous fragments into chapters and found my driver for the 3rd year presentation
Fri	May-18	850	291	ch 2, koestler bit, more history	Ch 2just 2 lyric lines and their notes!	2 lyric lines and notes	none	10-11, 12:15-1:15, 2:40-3:10	2.5 hrs	(-x+y)	Still feeling crappy, like I am fighting something. Very distracted while trying to write today. Couldn't get into the academic text so I focused instead on the lyric.
Sat	May-19	0									scheduled day off writing
Sun	May-20	0									scheduled day off writing
Mon	May-21	500	287		ch 2, 3, biblio	academic text	none	9:15-10:30, 12:30-1:15, 7:30-8pm	2 hrs	(-x-y)	writing started well but was interrupted by a council tax issue and subsequent financial conversations all day
Tue	May-22	850	838		Ch 3, 6	academic text	none	10:00-11:15, 11:35-12:05, 5-5:30	2 hrs, 15 min	(-x-y)	writing well, just tired still from the hard financial conversations last night and finishing this afternoon
Wed	May-23	850	516		ch 9	academic text	none	11:00-12:30, 2:20-3:05	2 hrs, 15 min	(-x+y)	wasn't feeling well all day, slow start to writing and I was pretty agitated with flat issues
Thur	May-24	850	354		ch 9	academic text	none	11-12:30	1.5 hours	(x-y)	okay day with financial issues settling, but tough to stay on track writing as I was pushing to submit an entry for the St. Rollox artist call
Fri	May-25	850	0		none	none	none	none	0	(-x-y)	off the morning routine…started with financial conversations, then issues about first person/third person, then feeling sick…bad day and couldn't right the ship
Sat	May-26	0									scheduled day off writing
Sun	May-27	0									scheduled day off writing
Mon	May-28	850	837		ch 9	academic text	none	9:45-11:45, 3:50-5:20	3.5 hours	(x-y)	okay day of writing, no real distractions or issues from the day
Tue	May-29	850	321		ch 9	academic text	none	9:50-11:15, 4:40-5:30	2 hr 15 min	(-x+y)	writing started well but the mail came and with it a referral for a doctor appointment next week; I worried the test would cause issues for the upcoming planned holiday days; that threw me off and I looked more into the tests
Wed	May-30	850	39	ch 9	ch 9	academic text	none	10:10-11:50, 5:00-6:00	2 hrs, 30 min	(-x-y)	I deleted a lot of text today in the editing process of chapter 9, my new writing merely caught me up again, also anxious about the cancer screening Monday and not feeling well today

May - June 2018

Day	Date	Word Goal	#Words Written	Section Goal	Section Written	Content	Idea Events	Writing Hours	Time Spent	Affect/Valence Chart	Notes/Feelings on the Day
Thur	May-31	850	658	ch 9	ch 9	academic text and 1 idea event	1 direct delta	10:10-11:20, 11:45-12:45, 3:40-4:40	3 hrs, 10 min	(-x-y)	very slow going today with not feeling well, but I kept at it all day, editing ch 9 and writing new
Fri	Jun-01	850	768	ch 9	ch 9	academic text, 2 lyric lines with notes, 1 idea event	1 direct delta	10:15-11:45, 1:15-3:05	2 hrs, 20 min	(-x-y)	slow start to the day not feeling well, but I enjoyed the writing; interruptions from the electrician appointment was problematic, but I think my mind jumping around allowed for the lyric and the idea event
Sat	Jun-02	0									scheduled day off writing
Sun	Jun-03	0									scheduled day off writing
Mon	Jun-04	850	158		ch 9 and ch 3	lyric lines	none	10:45-12:45	2hrs	(-x+y)	wasn't feeling well all day, especially in the morning, so a slow start to writing; then news of necessary biopsy for Wednesdsay
Tue	Jun-05	850	60		ch 3	lyric lines	none	10:10-12:10	2 hrs	(-x-y)	distracted with biopsy tomorrow; also needed to focus time on other things around the house that I won't be able to do for the next few days
Wed	Jun-06	850	0		none	none	none	0	0		biopsy day
Thur	Jun-07	850	482		ch 9 and ch 3	lyric notes	none	10:30-11:30, 1:50-2:40	1hr 50min	(-x-y)	lyric lines were okay to write today just couldn't spend a lot of time at the computer and fell asleep before finishing
Fri	Jun-08	850	-403		ch 9, ch 3, glossary, bibliography	academic text, lyric notes	none	11:15-12:30, 2:00-4:30	3 hrs 45 min	(-x-y)	I realised that I needed to pull a lot of the lyric note writing and move it into the glossary, so while I wrote new words, the words I pulled out negated some of that; loud construction all day made writing very painful
Sat	Jun-09	0									scheduled day off writing
Sun	Jun-10	0									scheduled day off writing
Mon	Jun-11	0									planned holiday
Tue	Jun-12	0									planned holiday
Wed	Jun-13	0									planned holiday
Thur	Jun-14	0									planned holiday
Fri	Jun-15	0									planned holiday
Sat	Jun-16	0									scheduled day off writing
Sun	Jun-17	0									scheduled day off writing
Mon	Jun-18	500									
Tues	Jun-19	850		chapter 9							
Wed	Jun-20	850									
Thur	Jun-21	850									
Fri	Jun-22	850									
Sat	Jun-23	0									scheduled day off writing
Sun	Jun-24	0									scheduled day off writing
Mon	Jun-25	850									
Tues	Jun-26	850									
Wed	Jun-27	850									
Thur	Jun-28	850									
Fri	Jun-29	850									
TOTAL	**END JUNE**	**47,892**	**31,846**								

Independence-and-Bipolarity-in-the-Structure-of-Current-Affect.pdf 4 / 18

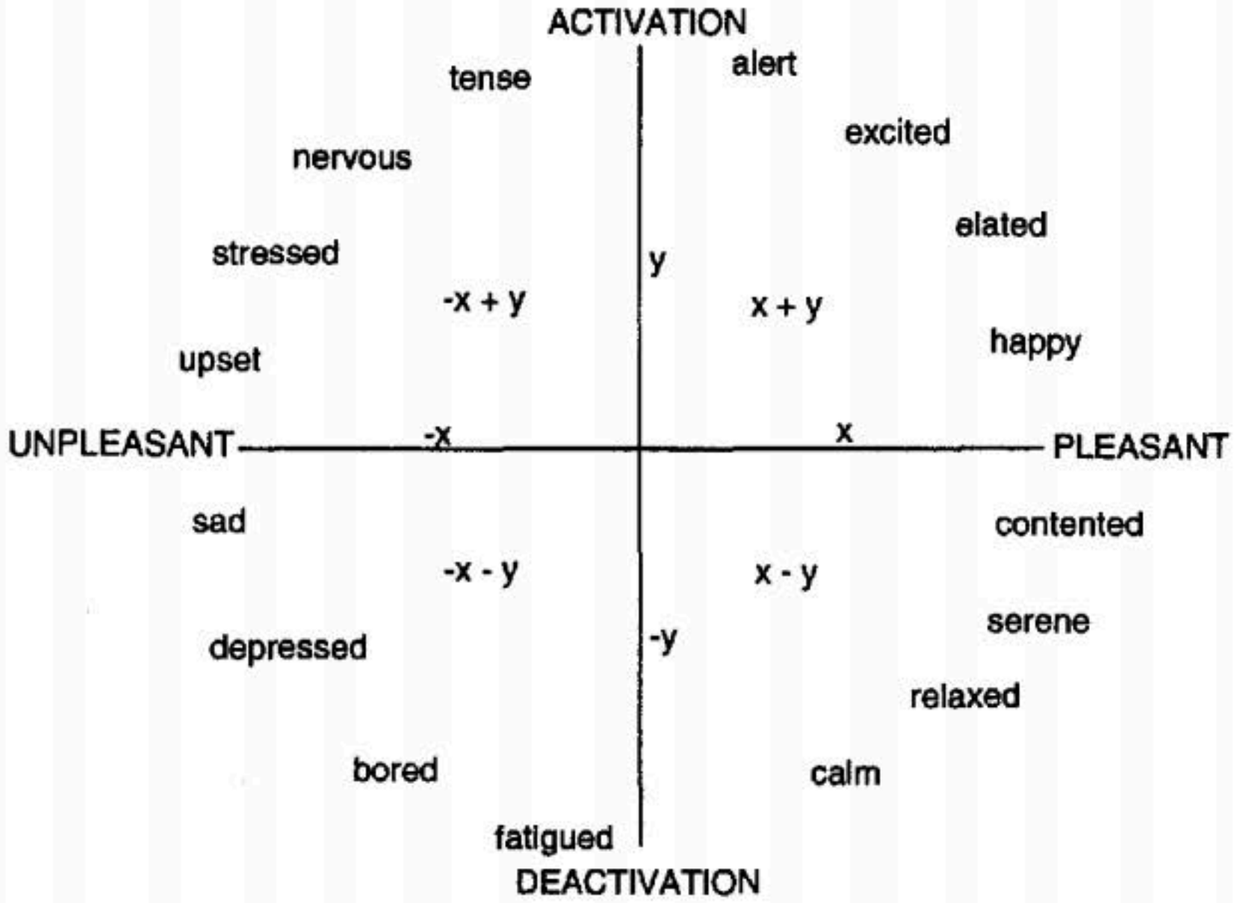


Figure 1. A semantic structure of affect. The letters x and y represent semantic components: x = pleasantness; y = activation.

Appendix R.
Early Draft Abstract with Notes

ABSTRACT (written 15 Sep)

My PhD project is practice-based, consisting of a written dissertation along with design outputs which support the dissertation writing and serve as primary resources of information. My research identifies and articulates essential elements of the creative process, focusing on the period just before the idea is formed. These elements include association, combination, exaptation, and analogical thinking. Through my unique, practice-based method that embeds insights of design research back into the process itself, I exploit these elements within my designs to develop a new ideation aid ▽C for students and myself and a new creative form for the written PhD dissertation. As words and language are crucial to idea production, I employ a lyric inquiry as described by Zwicky (2013) and Neilson (2008) within my , coupled with a scholartist's approach as expressed by Knowles, J., Promislow, S., and Cole, A. (2008).

Specifically, I designed and tested an ideation aid called "Word Triangulation" to facilitate studio idea production for myself and other students. and qualitative research methods (studio testing, questionnaires). From my studies, it appears that association, combination, exaptation, and analogical thinking are central to the creative process and ideas; words and language are crucial to idea production. As I discuss in the Context section, critical research and theories in this area feature prominently in fields outside of the arts such as psychology and education, (Koestler 1964, de Bono 1988 and 2007, Csikszentmihalyi 2007, Sternberg 1999), business (Johannson 2004), advertising (Young 2003), cognitive science (Boden 2004, Holyoak and Thagard 1999), mathematics (Hadamard 1954, Sriraman 2009), and neuroscience (McPherson and Limb 2013). Designer Nigel Cross has contributed key research as well (2011).

Written December 8

Aiming to facilitate idea generation for university-level, student artists and designers, this practice-based research project identifies and explores key elements of the creative process. The research focuses on that period of the process that occurs just before an idea for studio is fully formed. The central argument of this thesis is that association, in various aspects and states, is fundamental to creative ideation. Through lyric inquiry and a phenomenological method acting approach, the author undertakes practical work to incorporate associative elements into both the design process and the design outputs, hypothesising that this will encourage and facilitate the ideation process.

The project is comprised of a literature review, a new studio brief and its potential application for reflexive practice, the author's new design for an ideation tool and case studies of its use by students, auto-ethnographic accounts of creative ideation by the author, a glass and sound material exploration of metaphor, and a written thesis that challenges traditional dissertation design. The literature review reveals that aspects of association (called by different names in different fields) are present in critical studies and theories of creativity, ideation, and innovation across disciplines as diverse as psychology, advertising, business management, and literature among others. This thesis repositions such theories as Koestler's "bisociation" theory (1964), Johansson's "Medici Effect" (2004), de Bono's "lateral thinking", Johnson's "adjacent possible" and "exaptation" (2010), and Zwicky's metaphor (2013) under a general, umbrella theory of association in the creative ideation process, underscoring the connection between new ideas, creativity, and innovation. It also highlights how words and relationship awareness can be critical to idea formation. There are few design processes which emphasize words and association as part of the actual design making-practice. Words, text, and lyric writing are therefore focal points within the project outputs and in designs for my "Word Triangulation". It examines creative ideation from a design thinking perspective, incorporating and tests the findings within practical designs to facilitate idea generation.

, art and design outputs, and studio experiments with student focus groups, I posit that association is fundamental to creative ideation and is present by various names in creativity theories across disciplines. My thesis will discuss how these various associations operate in early creative ideation and it will collate them under an umbrella theory. By incorporating these creative associations into my designs, I also examine the theory at work. The final submission for this practice-based PhD (where artistic outputs accompany thesis writing) will include "Word Triangulation", my new, ideation tool for students, which exploits these associations by design. Befitting my subject of creativity, I will also challenge traditional thesis writing and execute a new design form incorporating my lyric writing within the written submission.

Critical research in creativity and ideation feature prominently in fields outside the arts, such as psychology and education, (Koestler 1964, de Bono 1988, Csikszentmihalyi 2007, Sternberg 1999), business (Johannson 2004), advertising (Young 2003), cognitive science (Boden 2004, Holyoak and Thagard 1999, McPherson and Limb 2013), and mathematics (Hadamard 1954, Sriraman 2009). Studies in these fields observe artists, designers, and their creative processes from the outside, often through researcher analysis of recorded observations. Designer Nigel Cross contributed key studies (2011), but also through similar methods. Research into creativity needs the insider's perspective, developed through practical art and design outputs and the thinking methods of creative practice. Using my interdisciplinary glass studio, my PhD project is uniquely poised to fill this research gap and make ideation more student accessible.

Words, text, and lyric writing are therefore focal points within my project outputs and in designs for my "Word Triangulation".

“Word Triangulation” is my new ideation/visualization tool to aid concept generation for students. It fits in the realm of mapping tools used by design students (Buzan 1994), but differs in form and function as a tool of ideation rather than organization. University students participated in pilot studies using “Word Triangulation” as part of their ideation process for designing glass objects. Six workshops tested the tool and examined individual and collaborate use. I collected feedback on participant experiences through surveys, interviews, and the physical “Word Triangulation” map-sketches. Together they will comprise my analysis of the new tool with early results showing benefit to students for generating ideas.

The insights gathered from these studio experiments and from my literature research are informing my developing design for my written PhD dissertation. The design will incorporate associative elements culled from my research, but will conform to thesis regulations required by the University of Edinburgh. While upholding University parameters, it will break with tradition (in appearance and writing) to reflect my subject matter and demonstrate a creative process by using the premise of my “Word Triangulation” tool. It will incorporate my lyric writing about glass and document my idea events to punctuate the traditional academic project text. The lyric writing will complement, enhance, emphasize, provoke, and offer varying perspective on the project. Essentially, the thesis design will combine my art and scholarship following “Scholartistry”, fusion of artistic inquiry and scholarship, a developing genre of practice-based research expressed by Knowles, J., Promislow, S., and Cole, A. (2008). My project, with its new creative methods and “other” viewpoint, ultimately follows on feminist writings and studies, which first pushed alternative scholarly perspectives on traditions (Parker and Pollock 2013, Murray 1994, Cixous 1976).

As a designer researching within creative practice through artistic outputs and design prototypes, I will be contributing a new perspective to the research on creativity and ideation. My original ideation tool “Word Triangulation”, my creative thesis design, and the compilation of association theories in creativity and idea generation are all new knowledge contributions to creative process research. If results from “Word Triangulation” pilot studies are positive and beneficial to students, then my project could be a case study for encouraging the application and incorporation of association/creativity elements into design tools.

Appendix S.

Spectacles for the Black Box Thesis

Finished *Spectacles*, Images by Cubitts

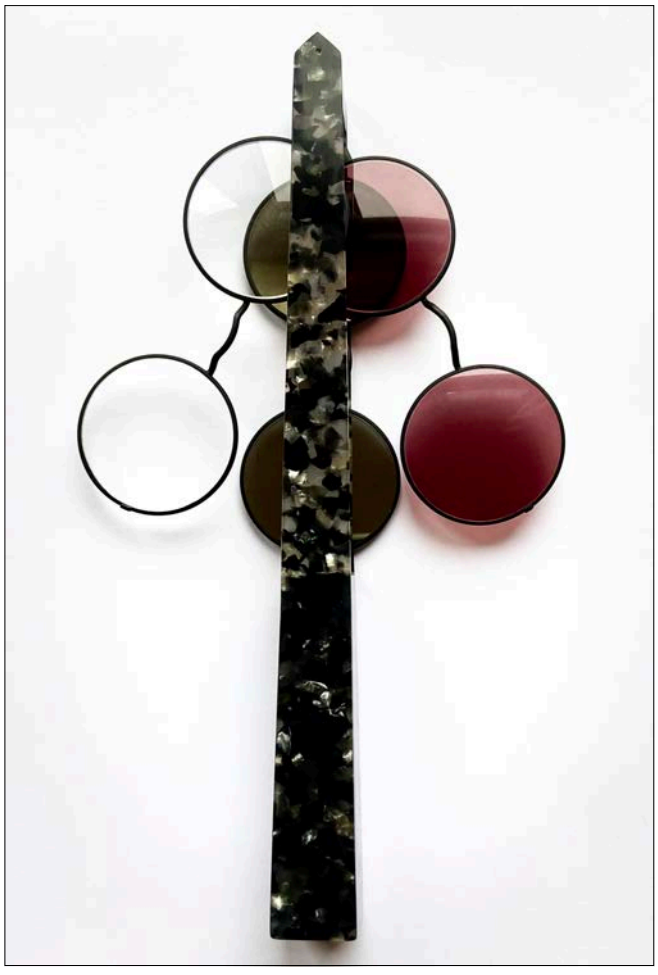




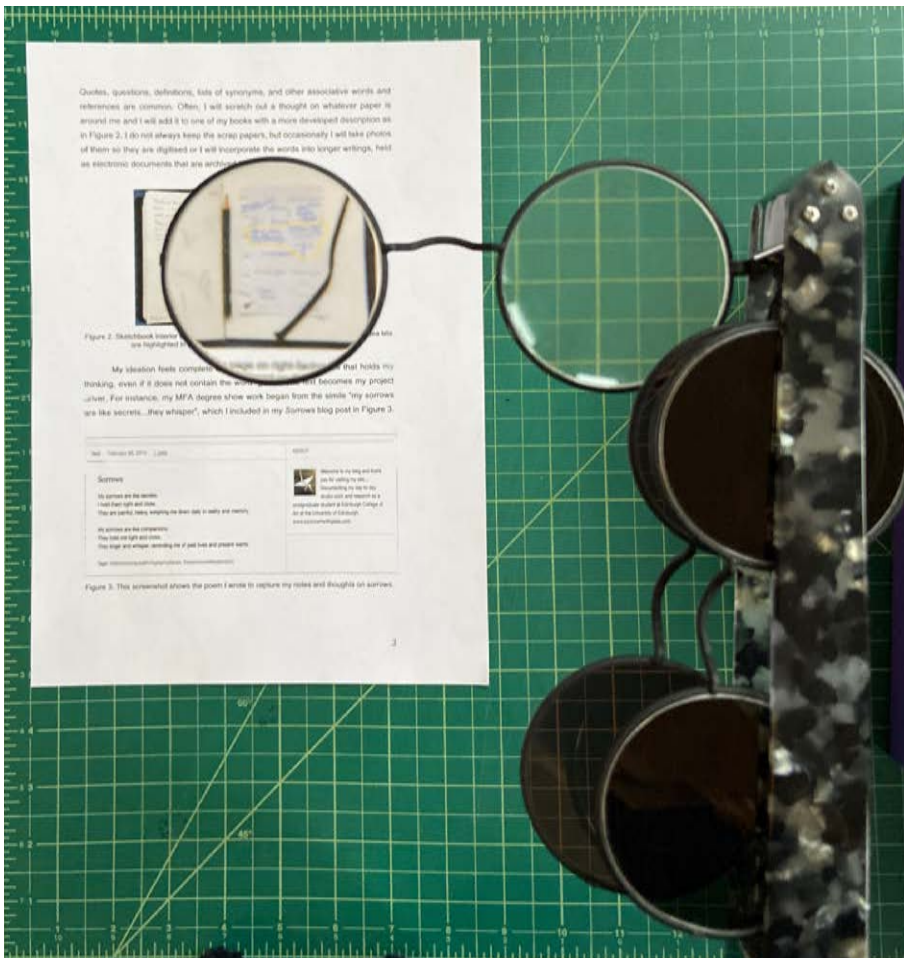




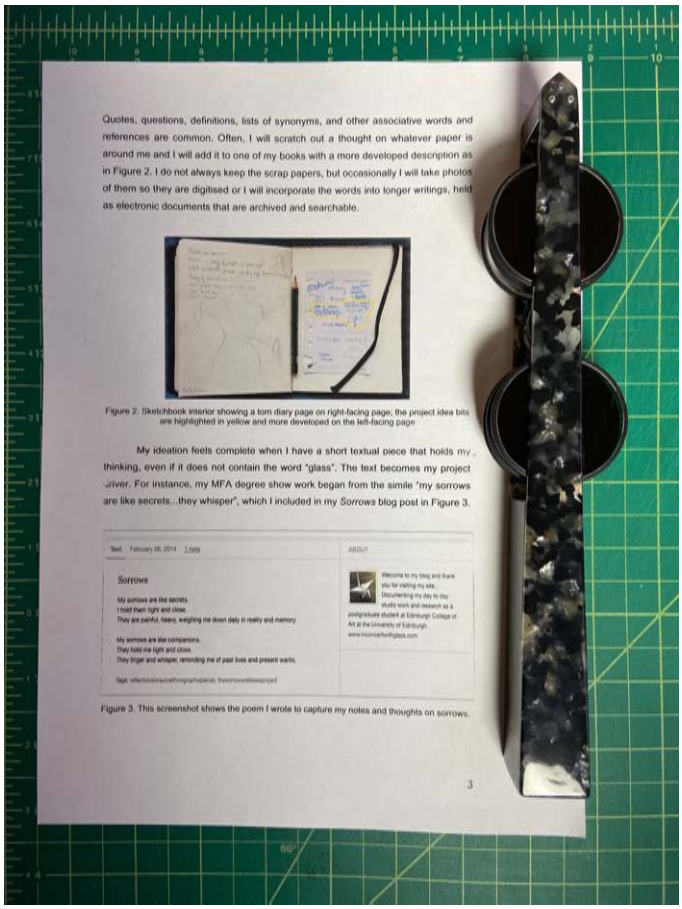
My image of the finished piece

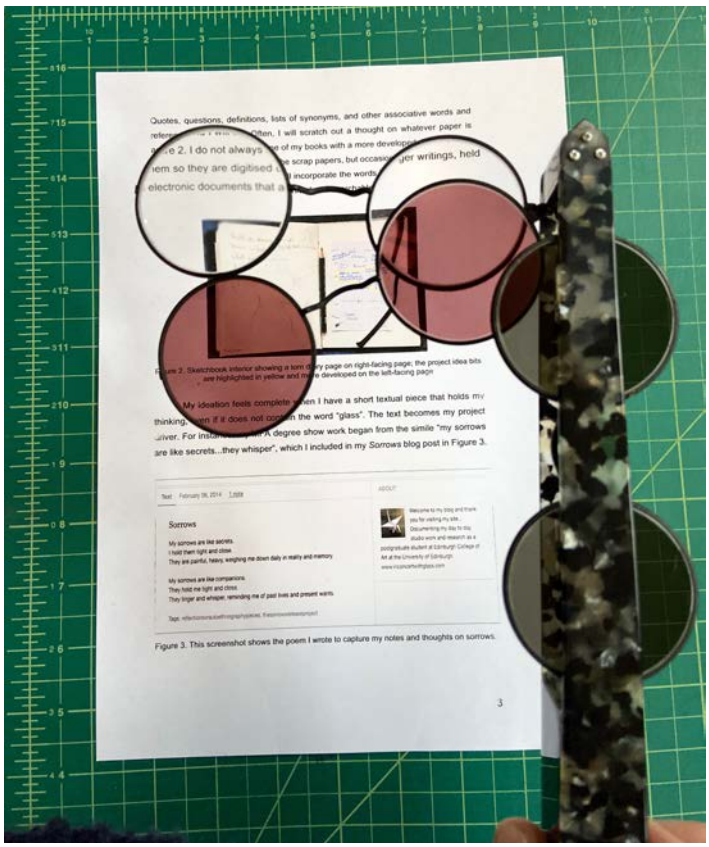


Using Spectacles (my images)

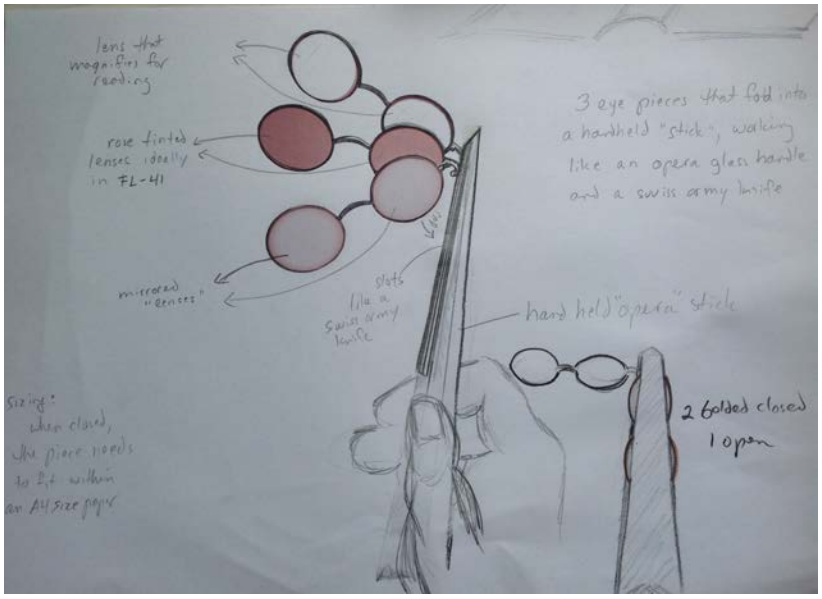


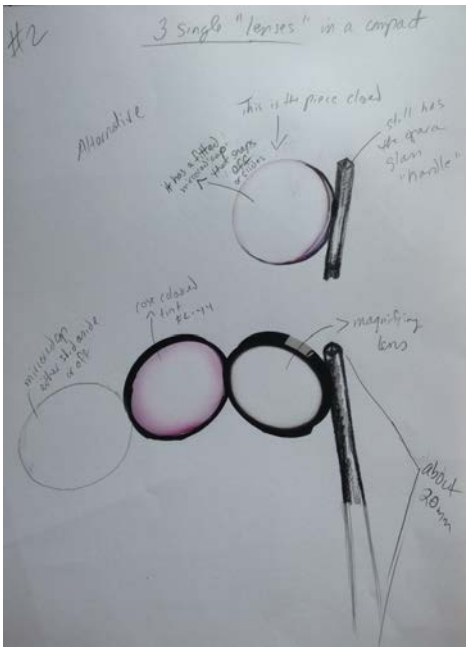



Quotes, questions, definitions, lists of synonyms, and other associative words and references are common. Often, I will scratch out a thought on whatever paper is around me and I will add it to one of my books with a more developed description as in Figure 2. I do not always keep the scrap papers, but occasionally I will take photos of them so they are digitised or I will incorporate the words into longer writings, held as electronic documents that are archived and searchable.
Figure 2. Sketchbook interior showing a torn diary page on right-facing page; the project idea bits are highlighted in yellow and more developed on the left-facing page
My ideation feels complete when I have a short textual piece that holds my thinking, even if it does not contain the word "glass". The text becomes my project driver. For instance, my MFA degree show work began from the simile "my sorrows are like secrets...they whisper", which I included in my Sorrows blog post in Figure 3.
Sorrows
My sorrows are like secrets.
I hold them tight and close.
They are painful, heavy, weighing me down daily in reality and memory.
My sorrows are like companions.
They hold me tight and close.
They linger and whisper, reminding me of past lives and present wants.
Figure 3. This screenshot shows the poem I wrote to capture my notes and thoughts on sorrows.
3

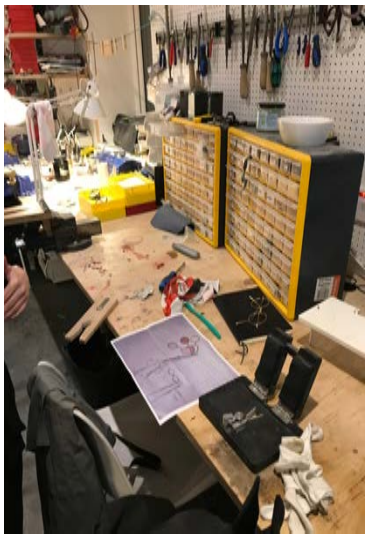

Quotes, questions, definitions, lists of synonyms, and other associative words and
Often, I will scratch out a thought on whatever paper is
writings, held
Figure 2. Sketchbook interior showing a torn diary page on right-facing page; the project idea bits are highlighted in yellow and more developed on the left-facing page
My ideation feels complete when I have a short textual piece that holds my
thinking, even if it does not contain the word "glass". The text becomes my project
driver. For instance, my MFA degree show work began from the simile "my sorrows
are like secrets...they whisper", which I included in my Sorrows blog post in Figure 3.
Sorrows
My sorrows are like secrets.
I hold them tight and close.
They are painful, heavy, weighing me down daily in reality and memory.
My sorrows are like companions.
They hold me tight and close.
They linger and whisper, reminding me of past lives and present wants.
Figure 3. This screenshot shows the poem I wrote to capture my notes and thoughts on sorrows.
3

Spectacles in Process: Sketches (my images)

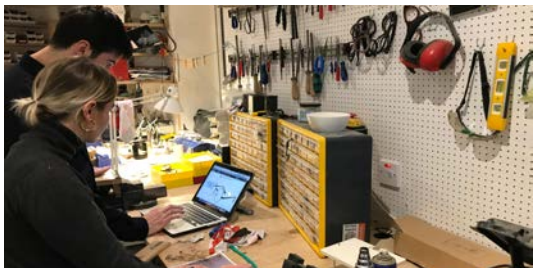


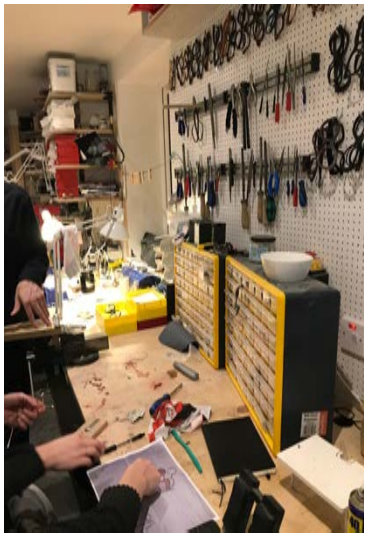


Spectacles in Process: Cubitts Workshop Site Visit, Images by David Faleris

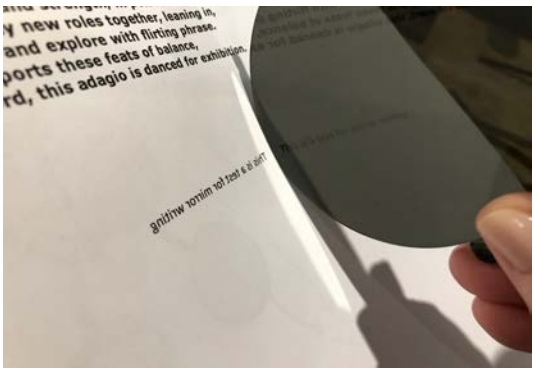


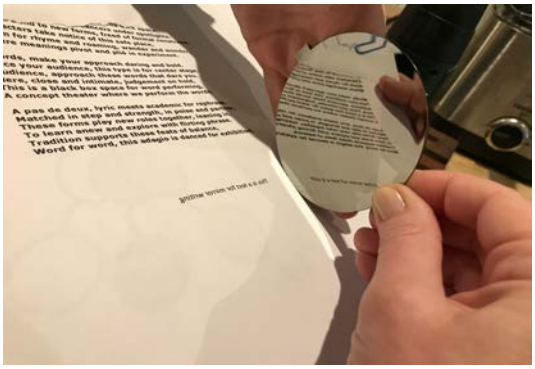


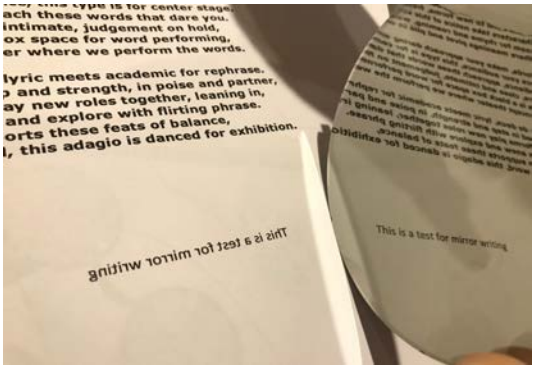




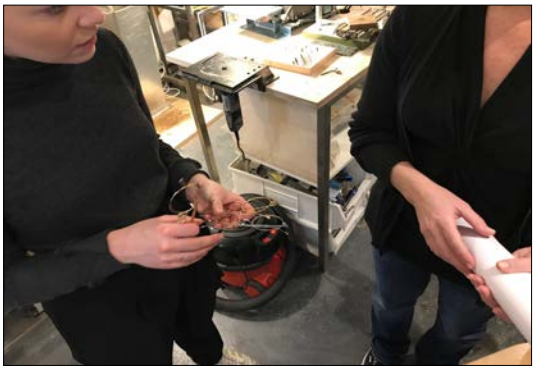








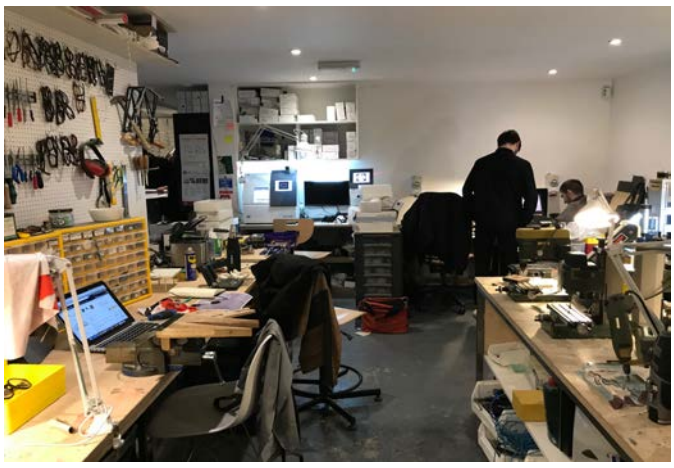






















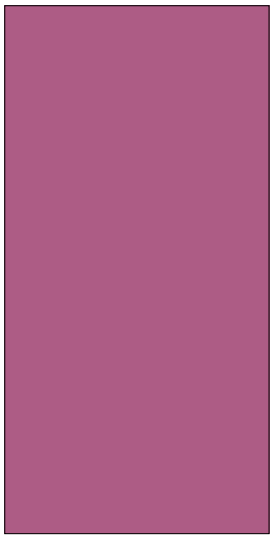


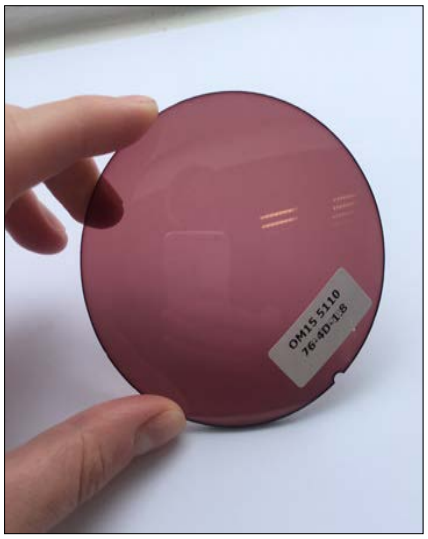




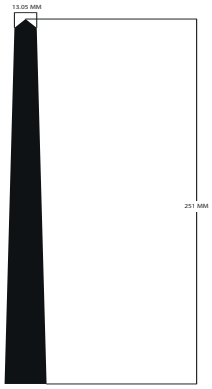


Spectacles in Process: Production, Images by Cubitts except for colour swatch and my initials















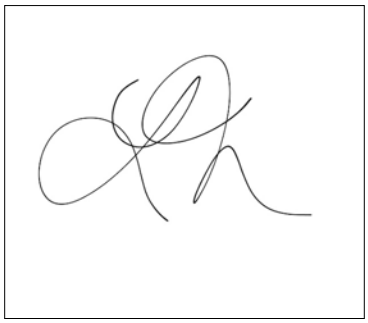


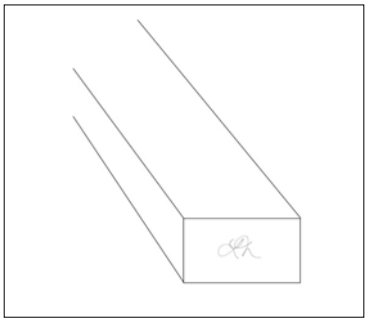












From: **Cubitts Bespoke** bespoke@cubitts.co.uk
Subject: Optical piece to accompany your work
Date: 8 October 2018 at 5:41 pm
To: [redacted]

CB

CUBITTS

BESPOKE

Dear Lisa,

Our Customer service passed on your enquiry to us here at the Bespoke Team.

It's lovely to hear from you, what an intriguing proposal.

One half of our Product Team also studied at University of Edinburgh/ECA, graduating from the Product Design BA a few years back, so you're in good company here!

It would be great to see your idea. Do you have some sort of sketch or drawing of the piece you have in mind? Then we can better advise on how our design and workshop team may be able to help.

We do have set pricing for our bespoke service, however this sounds like something we may need to consider on an individual basis.

Best wishes,
The Cubitts Bespoke Team

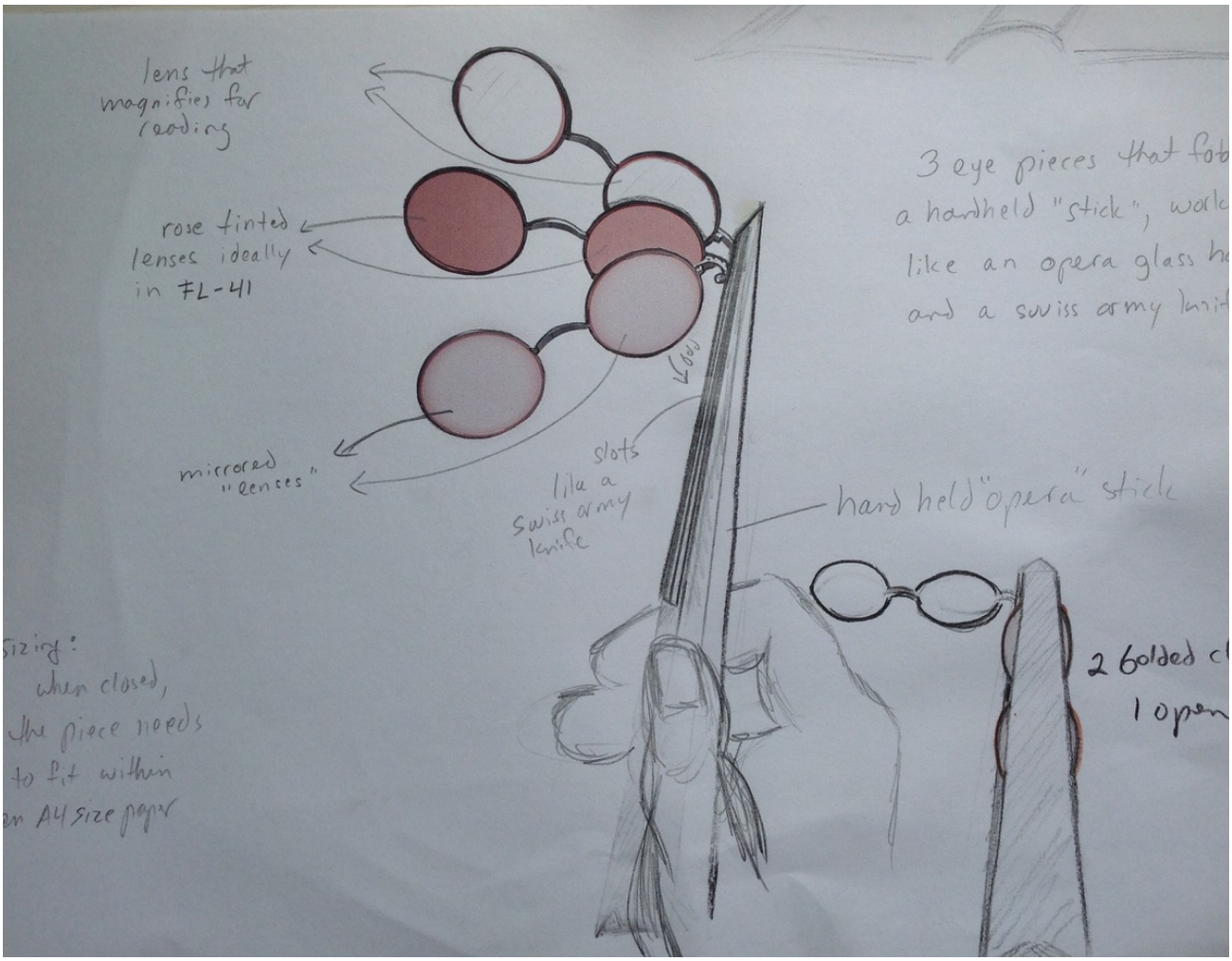
From: **Lisa Naas** [redacted]
Subject: Re: Optical piece to accompany your work
Date: 11 October 2018 at 4:36 pm
To: Cubitts Bespoke bespoke@cubitts.co.uk

Hello Cubitts Bespoke,
Thank you again for considering my proposal. I've attached a sketch of the design I would like to have made. Hopefully it makes some sense on its own. But if you are open to further discussion with a view towards making the piece with me, then I would love to plan a day to meet you in person and talk through it. I have an alternate design should this one prove too problematic, but I think this is the better of the two.

As a completed design object, the piece will be fitted into the inside front cover of my thesis book and will have both practical and metaphorical implications in the reading of my PhD writing (which is on the creative process, idea generation, and the role that glass has played in innovation). I will likely need a duplicate object made as ultimately, I think I need to submit two copies of my book to the University.

Please let me know what you think…I am hoping we have the chance to work together!

Best,
Lisa



> On 8 Oct 2018, at 5:40 pm, Cubitts Bespoke <bespoke@cubitts.co.uk> wrote:
>
> <email banner.png>
>
> Dear Lisa,
>
> Our Customer service passed on your enquiry to us here at the Bespoke Team.
>
> It's lovely to hear from you, what an intriguing proposal.

> One half of our Product Team also studied at University of Edinburgh/ECA, graduating from the Product Design BA a few years back, so you're in good company here!
>
> It would be great to see your idea. Do you have some sort of sketch or drawing of the piece you have in mind? Then we can better advise on how our design and workshop team may be able to help.
>
> We do have set pricing for our bespoke service, however this sounds like something we may need to consider on an individual basis.
>
> Best wishes,
> **The Cubitts Bespoke Team**

From: **Cubitts Bespoke** bespoke@cubitts.co.uk
Subject: Re: Optical piece to accompany your work
Date: 23 October 2018 at 9:30 am
To: [redacted]

Hi Lisa,

Apologies for the delay in getting back to you.

This is a unique piece of work and we wanted to discuss different possibilities before getting back to you. We propose using pre-existing metal frame fronts and creating an acetate opera handle to house them, as per your original sketch.

As you can understand, this will take some time to produce, and our workshop is busy at the moment, but we would love to help you with this. I'm unsure of what your budget is, but we would be able to produce this for £400 - our usual bespoke frames are £725+, so this is a significantly discounted rate for a true one off optical piece.

What we need to know form you is, approximate dimensions and any other specification you may have and also your deadline. The metal fronts also may not be exactly the style you have pictured, but we will try and match them - would it be a problem if we cannot match the oval aperture and 'w' bridge?

Out of interest, what is your thesis subject? We're all very intrigued!

Looking forward to hearing from you soon.

Best wishes,
Hayley

On Wed, 17 Oct 2018 at 11:55, Lisa Naas [redacted] wrote:

> Hello again,
> I was wondering if you have had the chance to take a look at my sketch for the optical piece to accompany my PhD thesis? Do you have any thoughts on the project in terms of potentially moving forward with me to create the piece?
>
> Thank you again for your consideration and I do hope to hear from you,
> Lisa

From: **Lisa Naas** [redacted]
Subject: Re: Optical piece to accompany your work
Date: 23 October 2018 at 4:00 pm
To: Cubitts Bespoke bespoke@cubitts.co.uk



Hello Hayley,
This is wonderful! And very exciting :-) Thank you for the email and the interest in continuing the project conversation with me!

I imagined that the piece would require some time; it's one of the reasons I reached out early to you. I am still in the writing process for my thesis and this piece will be fitted within the book and submitted altogether. I am planning/hoping to submit in the late spring/early summer. That's my goal anyway, so I do not yet have a firm deadline as I need to see how the next couple of months go with my writing. Hopefully that would give you plenty of time for it as I do have some flexibility.

I think the budget of £400 for the piece is fantastic as I recognise that this is a significant discount…thank you!

In regard to the frames, I am okay if the oval aperture and "w" bridge can't be matched exactly. It would be good to be able to see what substitute/style you had in mind but I am quite open with the design and its production in order to realise the piece. The most important aspects of it would be the three types of "lenses" and the handle that would reference an opera glass handle. For the three lenses, I do want one set to magnify, one set that does not magnify but is tinted ideally with the F1-44 rose tint, and one set that isn't actually a lens set but a set of mirrors.

Thank you for asking about my PhD…for my doctoral work, I have been researching the creative process and the point in the process just before the idea is generated for a studio project. I am looking at how creative ideas come together. I have also been pushing to turn the research process into a creative process and that includes the end point with the writing. My aim is to turn my thesis book into an artists book. On pages opposite my academic writing, I tell a story about glass and glass concepts to show how the history of the material and its innovative use reflects humankind's creativity. So this tool is a type of aid for the reader offering both practical and metaphorical perspectives during the course of reading the book.

I have a meeting with my supervisors next Wednesday 31 October where we will be discussing this piece and the regulations about the binding of the book and how I will go about incorporating this. Afterward I can provide more specific dimensions and perhaps some other written details that could be helpful.

I am guessing you and the Bespoke team will likely be pretty busy through the holidays? Is a visit with you at your studio possible do you think? Or would it make sense to plan a visit to you after the holiday period, when things settle a bit?

Thanks so much for the conversation…I am excited about the possibilities and looking forward to working with you!
Kind regards,
Lisa

From: **Cubitts Bespoke** bespoke@cubitts.co.uk
Subject: Re: Optical piece to accompany your work
Date: 23 October 2018 at 4:53 pm
To: [redacted]

CB

Hi Lisa,

Very exciting indeed!

I'll ask our workshop about their availability, but I'm sure we can fit in a visit before Christmas to show you around, discuss your concept and select materials. Perhaps it would make more sense for your visit to come after you have finalised the design as much as you can, to make the trip more efficient and worthwhile. In which case, can you let me know when you would like to visit us, bearing in mind our workshop is open between 10am and 6pm weekdays.

It just so happens that we will shortly be releasing a metal oval style with a 'w' bridge that matches your idea, but we would need to use 3 stock frames which retail at £125 each - so this isn't the most economical route but certainly one we can consider and discuss during your visit. Otherwise, we have a selection of other metal frames we could potentially use.

That's no problem for the lenses, we have reading prescription lenses in stock ready to glaze and we can order in any custom tint you require, including your specified rose colour tint. We have flat, mirrored lenses that would work for the mirror frame, using an actual glass mirror piece may be more difficult, but again something we can discuss when you visit.

As for your deadline, I'm glad we have plenty of time! Once the design and details have been finalised after your visit, we should allow around 10-12 weeks for the making process, just to be safe, in order to fit in with our workshop schedule and allow time in case we come across any difficulties we need to overcome. Something to bear in mind for your deadline.

Thanks for sharing the details of your PhD subject, it sounds fascinating and very ambitious!

Look forward to hearing from you soon.

Best wishes,
Hayley

From: **Cubitts Bespoke** bespoke@cubitts.co.uk
Subject: Re: Optical piece to accompany your work
Date: 14 November 2018 at 9:30 am
To: [redacted]

Hi Lisa,

Apologies for the delayed response, I have been on annual leave.
I think around 25cm length for the handle should work well, as most of our metal frames are between 132mm and 136mm wide, which would give us enough room to fit them into the handle and plenty of room to hold the piece.

In terms of thickness, this will depend on the frames we use and how many layers of acetate we will need to laminate, in order to fit the frames in and give them enough clearance for rotation. I imagine this will be thicker than 25mm, but we can always shape the handle part so it isn't as thick and is more ergonomic. We should have transparent acetate in stock (I would need to check we have big enough sheets for this), however I would strongly suggest not using this, as we will need to laminate the acetate multiple times, you will inevitably see the joins and air bubbles between the layers - which will look unsightly. You would not need to worry about this with another semi transparent or solid acetate, as the makers will be able to buff and polish the acetate edges so the joins will almost be invisible.

But again, we discuss this in more depth with the spectacle makers during your visit on the 4th.

Best wishes,
Hayley

On Fri, 9 Nov 2018 at 16:52, Lisa Naas [redacted] wrote:

> Hello Hayley,
> I've been thinking about the swiss army/opera handle piece. I think the maximum length for incorporating it within my book would be 25cm. Maximum thickness is a bit harder to offer as I really want to give you flexibility. I think 2 to 2.5 cm would be optimal, but I am open as I don't know how much material/space you might need in order to enable the frames to slot through or fold into the handle. In terms of colours, I am still quite unsure…I think I need to see the range you have. I've been thinking about having it as a clear, see-through material (if you have that) to see the folding and mechanisms inside. But I have also been considering the origins of both the opera handle and the swiss army knife (thinking how opulent the one was and how utilitarian the other and how the materials of the making corresponded to their uses) and wondering how to incorporate that into the colour choice as well.
>
> I will keep thinking, but I hope the dimensions are helpful to get you started!
>
> Have a nice weekend,
> Lisa
>
> > On 2 Nov 2018, at 11:46 am, Cubitts Bespoke <bespoke@cubitts.co.uk> wrote:
> >
> > Good morning Lisa,
> >
> > That's great, 4pm on Tuesday December the 4th is now confirmed. You will be meeting with myself, Designer, and Romain, Production Manager.
> >
> > If you can give us a maximum size for the handle length, we will propose the specific dimensions as this will depend on a number of factors, including the pre-made metal frames we use and ergonomically what we believe will work best from experience (we have made opera handle frames before). But if you have any boundaries you need to stick within or any other specifics, do let us know. Otherwise, we're happy to judge this ourselves and can show you the design, printed to scale, during your visit on the 4th so we can discuss and finalise.
> >
> > If you don't have any specific colours in mind, we have a mixed range of larger sheets of acetate we can use to make the handle for you to select during your visit. These include more classic turtle shell and havanas, some other patterns and mono colours and of course, black.
> >
> > I'll let you know if we need to consider anything else beforehand.
> >
> > Have a lovely weekend too.
> >
> > Best wishes,
> > Hayley
> >
> > On Fri, 2 Nov 2018 at 08:53, Lisa Naas <[redacted] wrote:
> > > Good Morning Hayley,
> > > We booked train tickets for 4 December…so we're all set to go. Could we please plan on a 4pm meeting that day? All sounds just fine with the pricing for the two pieces. Aside from determining the size of the "opera handle" and an estimate on how wide I'd like the frames, is there anything else not in my sketch that you think I should be thinking about for our meeting? Looking forward to it all!
> > >
> > > Have a good weekend,
> > > Lisa

From: **Lisa Naas** [redacted]
Subject: Re: Optical piece to accompany your work
Date: 5 December 2018 at 10:06 am
To: Cubitts Bespoke bespoke@cubitts.co.uk



Hello Hayley,
It was wonderful to meet you and Romain too…thank you so much for all the time you took with me for the piece and for showing us around your workshop. Seeing the acetate and the mirrored lens and talking to you in person about it all was a really good experience and I think important to getting on the same page about the work. I appreciate it!

When we get back to Glasgow tonight, I will look up those articles on the tint and will send them along to you tomorrow. I am looking forward to seeing your drawings and acetate options.

For the deposits, should I just plan to call in to your studio with a credit card number then? Maybe the second week in January?

Thanks again!
Talk to you soon,
Lisa

> On 4 Dec 2018, at 5:44 pm, Cubitts Bespoke <bespoke@cubitts.co.uk> wrote:
>
> Hi Lisa,
>
> It was a pleasure to my you this afternoon, thank you for taking the time to visit our workshop - it was very useful to kick start your piece and understand exactly what you're wanting.
>
> The next step is for us (Romain and me) to do some more research on the specific elements, such as the tint and the frame mechanism, before we break up for the holidays. I will also work on some drawings for the piece which I will send over to you on or before the 21st along with some different options in terms of the frames themselves and the placement of the triangle engraving. We'll also send over your acetate options as images, including mock tortoiseshells/havanas, black and (your selected) Black pearl havana acetates for your consideration.
>
> As I say, we're happy to start working on this and take a deposit for the two pieces in the New year. Each piece is £400 and we would require £250 for each in January with the remaining balance due on collection. I hope this arrangement works for yourself.
>
> Have a great stay in London and we'll be in touch soon.
>
> Best wishes,
> Hayley

From: **Cubitts Bespoke** bespoke@cubitts.co.uk
Subject: Re: Optical piece to accompany your work
Date: 18 December 2018 at 10:00 am
To: Lisa Naas [redacted]

Hi Lisa,

Sorry for my slow reply. Of course, I can put you in touch with the Institute of Optometry who are the ones who have the account with the specialist lens manufacturer, as I say, you can order the lenses through them if you'd like to proceed as they have an account with the manufacturer.

If you'd like to get in touch with our Lead Optometrist to hear her thoughts, her name is Jewlsy Mathews and her email is jewlsy@cubitts.co.uk. I have spoken with her about your piece and she's aware you may be in contact at some point.

Speak in the new year, have a wonderful Christmas.

Best wishes,
Hayley

On Thu, 13 Dec 2018 at 11:50, Lisa Naas [redacted] wrote:

> Hi Hayley,
> No worries! Thank you for looking into the FL-41 tint. I do like the idea of talking to the lens manufacturer to discuss making the lens to order for the FL-41 tint. If it is not prohibitively expensive, then I think I would prefer to have that. If it is just too much, then your thought of tinting for a close match should work for my purposes. So yes, we can follow up in the New Year and you can put me in touch by phone with the lens manufacturer you mention. And yes also to talking with your Optometrist…that could be interesting. (I am aware that there isn't much by way of clinical trials and peer-reviewed information, but I thought there was enough out there that I could point to as a double meaning/use for the rose-coloured lens).
>
> Thank you for looking into everything on my behalf!
> All is fine to pick up in the New Year as you suggest, so I will be in touch early January to provide my credit card info and such.
>
> I hope you have a lovely holiday season!
> Talk to you soon,
> Best,
> Lisa
>
> > On 11 Dec 2018, at 3:30 pm, Cubitts Bespoke <bespoke@cubitts.co.uk> wrote:
> >
> > Hi Lisa,
> >
> > Apologies for my delayed response, we've been looking into the FL-41 tint. This lens is not readily available, only through specialist lens suppliers. it's similar to what is referred to as a PTL or precision tinted lens, but not quite the same. Our Optometrist has been in touch with the Institute of Optometry, who have an account with a lens manufacturer who can make this lens to order, if this is something you're interested in we can put you in touch with them via phone to arrange the order on your behalf, perhaps next year when your pieces are nearing completion.
> >
> > The alternative is we can order a custom pink tint lens, to be a close match to the FL-41 tint in appearance. This depends on the nature of the piece in relation to your thesis.
> >
> > Just as a side noteand incase you're interested to know, our Lead Optometrist isn't convinced about the efficacy of the FL-41 tint, mentioning there is little peer-reviewed, controlled experiments that conclude in any benefits although she mentioned there is some evidence that points to it benefitting a condition called 'Blepharospasm'. If you're interested in hearing her thoughts I can put you in touch.
> >
> > Best wishes,
> > Hayley
> >
> > On Thu, 6 Dec 2018 at 17:13, Lisa Naas [redacted] wrote:
> > > Hello Hayley!
> > > Here are some of the articles I found on the FL-41 Tint. It's a rose/boysenberry coloured tint that blocks light wavelengths at 480-500 nm:
> > >
> > > https://www.theraspecs.com/blog/tinted-glasses-for-migraines-research-shows-fl41-tint-is-better/
> > >
> > > https://www.everydayhealth.com/headache-and-migraine/0419/a-rosier-view-for-people-with-migraines.aspx
> > >
> > > https://healthcare.utah.edu/moran/optometry/fl41-lenses.php
> > >
> > > And I attached a more scientific journal article.
> > >
> > > Hopefully those are useful…or at least knowing that the wavelengths blocked are at 480-500nm and that the colour is rose. Perhaps that's enough to source the tinted lens? If you need me to do more work on this, please let me know.
> > >
> > > Thank you Hayley…hope you have a nice December and enjoy the holidays!

From: **Cubitts Bespoke** bespoke@cubitts.co.uk
Subject: Re: Optical piece to accompany your work
Date: 21 February 2019 at 2:08 pm
To: Lisa Naas [redacted]

Hi Lisa,

I'm not aware of the properties of CR-39. Let me know what lenses you'd like to order when you've come to a final decision.

Thanks,
Hayley

On Thu, 21 Feb 2019 at 12:39, Lisa Naas [redacted] wrote:

> Hi Hayley,
> I see. I looked up the CR39…it is a thermoset resin. Do you have any idea if this is considered an amorphous material like glass? If it is amorphous, then I am up for using it. Otherwise, I do think I want the glass lenses. The tool is suppose to reference older pieces that used glass. So a mirrored glass lens, a glass lens that magnifies, and a rose-coloured, glass lens is what I am wanting. What do you think my additional cost would be (on top of my £400 total for each piece if we go this route?
>
> Talking with the professor helped me get to a decision about the FL-41…for my purposes I want the rose-coloured glass lens and it does not need to be his original FL-41, so I don't need to call the Institute of Optometry for it after all.
>
> Thanks Hayley…sorry for the confusion on my end. I probably should have known to ask up front.
> Best,
> Lisa

> On 21 Feb 2019, at 12:23 pm, Cubitts Bespoke <bespoke@cubitts.co.uk> wrote:
>
> Hi Lisa,
>
> Standard lenses are now CR39, a plastic. This has been the case since the early 90's or thereabouts. If you require glass, this is something we can get in but they're more expensive - I'd have to enquire about this.
>
> Thanks,
> Hayley
>
> On Thu, 21 Feb 2019 at 12:01, Lisa Naas [redacted] wrote:
>
> > Hello Hayley,
> > Jewlsy put me in touch with the professor who first developed the FL41 tint. We have exchanged messages, which brings me to a question for you. My assumption has been that the lenses we will be using for the optical tool will be made of glass. Is this the case? Is this what the workshop will be using? The reason I am asking is that the professor I just exchanged messages with explained that his original FL41 lens cannot be applied easily to glass and most manufacturers will use a plastic/resin. All this is fine as I no longer think I want the original FL41 tint that he describes.
> >
> > It's always been important to me that the lenses be made of glass, but with all the new materials available now, I suppose I shouldn't assume that's what you'd be using in your spectacles.
> >
> > Please confirm that the lenses will be made of glass.
> >
> > Thank you!
> > Best,
> > Lisa

From: **Lisa Naas** [redacted]
Subject: Re: Optical piece to accompany your work
Date: 28 March 2019 at 10:05 pm
To: Cubitts Bespoke bespoke@cubitts.co.uk

Hello Hayley,
Thank you again for all the patience…it took me a while to figure out how I can justify using the non-glass for the two lenses. And then it dawned on me yesterday, so we are good to go. Mineral glass lenses for the magnification/reading glasses. And then the CR39 material for the other two, the rose-coloured and the mirrored.

For the colour tint, I've been looking at the boysenberry colour (hex #873260) at around 75% or 80% something like that. Obviously looking at it on-screen is very different than looking at CR39 samples. But I think something like this should work. Some close match to this if you can.

Thanks Hayley!
Best,
Lisa



> On 27 Mar 2019, at 1:00 pm, Lisa Naas [redacted]
>
> That's great! Thank you Hayley :-)
>
> > On 27 Mar 2019, at 12:07 pm, Cubitts Bespoke <bespoke@cubitts.co.uk> wrote:
> >
> > Hi Lisa,
> >
> > Please find attached a drawing with measurements of the handle profile - it comfortably fits within an A4 paper size.
> >
> > Best wishes,
> > Hayley
> >
> > On Wed, 27 Mar 2019 at 11:27, Lisa [redacted]
> > > Hi Hayley,
> > > Thank you for this update! That helps a lot... I will contact my glass colleagues and see if any are willing to take on the rose lens and mirror insert for me. Could you also please confirm the length of the acetate handle? We discussed it fitting within an A4 size sheet but it's hard to tell the size from the photos if it is over or under that.
> > >
> > > I'll watch for your email on the pricing and I'll get back to you as soon as I know something from my glass colleagues.
> > >
> > > Thanks again…hope the day is a good one,
> > > Lisa

On 27 Mar 2019, at 11:17 am, Cubitts Bespoke <bespoke@cubitts.co.uk> wrote:

Hi Lisa,

Following on from our phone conversation yesterday, please find attached images of your work in progress acetate handle, images of one of the frame fronts we have brought for your piece and the 3D printed model of the handle. The metal frame fronts do not have a rimlock (break in the rim with a screw opening to open up the rim and insert the lens), if you were inserting an ordinary lens, you would simply push the lens into place.

I will try and get back to you regarding glass lens pricing as soon as possible.

Best wishes,
Hayley

On Tue, 26 Mar 2019 at 12:35, Cubitts Bespoke <bespoke@cubitts.co.uk> wrote:

Hi Lisa,

I've asked the workshop for an update on your pieces, they have made a 3D print of you structure and are in the process of making the acetate handle. They have the three frames but would need to know what you want to do regarding lenses before they install them into the handle.

Regarding lenses, I have gathered quite a lot of information on your behalf, options that would be better discussed with you over the phone. Please call me on 020 7688 4688 when you have a moment so we can chat through.

Best wishes,
Hayley

On Thu, 21 Feb 2019 at 15:49, Lisa Naas [redacted]

Hi Hayley,
I know that I would like glass lenses (it was my false assumption that that is what the lenses would be). I would just need to know the additional costs for the glass ones to know if I can do both optical pieces with them. If it comes down to it, I may only be able to afford one optical piece with the glass.

Please advise (I apologise for my confusion on the matter).

Best,
Lisa

Appendix T.

Measuring My Days

22 February 2020 4:38am
My stomach's in knots and cramping, my head is woozy, I can't sleep, I've had a bloody nose most of the night...I've had ibu/cod, 2 sudafed, 2 antihistamines, vit c, vit d, mag, multi, gk mtn tea, monolaurin

---
Measuring my days (but not with coffee spoons) Amended: Measuring out my Days? Life?

It's about charting, collecting, analyzing, embodying, hoarding, taking up space
It's about mental health
It's about how health-physical/mental/emotional took over but even to doctors my appearance was deceiving
It's a visual diary
It's about capturing and recapturing myself
It's about capturing the feelings
It's about reclaiming-myself, my making, my days
It's about looking
It's about feeling
It's about being seen
It's obsessive

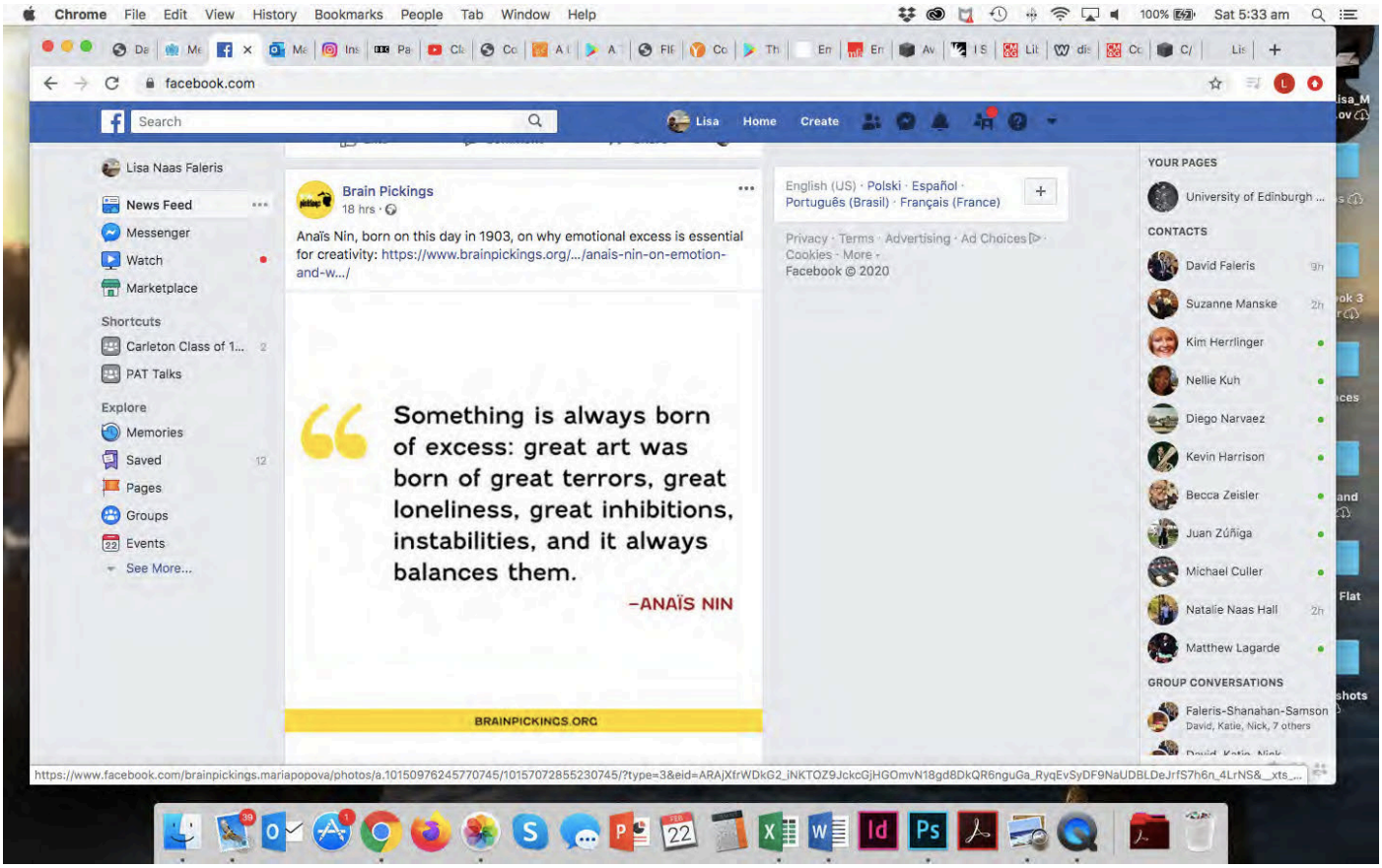
Glass jars marked with date/time/contents
Marked on bottoms like lipsticks? On sides like Rx? On top like spices?
A jar for every day....different kind of jar for the kind of day?
A makeup bottle for an outside body day? A food jar for an inside body day? What for a mental health day?
Will I collect the bottles or buy them or make them? I hate cold working and facility time is expensive...a reason to go to recycled bottles is for expense, daily life connotations
Making the bottles or designing them would change the aesthetic-for better or worse or just different?
I've been charting using colors. What color glass?
How will I decide what to put in them? Will there be parameters? Will there be text?

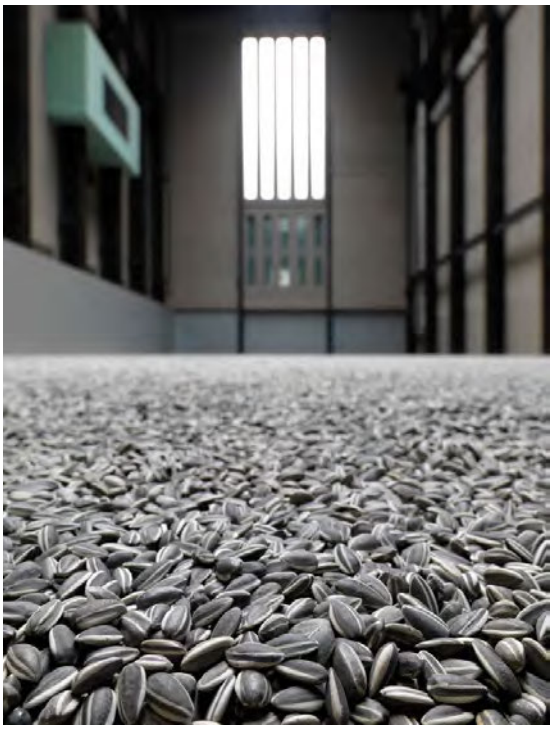
All the thinking on this really came to surface-in terms of it not going away-when I saw Liza Lou's Continuous Mile and used it in my lyric in yesterday's writing. I kept thinking how much I wanted to create something like it...an overwhelming desire to create something significant like it, in all of its loaded, elegant, simplicity. And it's so beautiful and somehow a bit tragically beautiful and with such weight to it. This tiny form with such physical and associative weight. I've been thinking about this underneath for all these PhD years...wanting so desperately to contribute in a meaningful way...so the thinking is not sudden at all. But remembering her piece through my lyric touched off the thinking on the surface of my mind. And one of the last things I saw before bed was the quote screenshotted below (I still had it up on my computer when sat down to write). And because I couldn't sleep, I let my mind work on the problem. Had some real anxiety about not being able to respond to myself with any ideas...thought about physically doing a word triangulation tomorrow but began it a bit in my mind without getting out of bed. I used "glass" and "childhood trauma/addiction/health" and "obsession" as my gateway elements. Loads of associations with those...too many I couldn't capture. Significant ones included the gun violence memorial glass houses built by glass bricks, T.S. Eliot's *Prufrock* and bits of past projects, like my Embodiment, but also unrealised ideas like one that used old powder compact mirrors. I thought about Ai WeiWei's ceramic sunflower seeds, Clare Twomey's serial ceramic production, Hanne Darboven, Katherine Gray's Forest Glass at Corning, curiosities, curio cabinets...All of it led up to the above "Measuring my days (but not with coffee spoons)" so that I got up to write it down.

Is this an extension of my PhD project? I've charted throughout the course of my PhD...health wise, writing wise
I charted so many of my days while I was doing my PhD...I have all this data...but it doesn't feel like my PhD project...it could be taken and used to capture a creative process...an extension of Joanna Spreadbury's diary making project. But this feels a little different...this isn't about my PhD research necessarily...I didn't set out to answering my question of how to put my research into another form, though it's directly jumped off from my research and my writing. Instead it's a type of response to considering Lou's work and answering my question of how can I create something that has a similar effect...an overwhelming desire to create something significant like it, in all of its loaded, elegant, simplicity.

I was thinking about it and its additional characteristics-one tiny form in multiples, and how that form created the rope form and how that form created the tire form and how many associations were present in this art work. How the form is a glass bead...a raw material she didn't make or physically weave into the work herself.

"I have measured out my life with coffee spoons;" T.S. Eliot in the *Love Song of J. Alfred Prufrock*





Ai Weiwei ceramic sunflower seeds at the Tate



Clare Twomey Trophy at V&A



Hanne Darboven at Talbot Rice



Forest Glass by Katherine Gray, 2000 found drinking glasses

5:36am

24 February 2020

Jars and Measuring??
Use eyedroppers of food colouring to replicate the scale of my charts?
Determine number of drops of colour to equal a rating
Measure out same amount of water for each jar
Measure out drops for each rating (ex. “little”= 2 drops) for each field/category (ex. Back pain)
Choose a jar based on how representative it is of the day and the day’s issues or feelings
Jam jar=concentrating on food/eating/not eating/cooking etc.
Fill the jar, tag the jar with date, label the jar to include contents, maybe sign the jar

Scale in chart:

1. “Extreme” = deep black-red, means extreme symptom, pain level, as bad as it gets=2 watermelon, 1 rose=£6
2. “Serious” = red-black, means high pain level or issue level=2 strawberry=£5
3. “Very bad” = bright red, means somewhat high=2 peach=£4
4. “Bad” = mauve, moderate=1 rose=£3
5. “Some” = medium pink= 1 fuschia=£2
6. “Little”= light pink= 1 lavender=£1
7. Neutral/n/a/no change= white=£0
8. “Fair” = light green= 1 chartreuse=£1
9. “Good”= granny smith apple green (second on colour picker)= 1 lime=£2
10. “Very good”= medium grass green (third light on the colour picker)= 1 avocado=£3
11. “Great”= dark lime green= 1 kiwi=£4
12. “Excellent”= very dark forest green= 1 clover=£5
13. “Out of this World good”= am lacking a colour for this as I have never had a need to use it=£6
14. Black for the virus (double in total price)

26 February 2020
Coincidentally, Antonio Riello’s “Ashes to Ashes” work came across my Instagram account this evening (screenshot right). This is the first I have ever seen of this work. Interesting first because he’s combining books and glass (ashes of his burnt books held in custom made glass goblet-urns and stamped with the book title). It was the title that first caught my attention, because I made the same play on words in my chapter 3 lyric line back on 4 Feb, earlier this month. Then it was the display that caught my attention...for me, it is so like these other works in this document...images on the next pages taken from Riello’s website.








"MADAME BOVARY"
GUSTAVE FLAUBERT
PARIS 1857 - BASSANO 2001



28 February 2020

“put a price on my days”-mark the jars with a price-establish a system of value based on the colour scale

How did I get to that thought?
I was thinking about how it took the whole of my PhD to get to this new project through remote associations

Then I asked myself if it (the PhD and all the time and energy and cost) was worth it

That brought me to the cost of my illness, the cost of my days of work, generally the cost of my days

Putting a price on a reclaimed or upcycled object adds value and is part of the reclaiming process

Value of my PhD stipend per day while I had it: £38.36
My chart has 32 fields that I track
I gave no value to a field being left neutral...better to feel than not to feel
If I had £1 for every field that would be £32 and that seemed reasonable to me given that some days would be valued a bit more and some lower...the average could be close to the 38

Testing colours



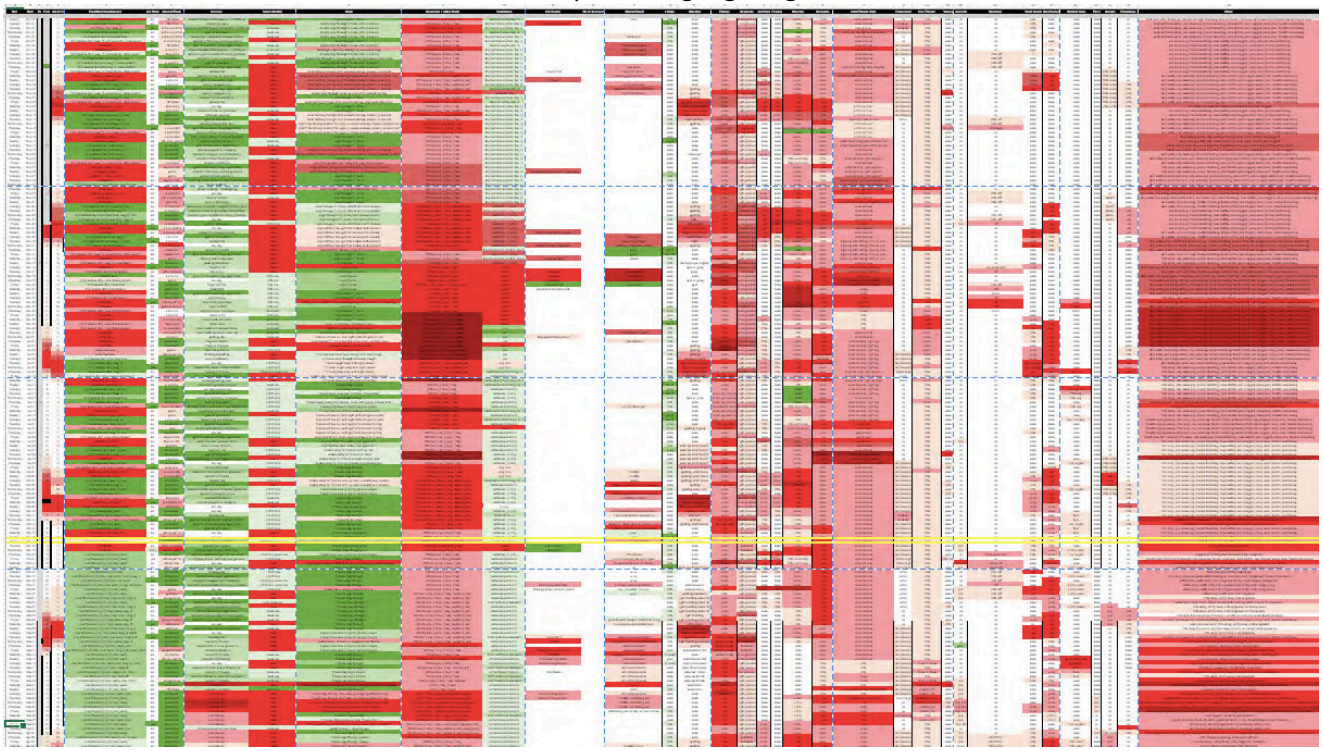






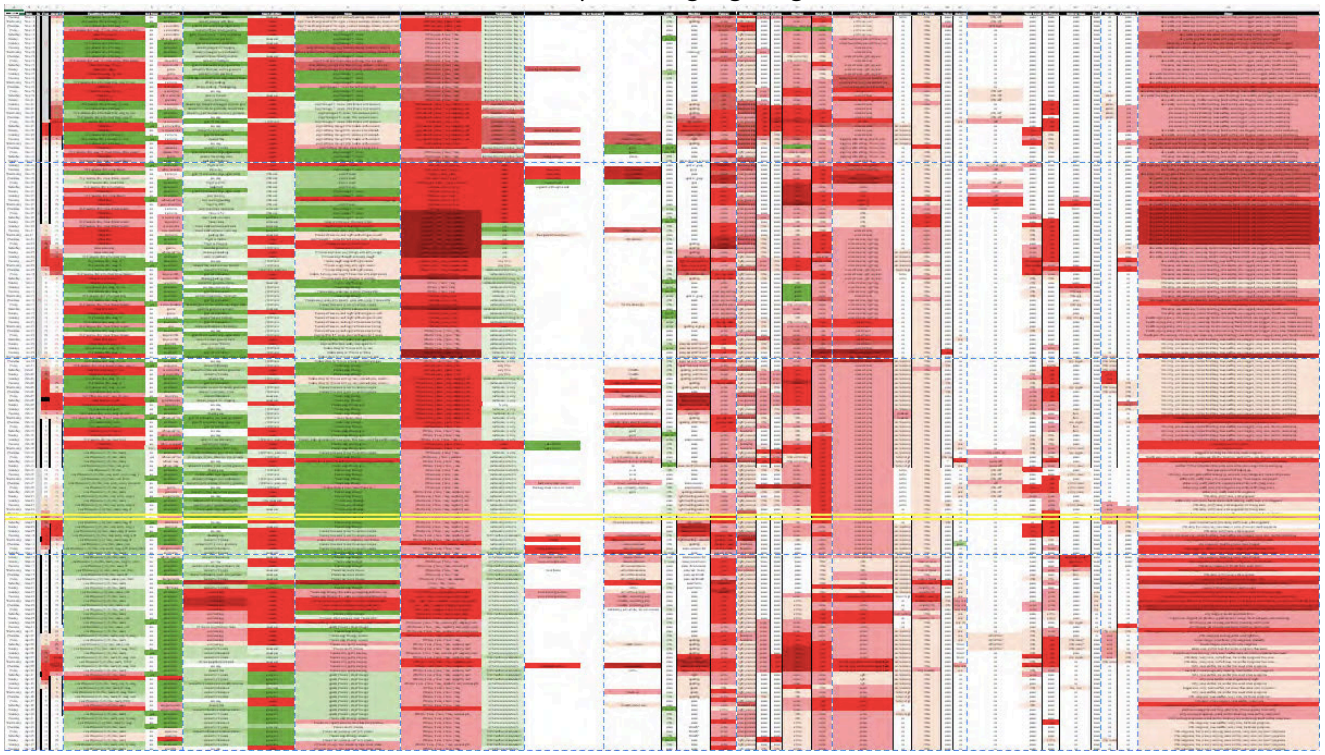

JAR TOPPER EXAMPLES

Health Chart Snapshot: Highlighting 17 Feb 2020



V.

Health Chart Snapshot: Highlighting 6 Mar 2020





For Jar Tag: TangledTree Studios stamp

Completed Jars








2 MAR 2020
3 MAR 2020
4 MAR 2020

From: **Aaron** aaron@habatat.com
Subject: Selected for Viral Glass 2021
Date: 21 April 2021 at 6:11 pm
To: viralglass2021@gmail.com
Cc: Corey [redacted]

Hello!

You have been selected by **David McFadden** for the **Viral Glass 2021** virtual exhibition. Thank you for your participation and we are honored to have you in this powerful exhibition.

The website is not online yet though you can see the selected artists here: www.ViralGlass.org

The updated site requires some details.

From each of you I need a few jpgs (under 1mb each) and two links (if you have them).
All jpgs will be horizontal on the new Viral Glass website

1. Self-portrait image
2. 3 images of your Viral Glass work. If you just have one piece then 3 images of that piece.
3. URL link to your website
4. URL link to a YouTube Video – this can be anything to allow the viewer to get to know you.

The site goes live on May 1st so It would be great to have these details from each of you by the 28th of April.

Please email these details to the ViralGlass2021@gmail.com account when you have them.

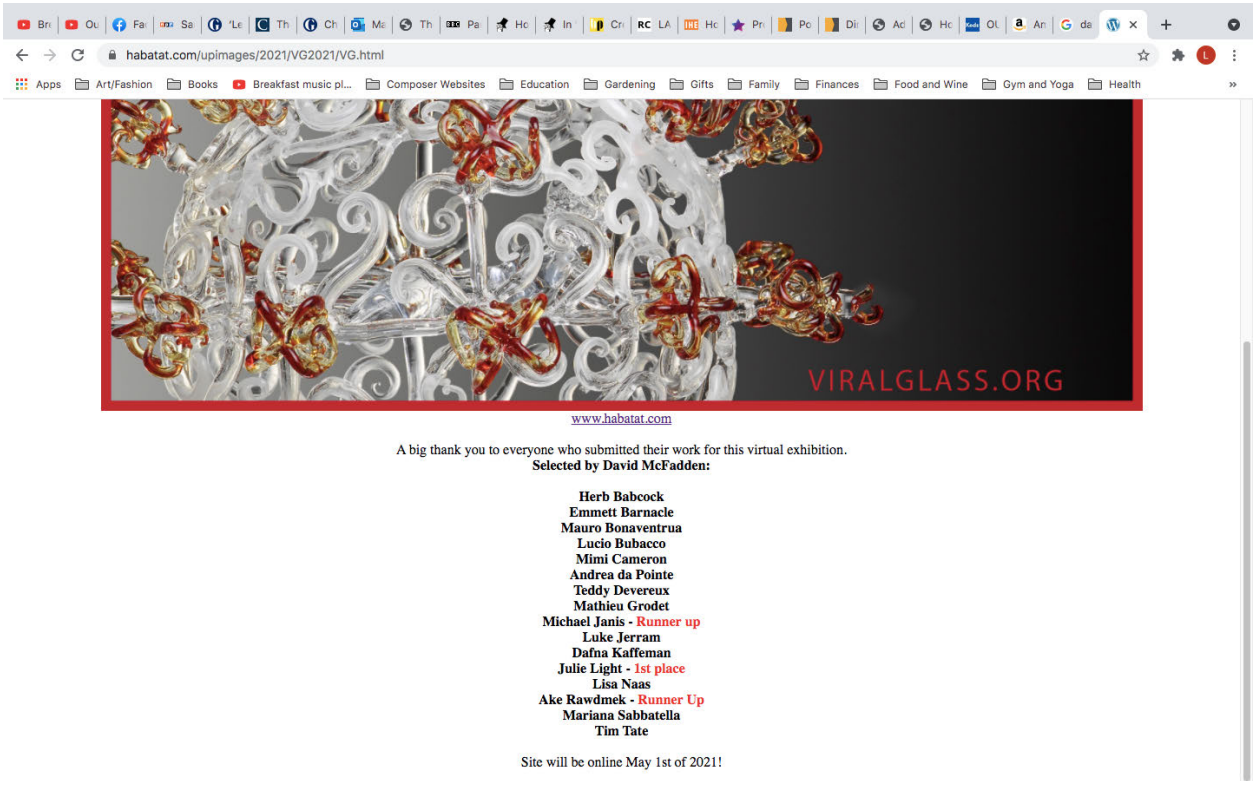
Thanks and congratulations again!

Aaron

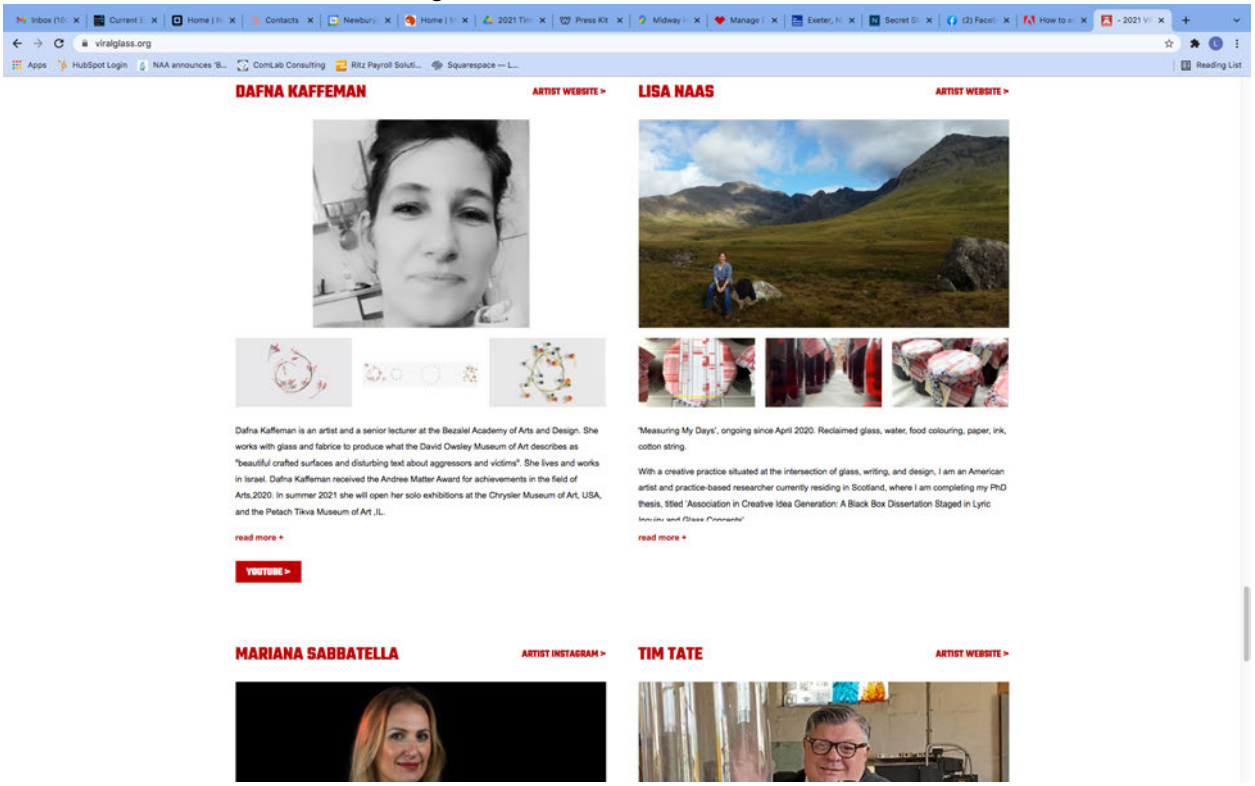
Aaron Schey
M R G L A S S
Habatat Galleries
248.554.0590
aaron@habatat.com

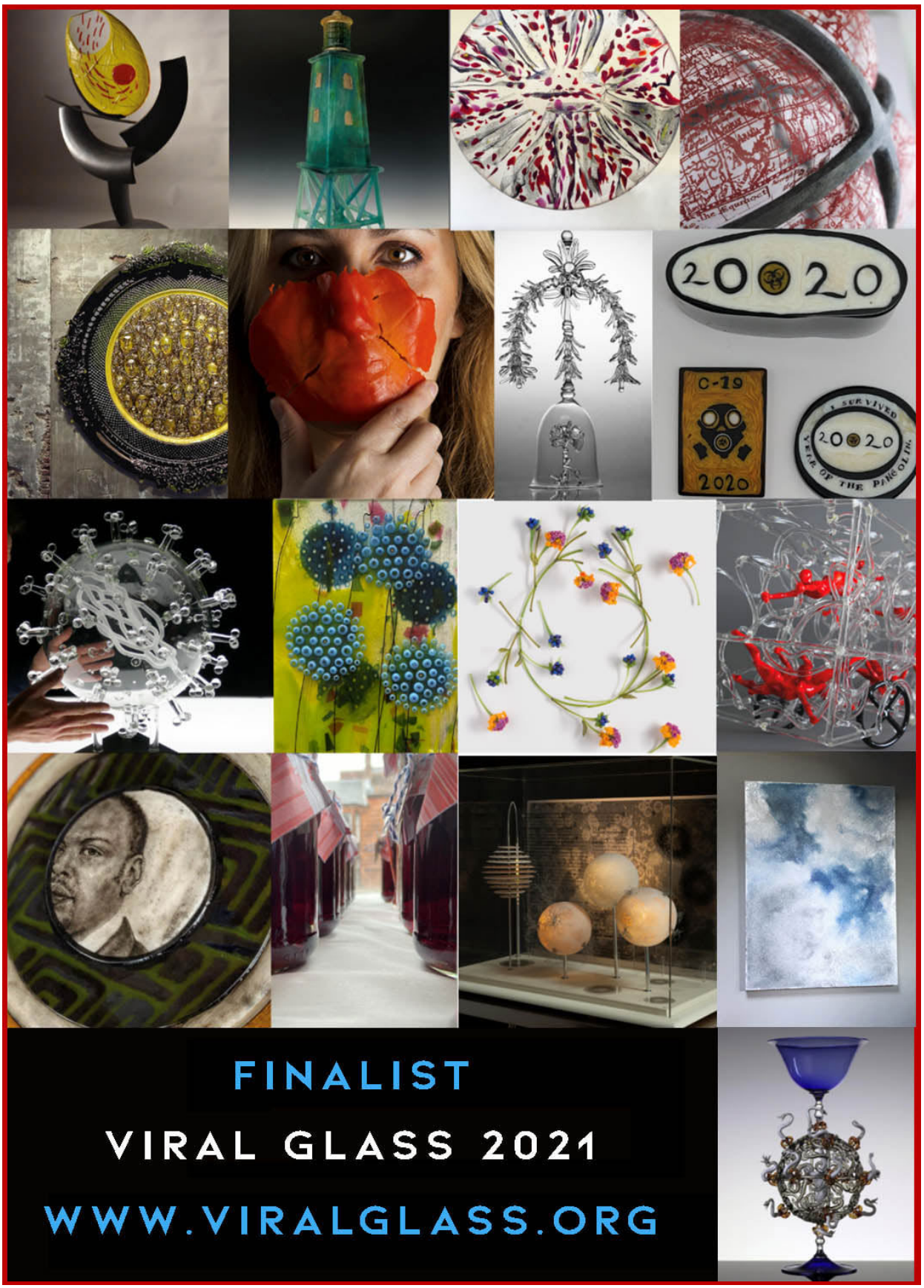
Glass49 – The Virtual International Invitational Exhibition – Online May 1st, 2021.
Visit: www.Glass49.com (on May 1st, 2021)
Habatat Detroit – America's First Contemporary Glass Art Gallery – *Forge Your Legacy with Habatat*

Screenshot: *Viral Glass* Announcement of Exhibition Finalists



Screenshot: Online Exhibition Page of Artists




2020
C-19
2020
I SURVIVED
2020
YEAR OF THE PANDEMIC
FINALIST
VIRAL GLASS 2021
WWW.VIRALGLASS.ORG

Screenshot of my Opening Slide for *Viral Glass* Zoom Artist Talk, May 2021
https://www.youtube.com/watch?v=1PtvuBUoJvs



Appendix U.

The Black Box Dissertation in ECA Library Artists' Book Collection

RE: Naas PhD Thesis-Artist Book to ECA Artists' Book Collection

FURNESS Jane <j.furness@ed.ac.uk>
Thu 4/4/2019 12:57 PM
To: NAAS Lisa [redacted]

Many thanks Lisa, for this. It was great to see you yesterday and hear about your work. We will be very pleased (and honoured) to house your PhD as part of our collection.
All the best,
Jane

From: NAAS Lisa
Sent: 04 April 2019 12:07
To: FURNESS Jane <j.furness@ed.ac.uk>; LYCOURIS Sophia <s.lycouris@ed.ac.uk>; KELLY Jessamy <Jessamy.Kelly@ed.ac.uk>; HUNTER Fiona <F.Hunter@ed.ac.uk>; DAVIS Glyn <gdavis23@exseed.ed.ac.uk>
Cc: BRENNAN Gordon <g.brennan@ed.ac.uk>; G.Mann@mmu.ac.uk; NAAS Lisa <s1347257@sms.ed.ac.uk>
Subject: Naas PhD Thesis-Artist Book to ECA Artists' Book Collection

Hello All,
Jane Furness and I met yesterday to discuss my thesis-artist book and its suitability for being part of the collection of artists' books at the ECA Library. Jane, thank you so much for meeting with me; Gordon and Sophia, thank you for suggesting I speak with Jane!

I am writing to circulate some of our meeting notes to keep everyone updated and on the same page. I described my thesis book to Jane yesterday and showed her some pages of writing as well as a sketch of the optical tool that will be part of the book. She confirmed that she thought it would be a good fit for the artists' book collection at ECA and would be delighted to receive it.

We discussed my timeline for delivery as well. Since my thesis deadline is November 2019, at this point, we are assuming a Viva sometime around March or April with possible revision time after that. It would seem that the earliest a delivery could take place would be late spring/early summer of 2020.

So the hope for my thesis, as Sophia and I have discussed it, would be to deliver the thesis-artist book with the optical tool to the ECA Library as well as to deliver the thesis book (with an image of the tool on the inside pages) to the University of Edinburgh for the PhD archives. The images in the second book would include a line of text that points readers to the actual object held within the book in the ECA Library. These two books would then complete my required hardcopy submission to the University.

Please let me know if anyone sees any issues with this plan. Please also let me know if there are any additional forms or people with whom I should discuss this plan in order to make it possible.

Thank you for all the assistance!

Kind regards,

Lisa

Lisa Naas
PhD Candidate, Design (2015-2019)
Edinburgh College of Art at the University of Edinburgh
http://www.inconcertwithglass.com/
https://www.eca.ed.ac.uk/profile/lisa-naas
https://twitter.com/inconcert_glass

Re: Naas PhD Thesis-Artist Book to ECA Artists' Book Collection

LYCOURIS Sophia <s.lycouris@ed.ac.uk>
Mon 4/8/2019 9:03 PM

To: KELLY Jessamy <Jessamy.Kelly@ed.ac.uk>; NAAS Lisa [redacted]; FURNESS Jane <j.furness@ed.ac.uk>; HUNTER Fiona <F.Hunter@ed.ac.uk>; DAVIS Glyn <gdavis23@exseed.ed.ac.uk>
Cc: BRENNAN Gordon <g.brennan@ed.ac.uk>; G.Mann@mmu.ac.uk <G.Mann@mmu.ac.uk>

I would also like to confirm that this sounds fine to me too!

Sophia

From: KELLY Jessamy
Sent: 08 April 2019 19:51
To: NAAS Lisa; FURNESS Jane; LYCOURIS Sophia; HUNTER Fiona; DAVIS Glyn
Cc: BRENNAN Gordon; G.Mann@mmu.ac.uk
Subject: Re: Naas PhD Thesis-Artist Book to ECA Artists' Book Collection

Hi Lisa,

Thanks for the update, it all sounds fine to me, looking forward to seeing it in the collection when it is ready,

Best wishes Jess

From: NAAS Lisa [redacted]
Date: Thursday, 4 April 2019 at 12:07
To: FURNESS Jane <j.furness@ed.ac.uk>, LYCOURIS Sophia <s.lycouris@ed.ac.uk>, KELLY Jessamy <Jessamy.Kelly@ed.ac.uk>, HUNTER Fiona <F.Hunter@ed.ac.uk>, DAVIS Glyn <gdavis23@exseed.ed.ac.uk>
Cc: BRENNAN Gordon <g.brennan@ed.ac.uk>, "G.Mann@mmu.ac.uk" <G.Mann@mmu.ac.uk>, NAAS Lisa <[redacted]
Subject: Naas PhD Thesis-Artist Book to ECA Artists' Book Collection

Hello All,
Jane Furness and I met yesterday to discuss my thesis-artist book and its suitability for being part of the collection of artists' books at the ECA Library. Jane, thank you so much for meeting with me; Gordon and Sophia, thank you for suggesting I speak with Jane!

I am writing to circulate some of our meeting notes to keep everyone updated and on the same page. I described my thesis book to Jane yesterday and showed her some pages of writing as well as a sketch of the optical tool that will be part of the book. She confirmed that she thought it would be a good fit for the artists' book collection at ECA and would be delighted to receive it.

We discussed my timeline for delivery as well. Since my thesis deadline is November 2019, at this point, we are assuming a Viva sometime around March or April with possible revision time after that. It would seem that the earliest a delivery could take place would be late spring/early summer of 2020.

So the hope for my thesis, as Sophia and I have discussed it, would be to deliver the thesis-artist book with the optical tool to the ECA Library as well as to deliver the thesis book (with an image of the tool on the inside pages) to the University of Edinburgh for the PhD archives. The images in the second book would include a line of text that points readers to the actual object held within the book in the ECA Library. These two books would then complete my required hardcopy submission to the University.

Please let me know if anyone sees any issues with this plan. Please also let me know if there are any additional forms or people with whom I should discuss this plan in order to make it possible.

Thank you for all the assistance!
Kind regards,

Lisa

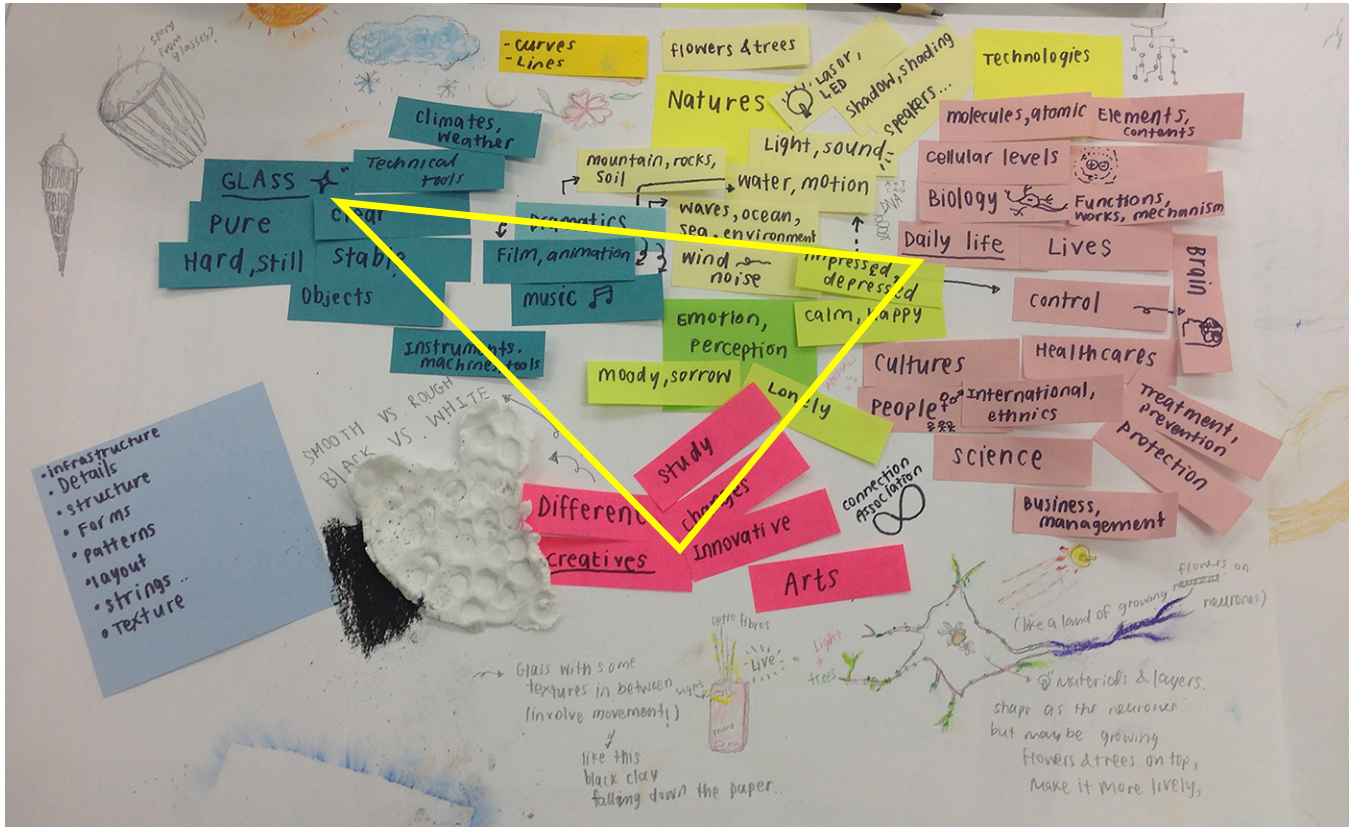
Lisa Naas
PhD Candidate, Design (2015-2019)
Edinburgh College of Art at the University of Edinburgh
http://www.inconcertwithglass.com/
https://www.eca.ed.ac.uk/profile/lisa-naas
https://twitter.com/inconcert_glass

Appendix V.

Digital Crafting in Glass Workshop

Word Triangulation

A New Mapping Tool for Idea Generation in Studio Practice



Student Sketch using Word Triangulation for Innovative Learning Week, 2015.
Image: Lisa Naas

Developed by: Lisa Naas, PhD Student in Design, Edinburgh College of Art

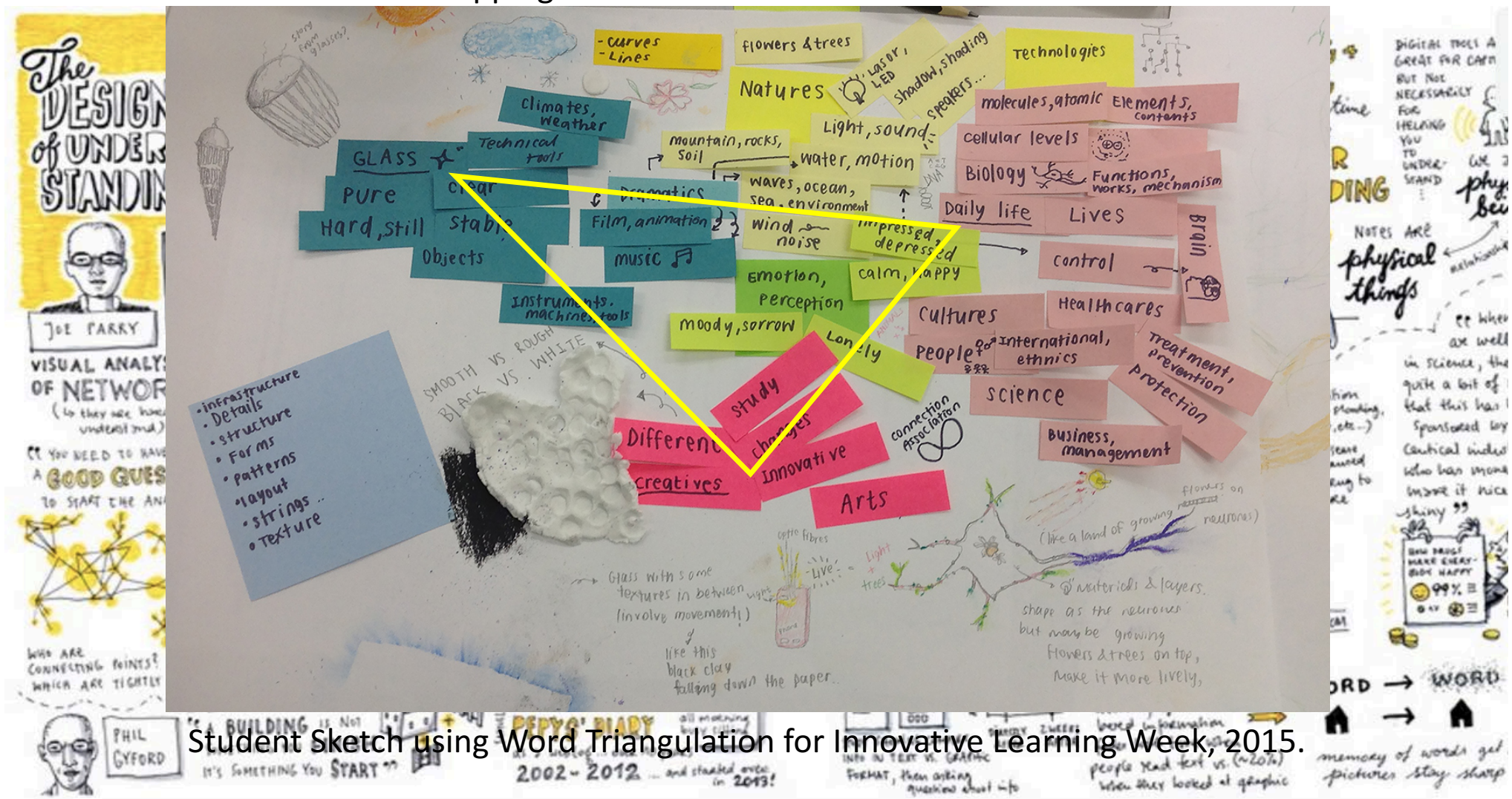
How can we embed the sounds of the glassmaking back into the glass itself?



"Visitor Interacting with Sound," 2016 Image Alex Hall

Word Triangulation

A New Mapping Tool for Idea Generation in Studio Practice



Student Sketch using Word Triangulation for Innovative Learning Week, 2015.

Screenshot from Eva-Lotta Lamm's website: www.sketchnotebooks.com

Screenshot from Tony Buzan's website explaining a Mind Mapping a Mind Map form (http://www.tonybuzan.com/about/mind-mapping/).

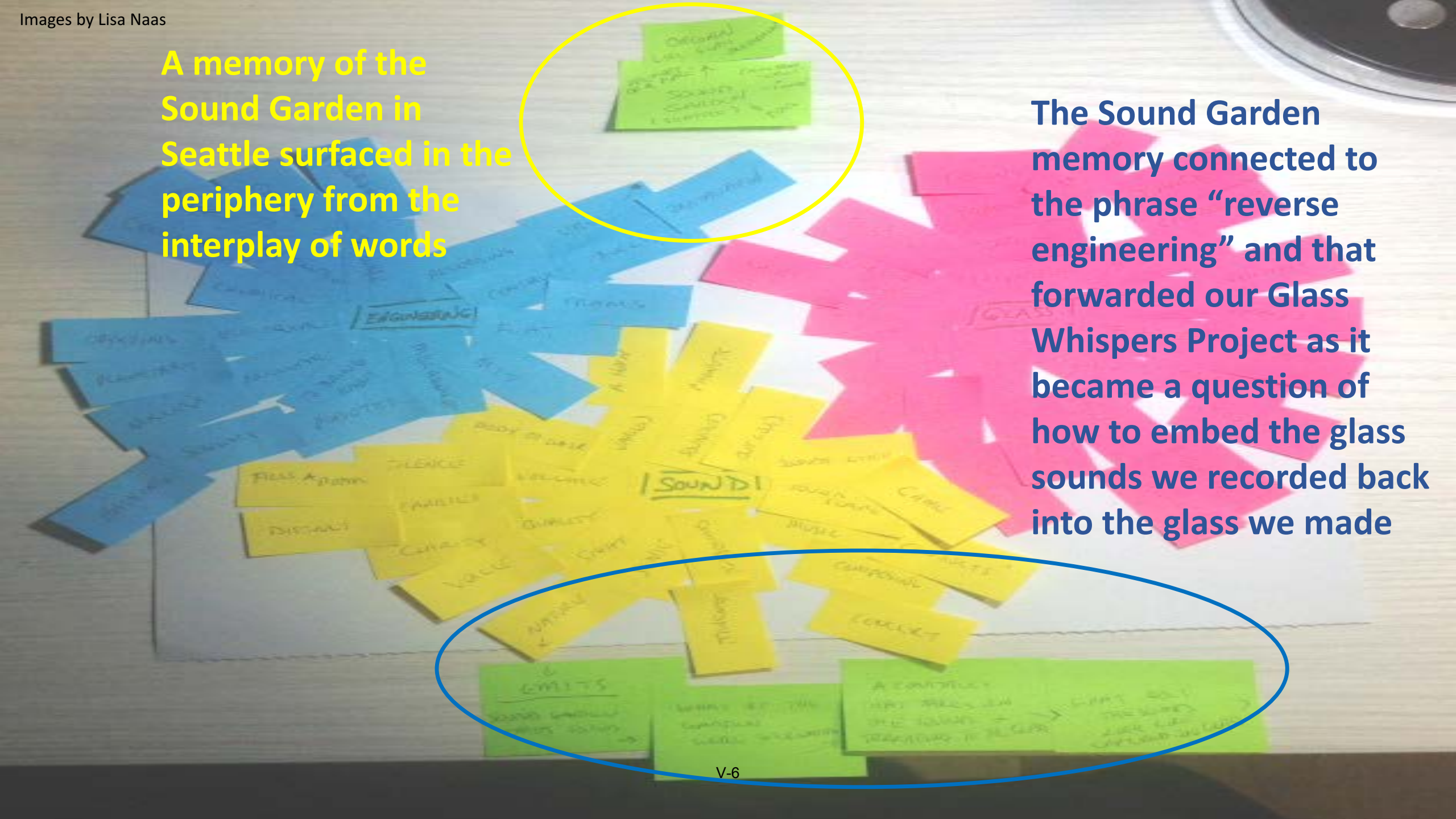
Word Triangulation: Aims

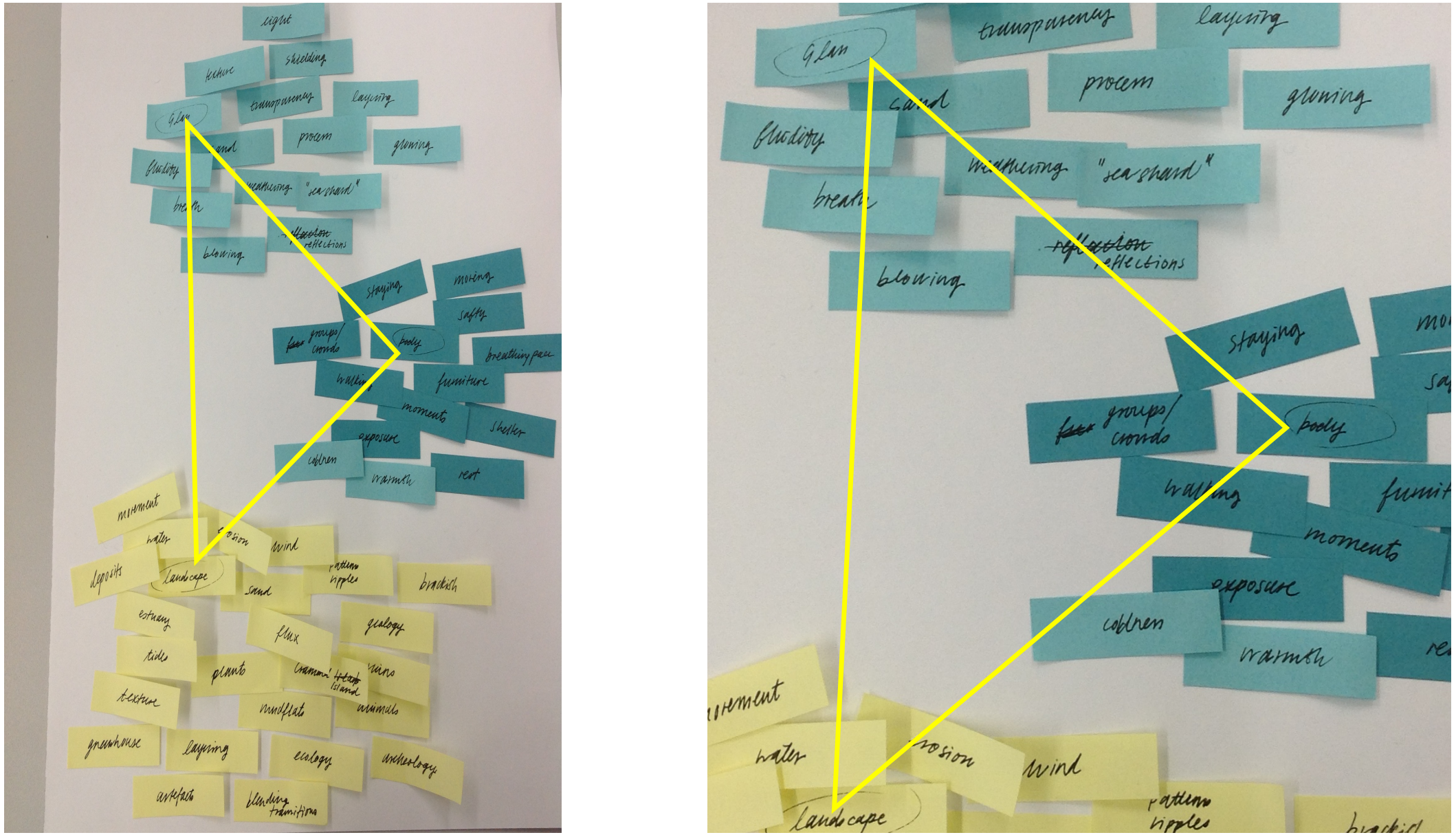
- **To focus thinking on a design problem, question, or brief**
- **To assist with the visualisation of that thinking**
- **To find common ground or unique ways to join unrelated elements**
- **To work towards the development of a seed idea to forward a creative project through association and combination of elements**

Word Triangulation: Guidelines

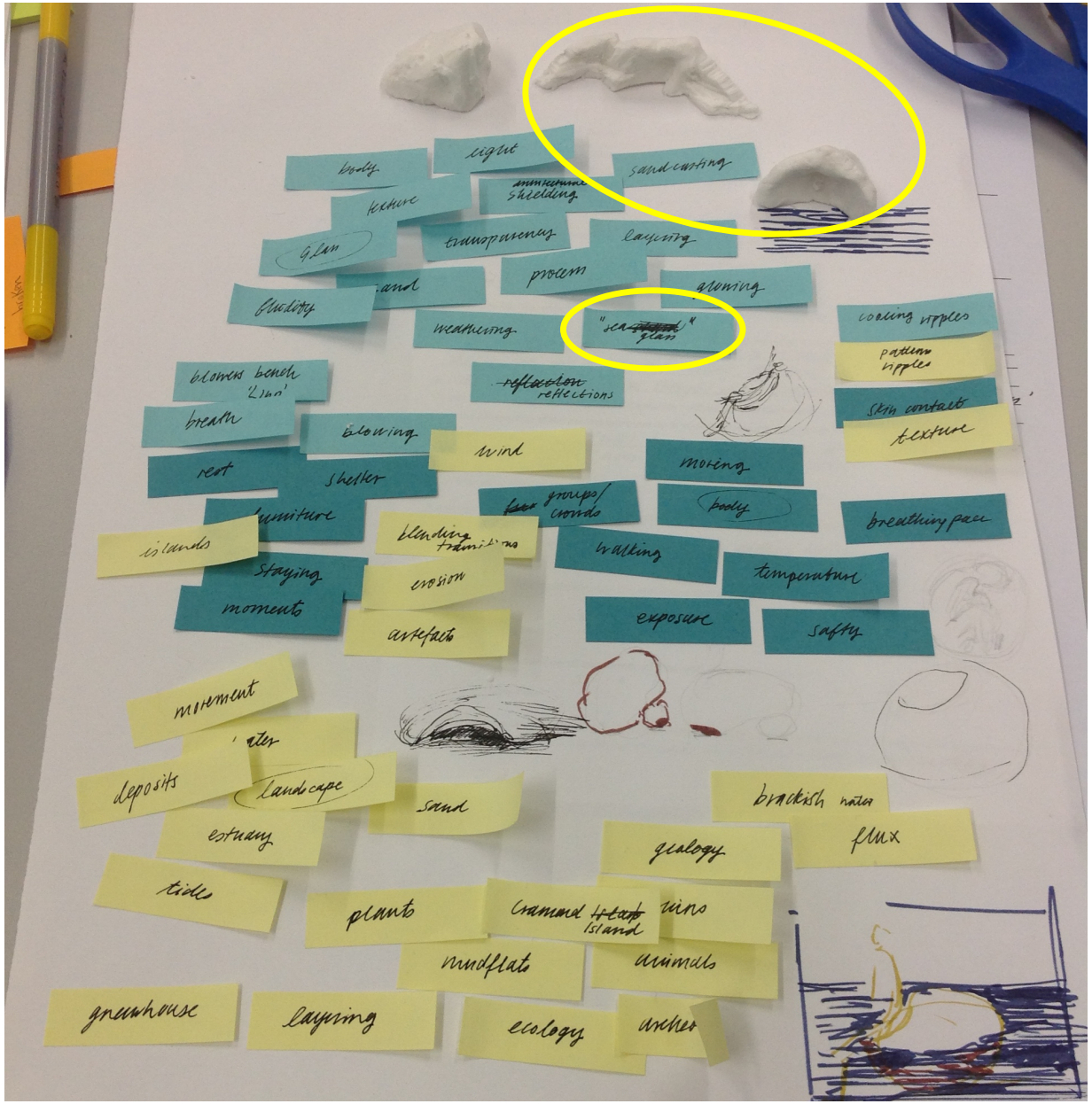
- Begin with a large blank sheet of paper
- Set an exploratory statement
- Choose three elements to be your map anchors
- Focus on just one of the anchor words
- Write your associations on the sticky notes
- Move on to the next anchor word
- Continue on to make associations with the third word
- Take a break
- Return to the map-sketch and view it as a whole
- Develop it with additional associations from this new perspective
- Try to respond to your initial exploratory statement or question

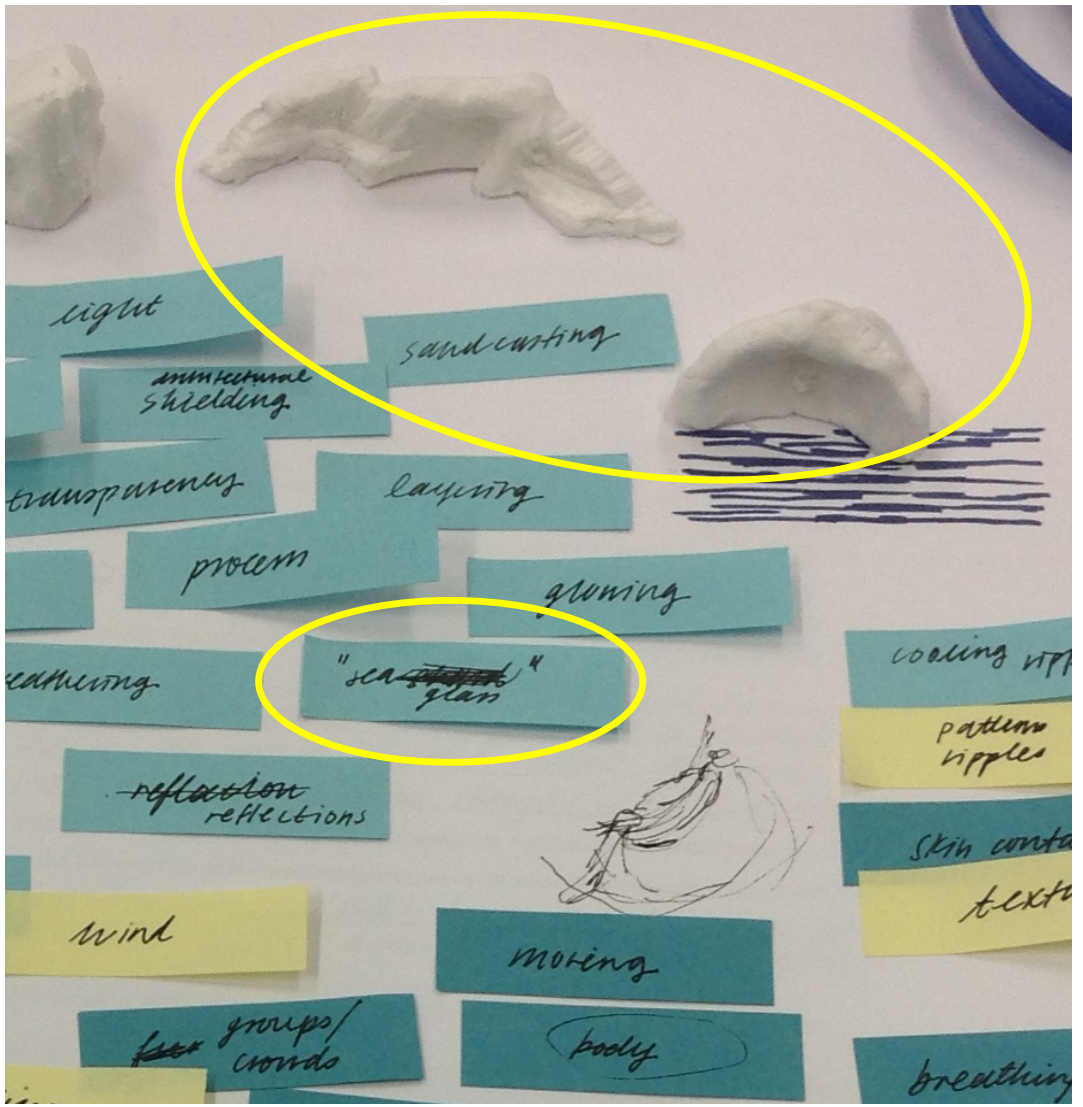
Images by Lisa Naas





Word Triangulation by Landscape Architecture student from pilot study with gateway elements highlighted (author image, 2015).



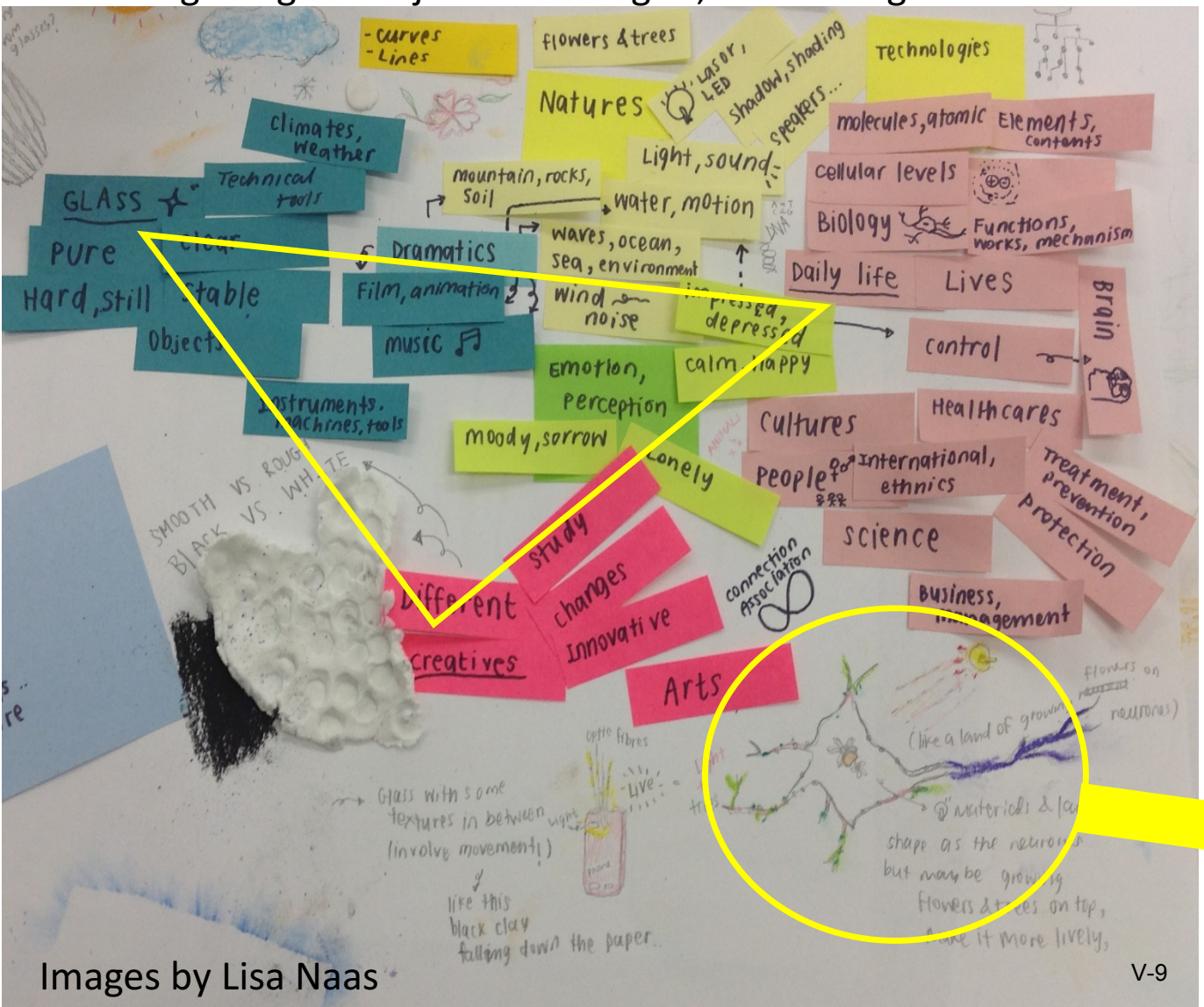


V-8

Landscape Architecture student map after glass instruction; the highlighted circles indicate the clay constructions that represent the cove-like structures as well as the word of “sea-glass” (author image, 2015).

WORD TRIANGULATION

Left: Bio-medical student map after glass instruction, 2015.
Making the glass object on the right , 2015. Images: Lisa Naas





Images by Lisa Naas

Guidelines for "Word Triangulation" as a creative practice tool and method

-Developed by Lisa Naas, PhD Student in Design

1. **Begin with a large blank sheet of paper**

2. **Set an exploratory statement** for the map-sketch and write it at the top of the page. This could be a question, a design problem, or simply a brief statement of intention for the exercise. Regardless of how you write your statement, this will become the focus of the exercise.

3. **Choose three elements** to act as anchors for the map-sketch (at least two should be words but images or drawings will work as well). These three words or elements should be pivotal to the exploration of your exploratory statement. Two should be words with which you are quite familiar and the third can be a lesser known or a lesser understood word or concept. Put these words down on the paper in some way to indicate that they are the anchors to the map-sketch, to show that they are the focal points. Choose a colour for each of the anchor words.

4. **Focus on just one of the anchor words** to begin your map-sketch. Use sticky notes or other removable bits of paper that are the same colour chosen for the anchor word. **Write your associations on the sticky notes** and put them down on the anchor word of focus. Try to put down all of the associations, connotations, and responses you have to this anchor word. Put down all words that come to mind, even if they seem irrelevant to the project or to the word itself. Or if the association stems from an association word already attached to the anchor word, place the sticky-note on the paper closest to where the word developed in your mind. Put all thoughts down on the paper, try not to stop your map-sketching by judging them. Even if you have a phonetic response or some other thought that seems to make no sense, write it on a sticky note and attach it to the word already on the paper from where it directly developed. If a sound or image or memory comes to mind, try to relay it in words or a doodle drawing.

5. When associations seem to have stopped coming to mind for the first anchor word, **move on to the next anchor word** and change sticky-note colours according to the new anchor word. Continue making associations. Remember to look back at your exploratory statement occasionally to keep it in mind.

6. At this point or at a point very soon, with so many words and concepts mingling, it is likely that you might have an association or thought that is not directly linked to any one word already on the page. Perhaps a memory or an experience or an idea will come to mind from the relationship between or among some of the words on the page. Try to capture this in words or drawings and place this in a different colour nearby to where you think it developed, based on the location of words on your map-sketch. Draw lines to connect ideas if you think this might be helpful.

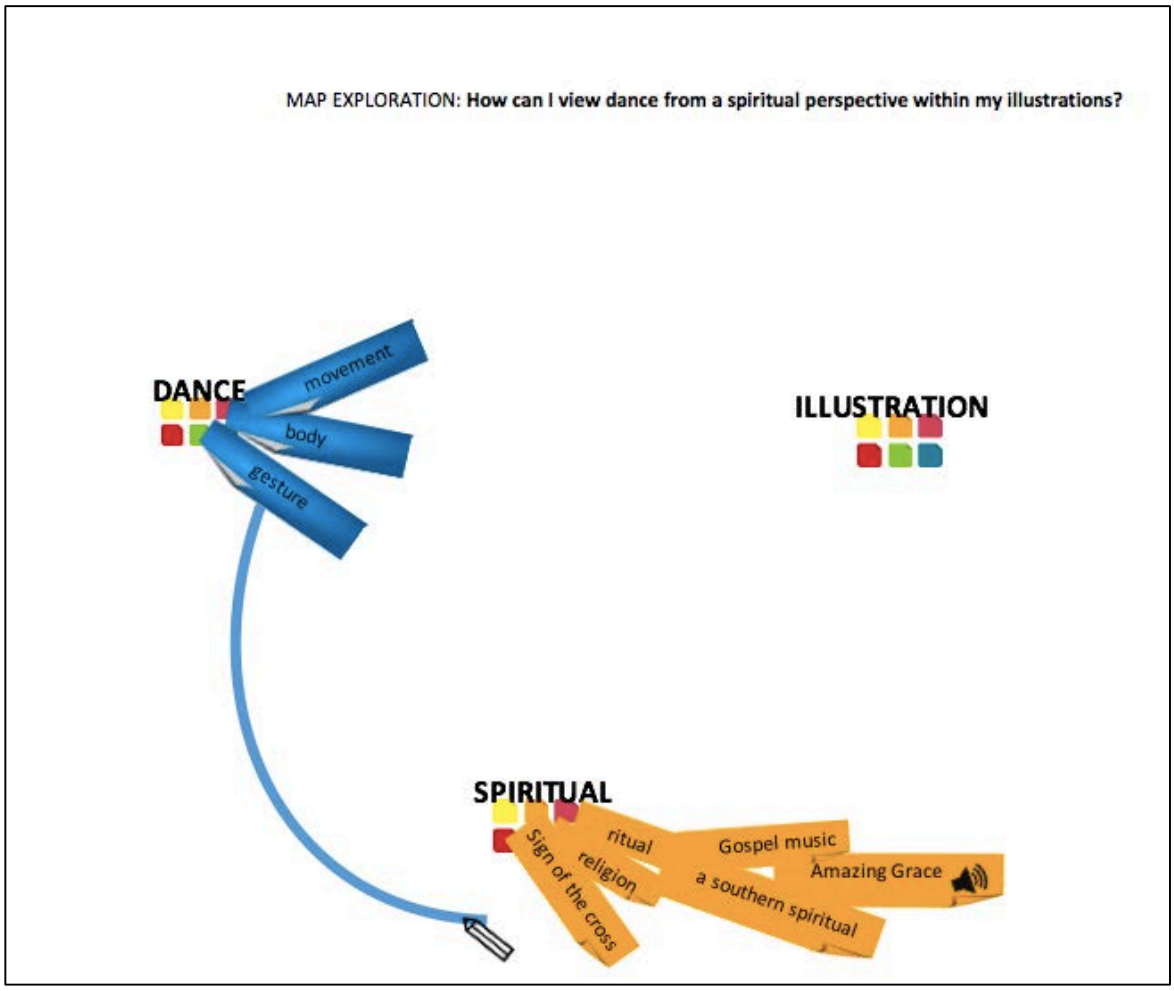
7. **Continue on to focusing and making associations with the third word** after associations have stopped for the second. Remember to capture all the thoughts no matter how indirect or seemingly unrelated.

8. If associations have stopped for the third word and you still feel you have not fully explored your statement or have a direction for your project, then **take a break.** Either take a break that means you walk away from or put away your map-sketch and shift your focus, or take a break from the map-sketch but focus on a tangible idea from the sketching. For instance, if you were working with "glass" as an anchor word, you might consider going into the hotshop or taking a look online at some glass pieces or feeling the textures of different glass material that you might have available to you in your studio.

9. After your break, **return to the map-sketch and look at it as a whole, as a fully-formed sketch**. All of the associative words and many of the drawings will be moveable, so play with them if you'd like. Move them around if it makes sense to you. Respond to the work as a whole and get the responses down on the map.

10. Now, try to respond to your initial exploratory statement or question.

An Example.


MAP EXPLORATION: How can I view dance from a spiritual perspective within my illustrations?
DANCE
movement
body
gesture
ILLUSTRATION
SPIRITUAL
ritual
religion
Sign of the cross
Gospel music
Amazing Grace
a southern spiritual

Informed Consent Form For Lisa Naas, PhD Student, Design (ECA)

Name:

Email:

Date: 4 April 2017

Project Title: Word Triangulation Workshop for Digital Crafting in Glass Course

Project Summary: Participants will be asked to use the "Word Triangulation" mapping tool to develop initial ideas or starting points for their individual projects in the course. They will be asked to consider glass processes and new digital crafting technologies from the lens of their discipline. By map-sketching, writing, or constructing ideas together through "Word Triangulation", participants will seek to join concepts, materials, or processes of their choosing in a creative output. This new, exploratory method for early idea production will be introduced as part of the discussion and session. The sketches, process, and outputs might be recorded.

Objectives

- To introduce participants to associative, creative thinking through "Word Triangulation"
- To generate a map-sketch of ideas to develop at a later date
- To explore what might happen to creative outputs when participants approach glass from their perspectives, viewing it through the lens of their personal disciplines

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution might be recorded and photographed for the purpose of inclusion in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of persona data obtained in this study (e.g.: programme, and student year).

FANGZHOU DONG

Participant's Name (Printed)

[redacted]

Lisa Naas

.....

Name of person obtaining consent (Printed)

[redacted] .....

Signature of person obtaining consent

Informed Consent Form For Lisa Naas, PhD Student, Design (ECA)

Name: Ruobing Hao

Email [redacted]

Date: 4 April 2017

Project Title: **Word Triangulation Workshop for Digital Crafting in Glass Course**

Project Summary: Participants will be asked to use the "Word Triangulation" mapping tool to develop initial ideas or starting points for their individual projects in the course. They will be asked to consider glass processes and new digital crafting technologies from the lens of their discipline. By map-sketching, writing, or constructing ideas together through "Word Triangulation", participants will seek to join concepts, materials, or processes of their choosing in a creative output. This new, exploratory method for early idea production will be introduced as part of the discussion and session. The sketches, process, and outputs might be recorded.

Objectives

- To introduce participants to associative, creative thinking through "Word Triangulation"
- To generate a map-sketch of ideas to develop at a later date
- To explore what might happen to creative outputs when participants approach glass from their perspectives, viewing it through the lens of their personal disciplines

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution might be recorded and photographed for the purpose of inclusion in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of persona data obtained in this study (e.g.: programme, and student year).

Ruobing Hao
.....
Participant's Name (Printed)

.....
Pa[redacted]

Lisa Naas
.....
Name of person obtaining consent (Printed)

[redacted] .....
Signature of person obtaining consent

Informed Consent Form For Lisa Naas, PhD Student, Design (ECA)

Name: Yan Wu

E [redacted]

Date: 4 April 2017

Project Title: **Word Triangulation Workshop for Digital Crafting in Glass Course**

Project Summary: Participants will be asked to use the "Word Triangulation" mapping tool to develop initial ideas or starting points for their individual projects in the course. They will be asked to consider glass processes and new digital crafting technologies from the lens of their discipline. By map-sketching, writing, or constructing ideas together through "Word Triangulation", participants will seek to join concepts, materials, or processes of their choosing in a creative output. This new, exploratory method for early idea production will be introduced as part of the discussion and session. The sketches, process, and outputs might be recorded.

Objectives

- To introduce participants to associative, creative thinking through "Word Triangulation"
- To generate a map-sketch of ideas to develop at a later date
- To explore what might happen to creative outputs when participants approach glass from their perspectives, viewing it through the lens of their personal disciplines

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution might be recorded and photographed for the purpose of inclusion in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of persona data obtained in this study (e.g.: programme, and student year).

Yan Wu.

.....

Participant's Name (Printed)

[redacted]

Participant's signature

[redacted]

Lisa Naas

.....

Name of person obtaining consent (Printed)

[redacted]

.....

Signature of person obtaining consent

Informed Consent Form For Lisa Naas, PhD Student, Design (ECA)

Name: XINGYU TAO

Email: [redacted]

Date: 4 April 2017

Project Title: **Word Triangulation Workshop for Digital Crafting in Glass Course**

Project Summary: Participants will be asked to use the "Word Triangulation" mapping tool to develop initial ideas or starting points for their individual projects in the course. They will be asked to consider glass processes and new digital crafting technologies from the lens of their discipline. By map-sketching, writing, or constructing ideas together through "Word Triangulation", participants will seek to join concepts, materials, or processes of their choosing in a creative output. This new, exploratory method for early idea production will be introduced as part of the discussion and session. The sketches, process, and outputs might be recorded.

Objectives

- To introduce participants to associative, creative thinking through "Word Triangulation"
- To generate a map-sketch of ideas to develop at a later date
- To explore what might happen to creative outputs when participants approach glass from their perspectives, viewing it through the lens of their personal disciplines

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution might be recorded and photographed for the purpose of inclusion in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of persona data obtained in this study (e.g.: programme, and student year).

XINGYU TAO .....

Participant's Name (Printed)

[redacted] .....

Pa[redacted]re

Lisa Naas

.....

Name of person obtaining consent (Printed)

[redacted] .....

Signature of person obtaining consent

Informed Consent Form For Lisa Naas, PhD Student, Design (ECA)

Name: Bena P. Baskoro

[redacted]

Date: 4 April 2017

Project Title: Word Triangulation Workshop for Digital Crafting in Glass Course

Project Summary: Participants will be asked to use the "Word Triangulation" mapping tool to develop initial ideas or starting points for their individual projects in the course. They will be asked to consider glass processes and new digital crafting technologies from the lens of their discipline. By map-sketching, writing, or constructing ideas together through "Word Triangulation", participants will seek to join concepts, materials, or processes of their choosing in a creative output. This new, exploratory method for early idea production will be introduced as part of the discussion and session. The sketches, process, and outputs might be recorded.

Objectives

- To introduce participants to associative, creative thinking through "Word Triangulation"
- To generate a map-sketch of ideas to develop at a later date
- To explore what might happen to creative outputs when participants approach glass from their perspectives, viewing it through the lens of their personal disciplines

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution might be recorded and photographed for the purpose of inclusion in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of persona data obtained in this study (e.g.: programme, and student year).

Bena P. Baskoro
.....
Participant's Name (Printed)

[redacted]
.....
Participant's signature

Lisa Naas
.....
Name of person obtaining consent (Printed)

[redacted]
.....
Signature of person obtaining consent

Informed Consent Form For Lisa Naas, PhD Student, Design (ECA)

Name:

Email:

Date: 4 April 2017

Project Title: **Word Triangulation Workshop for Digital Crafting in Glass Course**

Project Summary: Participants will be asked to use the "Word Triangulation" mapping tool to develop initial ideas or starting points for their individual projects in the course. They will be asked to consider glass processes and new digital crafting technologies from the lens of their discipline. By map-sketching, writing, or constructing ideas together through "Word Triangulation", participants will seek to join concepts, materials, or processes of their choosing in a creative output. This new, exploratory method for early idea production will be introduced as part of the discussion and session. The sketches, process, and outputs might be recorded.

Objectives

- To introduce participants to associative, creative thinking through "Word Triangulation"
- To generate a map-sketch of ideas to develop at a later date
- To explore what might happen to creative outputs when participants approach glass from their perspectives, viewing it through the lens of their personal disciplines

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution might be recorded and photographed for the purpose of inclusion in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of persona data obtained in this study (e.g.: programme, and student year).

Panayiotis Pavlides

[redacted]

Lisa Naas

.....

Name of person obtaining consent (Printed)

[redacted] .....

Informed Consent Form For Lisa Naas, PhD Student, Design (ECA)

Name: TITI LUO

Em [redacted]

Date: 4 April 2017

Project Title: Word Triangulation Workshop for Digital Crafting in Glass Course

Project Summary: Participants will be asked to use the "Word Triangulation" mapping tool to develop initial ideas or starting points for their individual projects in the course. They will be asked to consider glass processes and new digital crafting technologies from the lens of their discipline. By map-sketching, writing, or constructing ideas together through "Word Triangulation", participants will seek to join concepts, materials, or processes of their choosing in a creative output. This new, exploratory method for early idea production will be introduced as part of the discussion and session. The sketches, process, and outputs might be recorded.

Objectives

- To introduce participants to associative, creative thinking through "Word Triangulation"
- To generate a map-sketch of ideas to develop at a later date
- To explore what might happen to creative outputs when participants approach glass from their perspectives, viewing it through the lens of their personal disciplines

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution might be recorded and photographed for the purpose of inclusion in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of persona data obtained in this study (e.g.: programme, and student year).

TITI LUO

Participant's Name (Printed)

[redacted]

Participant's Signature

Lisa Naas

Name of person obtaining consent (Printed)

[redacted]

Signature of person obtaining consent

Informed Consent Form For Lisa Naas, PhD Student, Design (ECA)

Name:

Email:

Date: 4 April 2017

Project Title: **Word Triangulation Workshop for Digital Crafting in Glass Course**

Project Summary: Participants will be asked to use the "Word Triangulation" mapping tool to develop initial ideas or starting points for their individual projects in the course. They will be asked to consider glass processes and new digital crafting technologies from the lens of their discipline. By map-sketching, writing, or constructing ideas together through "Word Triangulation", participants will seek to join concepts, materials, or processes of their choosing in a creative output. This new, exploratory method for early idea production will be introduced as part of the discussion and session. The sketches, process, and outputs might be recorded.

Objectives

- To introduce participants to associative, creative thinking through "Word Triangulation"
- To generate a map-sketch of ideas to develop at a later date
- To explore what might happen to creative outputs when participants approach glass from their perspectives, viewing it through the lens of their personal disciplines

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution might be recorded and photographed for the purpose of inclusion in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of persona data obtained in this study (e.g.: programme, and student year).

THOMAS MANFORD

[redacted]

Lisa Naas

.....

Name of person obtaining consent (Printed)

[redacted] .....

Informed Consent Form For Lisa Naas, PhD Student, Design (ECA)

Name:

Email:

Date: 4 April 2017

Project Title: Word Triangulation Workshop for Digital Crafting in Glass Course

Project Summary: **Participants will be asked to use the "Word Triangulation" mapping tool to develop initial ideas or starting points for their individual projects in the course. They will be asked to consider glass processes and new digital crafting technologies from the lens of their discipline. By map-sketching, writing, or constructing ideas together through "Word Triangulation", participants will seek to join concepts, materials, or processes of their choosing in a creative output. This new, exploratory method for early idea production will be introduced as part of the discussion and session. The sketches, process, and outputs might be recorded.**

Objectives

- **To introduce participants to associative, creative thinking through "Word Triangulation"**
- **To generate a map-sketch of ideas to develop at a later date**
- **To explore what might happen to creative outputs when participants approach glass from their perspectives, viewing it through the lens of their personal disciplines**

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution might be recorded and photographed for the purpose of inclusion in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of persona data obtained in this study (e.g.: programme, and student year).

Alejandra Grandon

.....

[redacted]

Lisa Naas

.....

Name of person obtaining consent (Printed)

[redacted]

.....

Signature of person obtaining consent

Informed Consent Form For Lisa Naas, PhD Student, Design (ECA)

Name:

Email:

Date: 4 April 2017

Project Title: Word Triangulation Workshop for Digital Crafting in Glass Course

Project Summary: **Participants will be asked to use the "Word Triangulation" mapping tool to develop initial ideas or starting points for their individual projects in the course. They will be asked to consider glass processes and new digital crafting technologies from the lens of their discipline. By map-sketching, writing, or constructing ideas together through "Word Triangulation", participants will seek to join concepts, materials, or processes of their choosing in a creative output. This new, exploratory method for early idea production will be introduced as part of the discussion and session. The sketches, process, and outputs might be recorded.**

Objectives

- **To introduce participants to associative, creative thinking through "Word Triangulation"**
- **To generate a map-sketch of ideas to develop at a later date**
- **To explore what might happen to creative outputs when participants approach glass from their perspectives, viewing it through the lens of their personal disciplines**

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution might be recorded and photographed for the purpose of inclusion in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of persona data obtained in this study (e.g.: programme, and student year).

Parul Sharma

[redacted]

Lisa Naas

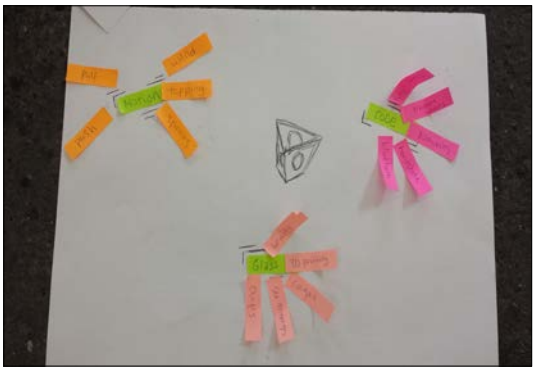
.....

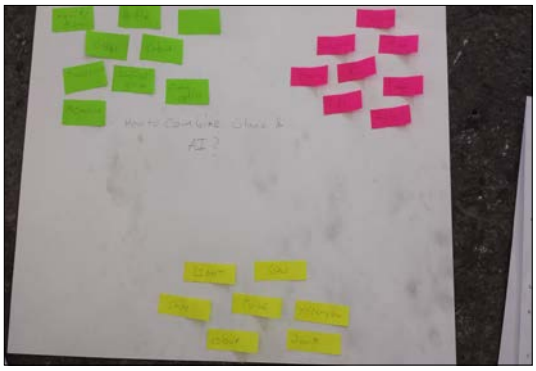
Name of person obtaining consent (Printed)

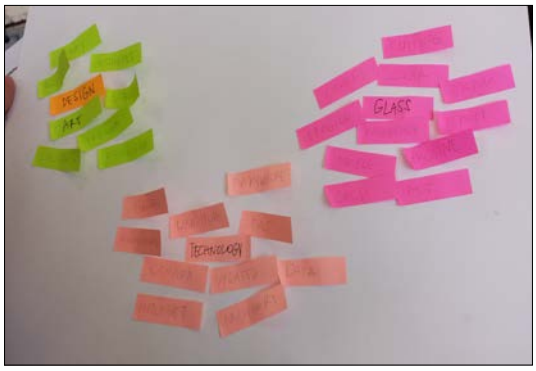
[redacted] .....

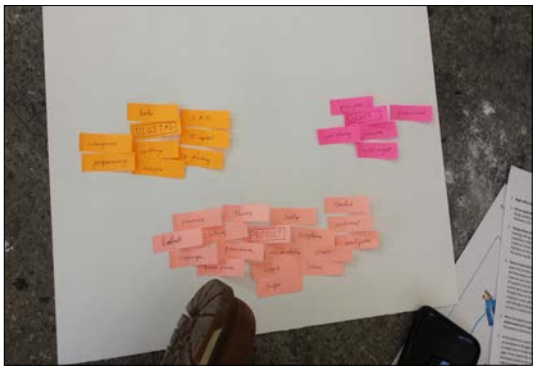
Signature of person obtaining consent

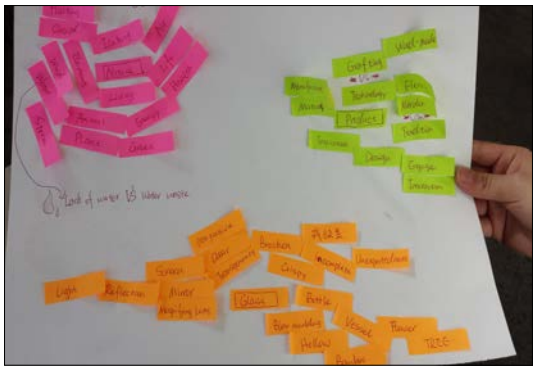

engineering
living material
data flow



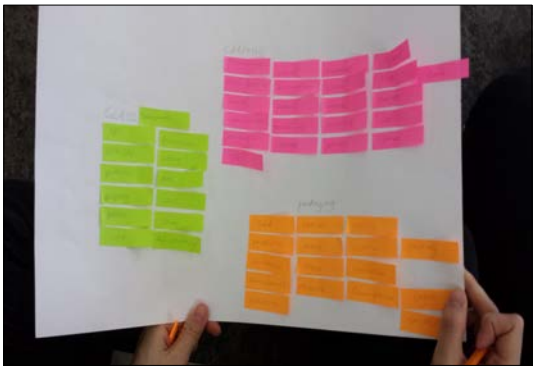


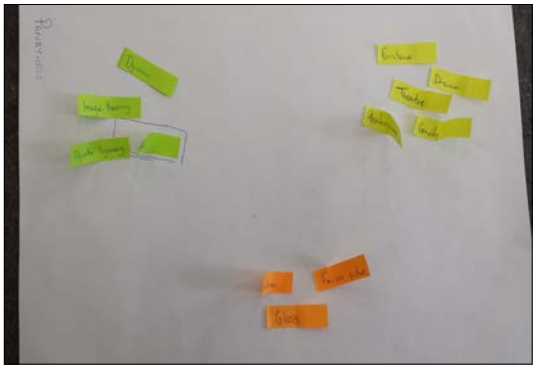

DESIGN
ART
GLASS
TECHNOLOGY












GLASS
PAINTING
GEOMETRIC
PATTERN

Chrome File Edit View History Bookmarks People Window Help
100% Fri 2:38 pm
Lisa
Secure | https://www.learn.ed.ac.uk/webapps/blogs-journals/execute/viewBlog?course_id=_51841_1&blog_id=_128189_1&group_id=&gml_reload=&blog_course_user_id=_183197...

Final Piece Ideation New

Posted by Tom Manford at Wednesday, 5 April 2017 01:27:08

I enjoyed the brainstorming session we had today with Lisa Naas, and was able to generate some preliminary ideas which I ruminated on back home. I have since produced a more detailed mind map with some pictures and concept sketches, detailing my ideas for the final piece (shown at the bottom of this post).

I thought about what it means to combine glass with my discipline. There are two obvious ways to understand this brief; I could try to find a way to build the concepts of AI into a piece made with the glassmaking techniques we have been learning, or I could find a way to combine those techniques with the stained glass windows I have traditionally done at home (though to call that hobby my 'discipline' is probably a bit insulting to people who do it for a living).

Or, a fun third way would be to try to do both - build the concepts of AI into a piece which both combines the new techniques and the old. And this is what I went with in the end.

Using my brainstorm, I identified a few key themes which I wanted to include, crystallizing around one in particular: transhumanism - the quasi-religion which believes that humans will (or should) transcend themselves through technology. Transhumanism firstly represents notions of progress (specifically technological) which mirror the historical progress in the medium of glass we have been discussing, as well as the progress in my own practice, which has moved from traditional methods (making stained glass windows) to post-digital craft as a result of this course.

Transhumanism is also conceptually connected to both AI (AI being one of the ways our species might transcend) and religion, which in turn is strongly associated with stained glass. It also allows me to connect to surrealist art (which I have always been passionate about).

Once I had settled on this, there was the matter of deciding what to actually make. Transhumanism represents ideas of knowledge, transcension, growth/transformation, technology, rebirth and progress. So I began thinking of objects relevant to these concepts and added them to my mind map. (All the reference photos are also available on my pinterest at https://uk.pinterest.com/thomasmanford/dcg-final/).

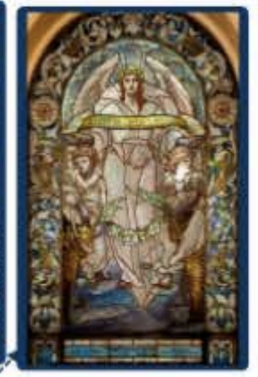
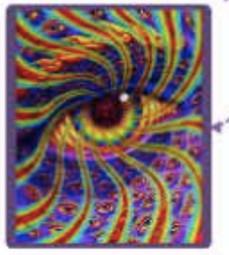
And the mind map:

Chrome File Edit View History Bookmarks People Window Help
100% Fri 2:38 pm
Lisa
Secure | https://www.learn.ed.ac.uk/webapps/blogs-journals/execute/viewBlog?course_id=_51841_1&blog_id=_128189_1&group_id=&gml_reload=&blog_course_user_id=_183197...



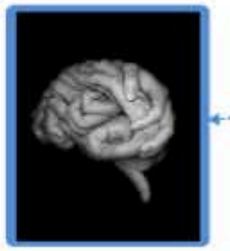

















Incorporate a light element?
Light
Progress
Knowledge
AI
Mind/brain
DCG FINAL PIECE
Growth/transformation
Religion
My practice
Stained Glass Window With Digital Element?
Stained Glass Windows
Glass
Historically, from this
progress
to this:
Digital
Time
Time represented spatially?

Digital Crafting in Glass: Word Triangulation Map-Sketch Questionnaire
Event Date: 4 April
Moderator: Lisa Naas, LNAAS@icloud.com

Year: _____Undergraduate Student _yes____MA/MFA Student _____ PhD Student _____ Other

Gender: _yes____ Female _____ Male

Discipline/School: _____School of Informatics, University of Edinburgh
_____

Sketching/Ideas Workshop Questions

Did you try the Word Triangulation Map-Sketch? _____ yes ___yes__ no

If yes, what three words did you use? _____

If you tried Triangulation, did you try __yes___ individually _____Or with a group?

Did you continue developing your map-sketch after the 4 April session in the hotshop?___yes_____

Did you find the Triangulation method useful to developing your ideas or sketches?_____yes, it is a goog way to develop my project_____

In a sentence or two, please describe any ideas that were derived from the Triangulation:____Because in my final project, my concept is glass crafting, painting and geometric pattern, once I confirm my idea, I developed them and write down several key words related to my key topics._____
_____
_____
_____

Did you incorporate any of your ideas or thoughts from your Word Triangulation into the proposal or project work that you did for the Digital Crafting Course? If yes, please describe in a sentence or two:__According to my idea and some relevant words, I confirmed how to continue to do it. How natural geometric patterns represented using painting and glass. And how two of the traditional crafting have a conversation and dialogue. _____
_____
_____

Do you think you might try using this Triangulation method again in the future?

___yes_____

From the perspective of the project work you do in your discipline, how do you think you might use the Triangulation method? ___For my experience, it is more like a brain storm, also a good way to develop my ideas._____

If you did not try the Word Triangulation or if you did not develop the map-sketch after the workshop, could you explain your reasons?

_____

Thank you so much for your feedback on any aspect of the technique (good or bad) on which you would like to comment. Please use the back of the paper to include any remarks you want to make…I really appreciate your time! -Lisa Naas



Appendix W.

Thinking Through Glass Workshop

Informed Consent Form for Lisa Naas, PhD Student, Design (ECA)

Name:

Email:

Date:

Project Title: **Thinking Through Glass**

Project Summary: Participants will be asked to trial a new, exploratory method for early idea production as part of the course **Thinking Through Glass**. The tool, called Word Triangulation, was designed and developed as part of the practice-based research that doctoral student Lisa Naas is undertaking. Participants are asked to consider "glass" through a narrative lens, working toward a creative output, by mapping, sketching, writing, or constructing ideas together. The sketches, process, and outputs will be recorded and anonymous information might be included in Lisa's PhD thesis.

Objectives

- To introduce participants to associative, creative thinking through Triangulation
- To generate a map-sketch of ideas to develop during the course
- To explore how Word Triangulation can be taught without the designer/inventor presenting

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution will be recorded and photographed for the purpose of inclusion in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of personal data obtained in this study (e.g.: name, age, and occupation).

JANE ROBERTSON
.....
Participant's Name (Printed)

[redacted]

Lisa Naas
.....
Name of person obtaining consent (Printed)

[redacted]

.....
Signature of person obtaining consent

Informed Consent Form for Lisa Naas, PhD Student, Design (ECA)

Name: MOONJU SUH

[redacted]

Date: 8th Nov 2018

Project Title: **Thinking Through Glass**

Project Summary: Participants will be asked to trial a new, exploratory method for early idea production as part of the course **Thinking Through Glass**. The tool, called Word Triangulation, was designed and developed as part of the practice-based research that doctoral student Lisa Naas is undertaking. Participants are asked to consider "glass" through a narrative lens, working toward a creative output, by mapping, sketching, writing, or constructing ideas together. The sketches, process, and outputs will be recorded and anonymous information might be included in Lisa's PhD thesis.

Objectives

- To introduce participants to associative, creative thinking through Triangulation
- To generate a map-sketch of ideas to develop during the course
- To explore how Word Triangulation can be taught without the designer/inventor presenting

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution will be recorded and photographed for the purpose of inclusion in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of personal data obtained in this study (e.g.: name, age, and occupation).

MOONJU SUH

Participant's Name (Printed)

[redacted]

Lisa Naas

Name of person obtaining consent (Printed)

[redacted]

Signature of person obtaining consent

Informed Consent Form for Lisa Naas, PhD Student, Design (ECA)

Name:

Email:

Date:

Project Title: **Thinking Through Glass**

Project Summary: Participants will be asked to trial a new, exploratory method for early idea production as part of the course **Thinking Through Glass**. The tool, called Word Triangulation, was designed and developed as part of the practice-based research that doctoral student Lisa Naas is undertaking. Participants are asked to consider "glass" through a narrative lens, working toward a creative output, by mapping, sketching, writing, or constructing ideas together. The sketches, process, and outputs will be recorded and anonymous information might be included in Lisa's PhD thesis.

Objectives

- To introduce participants to associative, creative thinking through Triangulation
- To generate a map-sketch of ideas to develop during the course
- To explore how Word Triangulation can be taught without the designer/inventor presenting

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution will be recorded and photographed for the purpose of inclusion in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of personal data obtained in this study (e.g.: name, age, and occupation).

[redacted]

Lisa Naas

.....

Name of person obtaining consent (Printed)

[redacted]

Signature of person obtaining consent

Informed Consent Form for Lisa Naas, PhD Student, Design (ECA)

Name:

Email:

Date:

Project Title: **Thinking Through Glass**

Project Summary: Participants will be asked to trial a new, exploratory method for early idea production as part of the course **Thinking Through Glass**. The tool, called Word Triangulation, was designed and developed as part of the practice-based research that doctoral student Lisa Naas is undertaking. Participants are asked to consider "glass" through a narrative lens, working toward a creative output, by mapping, sketching, writing, or constructing ideas together. The sketches, process, and outputs will be recorded and anonymous information might be included in Lisa's PhD thesis.

Objectives

- To introduce participants to associative, creative thinking through Triangulation
- To generate a map-sketch of ideas to develop during the course
- To explore how Word Triangulation can be taught without the designer/inventor presenting

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution will be recorded and photographed for the purpose of inclusion in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of personal data obtained in this study (e.g.: name, age, and occupation).

Katherine Southam

Participant's Name (Printed)

[redacted]

Lisa Naas

Name of person obtaining consent (Printed)

[redacted]

Signature of person obtaining consent

Informed Consent Form for Lisa Naas, PhD Student, Design (ECA)

Name:

Email:

Date:

Project Title: **Thinking Through Glass**

Project Summary: Participants will be asked to trial a new, exploratory method for early idea production as part of the course **Thinking Through Glass**. The tool, called Word Triangulation, was designed and developed as part of the practice-based research that doctoral student Lisa Naas is undertaking. Participants are asked to consider "glass" through a narrative lens, working toward a creative output, by mapping, sketching, writing, or constructing ideas together. The sketches, process, and outputs will be recorded and anonymous information might be included in Lisa's PhD thesis.

Objectives

- To introduce participants to associative, creative thinking through Triangulation
- To generate a map-sketch of ideas to develop during the course
- To explore how Word Triangulation can be taught without the designer/inventor presenting

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution will be recorded and photographed for the purpose of inclusion in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of personal data obtained in this study (e.g.: name, age, and occupation).

ALEXANDRA HIRST

Participant's Name (Printed)

[redacted]

Lisa Naas

Name of person obtaining consent (Printed)

[redacted]

Signature of person obtaining consent

Informed Consent Form for Lisa Naas, PhD Student, Design (ECA)

Name: [redacted]

Email:

Date:

Project Title: **Thinking Through Glass**

Project Summary: Participants will be asked to trial a new, exploratory method for early idea production as part of the course **Thinking Through Glass**. The tool, called Word Triangulation, was designed and developed as part of the practice-based research that doctoral student Lisa Naas is undertaking. Participants are asked to consider "glass" through a narrative lens, working toward a creative output, by mapping, sketching, writing, or constructing ideas together. The sketches, process, and outputs will be recorded and anonymous information might be included in Lisa's PhD thesis.

Objectives

- To introduce participants to associative, creative thinking through Triangulation
- To generate a map-sketch of ideas to develop during the course
- To explore how Word Triangulation can be taught without the designer/inventor presenting

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution will be recorded and photographed for the purpose of inclusion in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of personal data obtained in this study (e.g.: name, age, and occupation).

Yinan Chu

.....

[redacted]

Lisa Naas

.....

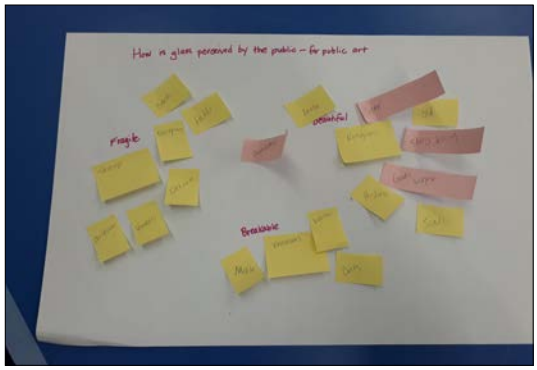
Name of person obtaining consent (Printed)

[redacted]

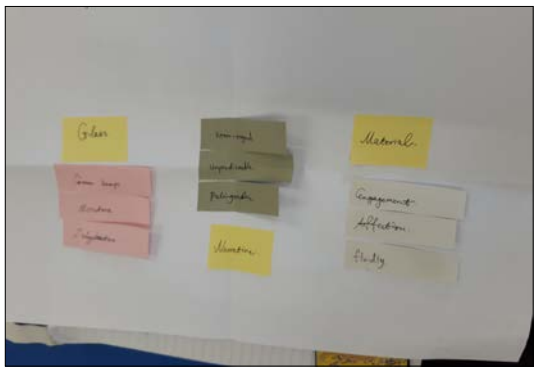
.....

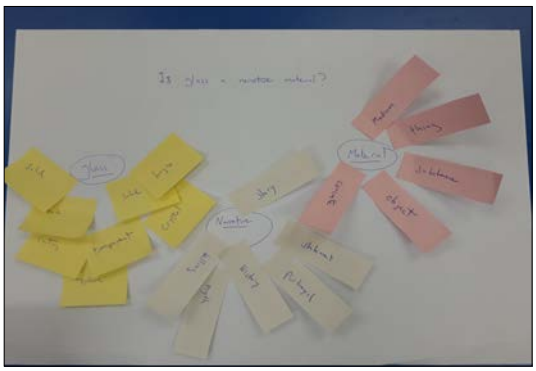
Signature of person obtaining consent

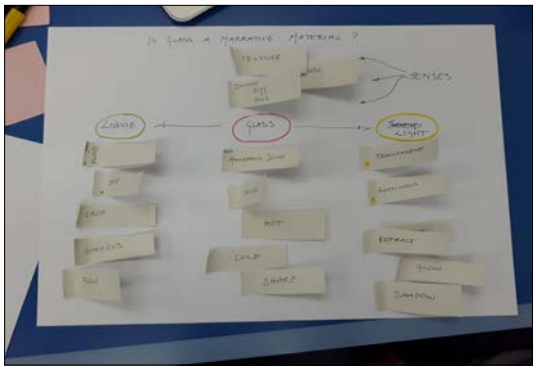
Thinking Through Glass Map-Sketches (Images by Dr. Jessamy Kelly)













Thinking Through Glass Photos from the Workshop (Images by Dr. Jessamy Kelly)







Thinking Through Glass
Participant Questionnaire
Event Date:

Year: _____Undergraduate Student ___Y___MA/MFA Student _____ PhD Student _____ Other

Gender: ___Y___ Female _____ Male _____ Unspecified

Do you have a learning adjustment? NO

Discipline/School: GLASS

Sketching/Ideas Workshop Questions
Did you try the Triangulation Word map/sketch? ___Y___ yes _____ no

If yes, what three words or triangulation points did you use? LIQUID, GLASS, LIGHT

If you tried Triangulation, did you try ___X___ individually _____or with a group?

Did you converse while you worked on your map/sketch or were you quiet? I BLETHERED TOO MUCH

After the first attempt at Word Triangulation, did you use or develop your map/sketch again? _____ yes ___X___ no
If yes, could you describe what more you did with your map/sketch? (i.e. Did you sketch more? Use it to help with talking points about your project? Etc)

Did you find the Triangulation method useful to developing your ideas or sketches? I'M NOT GOOD AT COMING AT IDEAS WITH WORDS

In a sentence or two, please describe any ideas that were derived from the Triangulation play:

Do you think you might try using this Triangulation mapping again in the future? HMM, NOT SURE

From the perspective of the project work you do in your discipline, how do you think you might use the Triangulation method? I THINK I PREFER SKETCHING / MOOD BOARDS

Do you see any other application or use for this Triangulation map/sketching?

Thank you so much for your time!

Thinking Through Glass
Participant Questionnaire
Event Date:

Year: ~~X~~ Undergraduate Student 2X MA/MFA Student _____ PhD Student _____ Other

Gender: X Female _____ Male _____ Unspecified

Do you have a learning adjustment? No.

Discipline/School: Design

Sketching/Ideas Workshop Questions
Did you try the Triangulation Word map/sketch? X yes _____ no

If yes, what three words or triangulation points did you use? Fragile/Breakable/Beautiful

If you tried Triangulation, did you try _____ individually X or with a group?

Did you converse while you worked on your map/sketch or were you quiet? conversed after / quiet during

After the first attempt at Word Triangulation, did you use or develop your map/sketch again? _____ yes X no
If yes, could you describe what more you did with your map/sketch? (i.e. Did you sketch more? Use it to help with talking points about your project? Etc)

Did you find the Triangulation method useful to developing your ideas or sketches? No

In a sentence or two, please describe any ideas that were derived from the Triangulation play:
I felt my question didn't generate any more new ideas and my words trapped me into the same thoughts.

Do you think you might try using this Triangulation mapping again in the future? No

From the perspective of the project work you do in your discipline, how do you think you might use the Triangulation method? I don't generate ideas by writing words - I usually sketch ideas and then add words and informations

Do you see any other application or use for this Triangulation map/sketching?
Possibly for downtime when questioning ideas.

Thank you so much for your time!

I personally found the exercise difficult and felt stressed.

Thinking Through Glass
Participant Questionnaire
Event Date:

Year: ____Undergraduate Student ✓ MA/MFA Student ____ PhD Student ____ Other

Gender: ✓ Female ____ Male ____ Unspecified

Do you have a learning adjustment? No

Discipline/School: MA glass University of Edinburgh

Sketching/Ideas Workshop Questions
Did you try the Triangulation Word map/sketch? ✓ yes ____ no

If yes, what three words or triangulation points did you use? Glass - Narrative - [redacted] material

If you tried Triangulation, did you try ✓ individually ____or with a group?

Did you converse while you worked on your map/sketch or were you quiet? yes

After the first attempt at Word Triangulation, did you use or develop your map/sketch again? ____ yes ✓ no
If yes, could you describe what more you did with your map/sketch? (i.e. Did you sketch more? Use it to help with talking points about your project? Etc)

Did you find the Triangulation method useful to developing your ideas or sketches? Not really

In a sentence or two, please describe any ideas that were derived from the Triangulation play:

Do you think you might try using this Triangulation mapping again in the future? No

From the perspective of the project work you do in your discipline, how do you think you might use the Triangulation method?

Do you see any other application or use for this Triangulation map/sketching? for a written project

Thank you so much for your time!

Thinking Through Glass
Participant Questionnaire
Event Date: 8th November 2018

Year: ____Undergraduate Student 1 MA/MFA Student ____ PhD Student ____ Other

Gender: ✓ Female ____ Male ____ Unspecified

Do you have a learning adjustment? No

Discipline/School: GLASS / ECA

Sketching/Ideas Workshop Questions
Did you try the Triangulation Word map/sketch? ✓ yes ____ no

If yes, what three words or triangulation points did you use? GLASS, MATERIAL, NARRATIVE

If you tried Triangulation, did you try ____ individually ✓ or with a group?

Did you converse while you worked on your map/sketch or were you quiet? YES

After the first attempt at Word Triangulation, did you use or develop your map/sketch again? ____ yes ✓ no
If yes, could you describe what more you did with your map/sketch? (i.e. Did you sketch more? Use it to help with talking points about your project? Etc)

Did you find the Triangulation method useful to developing your ideas or sketches? Maybe.

In a sentence or two, please describe any ideas that were derived from the Triangulation play:
I don't feel big differences between spidermap (mind-map) and this one.

Do you think you might try using this Triangulation mapping again in the future? Maybe??

From the perspective of the project work you do in your discipline, how do you think you might use the Triangulation method?
If I "really" struggle to develop my idea, I might use...

Do you see any other application or use for this Triangulation map/sketching? NO. (but mind-map)

Thank you so much for your time!

Thinking Through Glass
Participant Questionnaire
Event Date:

Year: _____Undergraduate Student ____(MA/MFA Student)____ PhD Student _____ Other

Gender: ____(Female) _____ Male _____ Unspecified

Do you have a learning adjustment? DYSLEXIA

Discipline/School: ECA

Sketching/Ideas Workshop Questions
Did you try the Triangulation Word map/sketch? ____(yes) _____ no

If yes, what three words or triangulation points did you use? JOHNS GLASS 

If you tried Triangulation, did you try _____ individually _____or with a group?

Did you converse while you worked on your map/sketch or were you quiet? CONVERSED

After the first attempt at Word Triangulation, did you use or develop your map/sketch again? _____(yes)_____ no
If yes, could you describe what more you did with your map/sketch? (i.e. Did you sketch more? Use it to help with talking points about your project? Etc)
I HAD ONE MAIN IDEA OF JUST DRAWING

Did you find the Triangulation method useful to developing your ideas or sketches? I FOUND SKETCH BOOK BETTER

In a sentence or two, please describe any ideas that were derived from the Triangulation play: I THINK THOUGH DRAWINGS MORE / WORDS DON'T & GRAB ME IN THIS WAY — IF THE VISUAL OF THE THREE COLOURS USEFUL BUT FOUND THIS A TAD TOO FORCED

Do you think you might try using this Triangulation mapping again in the future? NOT WITH MY CREATIVE THINKING PATH

From the perspective of the project work you do in your discipline, how do you think you might use the Triangulation method? ??

Do you see any other application or use for this Triangulation map/sketching? I THINK THIS PROCESS AS A GROUP WOULD WORK BETTER THAN INDURVIDUAL. TO CREATE A DESIGN IN WITHIN A GROUP FORMAT

Thank you so much for your time!

Thinking Through Glass
Participant Questionnaire
Event Date:

Year: _____Undergraduate Student __✓__MA/MFA Student _____ PhD Student _____ Other

Gender: _____ Female __✓__ Male _____ Unspecified

Do you have a learning adjustment? No

Discipline/School: Glass / The university of Endinburgh collage of Art.

Sketching/Ideas Workshop Questions
Did you try the Triangulation Word map/sketch? __✓__ yes _____ no

If yes, what three words or triangulation points did you use? Glass / Narrative / Material.

If you tried Triangulation, did you try _____ individually __✓__ or with a group?

Did you converse while you worked on your map/sketch or were you quiet? Yes

After the first attempt at Word Triangulation, did you use or develop your map/sketch again? ✓ yes ✓ no
If yes, could you describe what more you did with your map/sketch? (i.e. Did you sketch more? Use it to help with talking points about your project? Etc)

Did you find the Triangulation method useful to developing your ideas or sketches? Yes

In a sentence or two, please describe any ideas that were derived from the Triangulation play:

Do you think you might try using this Triangulation mapping again in the future? Maybe

From the perspective of the project work you do in your discipline, how do you think you might use the Triangulation method?

Gathering ideas

Do you see any other application or use for this Triangulation map/sketching? No

Thank you so much for your time!

Appendix X.

Mastercard Scholars Workshop

mastercard foundation Scholars Program | THE UNIVERSITY of EDINBURGH

Transformational Leadership Journey Brief

Our Shared Vision

With this programme at the University of Edinburgh, young people courageously change narratives, transform lives, and make a positive impact locally and globally.

Process

From the start of the Scholars Program, we have placed a great deal of value in the *process* just as much the *product*. In the spirit of this, we have approached the development of the Scholars Program as an opportunity to build a community with as much importance as building a program. Our key areas of work included:

Design Day: Using Kaospilot's Vision Backcasting, the 2017 Design Day helped Scholars build their Program starting from a shared vision and the skills, knowledge and attitudes they wanted to gain from the learning space. Different groups then mapped out how to cultivate these attributes through the Program and what activities would do this.

Synthesis: We took the different iterations of the Vision Backcasting framework to create a master list of skills, knowledge, and attitudes and the development of these over the course of the Scholars Program. From here we created three phases of the Scholars Program – understanding, practicing, and embodying transformative leadership.

Program Blueprint: Using this master list of skills, knowledge, and attitudes, we created a blueprint of how these will be delivered year upon year. We had to bear in mind that as student numbers increase each year, Scholars will be participating in different phases of the Program while the capacity of the team will still remain the same.

Testing Prototypes: We have spent Years 1 and 2 testing different ways of facilitating the ecosystem, allowing us to understand how our activities could meet the needs of our Scholars and test the capacity within the team.

Final Journey

Based on the work above, the Scholar journey in transformative leadership at the University of Edinburgh has three important phases. These are **understanding**, **practicing** and **embodying**.

Understanding Transformative Leadership

In addition to introducing the concept of transformative leadership, the first phase of the transformative leadership journey on the Scholars Program will focus on understanding strengths, reflecting on Scholars' journeys, identifying ambitions for moving forward, and gaining practice in working effectively within diverse teams. In particular, it will seek to help Scholars develop the following skills, mindsets and knowledge:

Skills	Mindsets	Knowledge
IT Skills	Being Reflective	The City/University of Edinburgh
Self-Reflection	Caring for Yourself	Scholars Program Expectations
Understanding your Identity/Values	Being Value Driven	Support Available
Nurturing Originality	Being Positive	Wellbeing and Mental Health
Self-Kindness	Having Patience	Personal Impact
Time Management	Being Yourself	Your Beliefs, Cultures and Values
Taking Criticism	Yes and...	Cultural Awareness
Teamwork	Authenticity	Conflict Resolution
Communication & Listening	Vulnerability	Communication
Conflict Resolution	Empathy	Listening
Facilitation	Flexibility	Facilitation

Programming in this phase includes the Orientation Week (all), Edinburgh Summer School (UG), Reflective Coaching Sessions (all), The Firbush Leadership Retreat (PG) and discussion groups on gender, identity and leadership (all).

Practicing Transformative Leadership

This phase of the Scholars Program will build off of the Scholars' understanding of transformative leadership, the self and teams. It will focus on further exploring and practicing transformative leadership in different systems, settings and contexts both in the UK and in their home regions, helping Scholars develop the following:

Skills	Mindsets	Knowledge
Help to Self Help	Doing (not Talking)	Systems Thinking
Strategic Thinking	Growth Mindset	Design Process
Professional Skills	Understand the Problem	Enterprise
Research	Roll up your Sleeves	Different Contexts
Organisational Communication	Community-focused	Prototyping

This stage includes work-based (PG) and project-based (UG) placements and their support packages, the Africa-based summer school (UG), giving back opportunities (all), the Edinburgh Award (all), and action-led learning opportunities (all) which run throughout the year.

Embodying Transformative Leadership

As the last phase of the Scholars Program, this will bring together all the work from the previous year/s and focused on facilitating pathways into enterprise, consultancy, employment, further education, and any other opportunities. Scholars will focus on packaging up their transformative leadership journey and learnings in order transition effectively into life beyond the scholarship and Edinburgh.

Skills	Mindsets	Knowledge
Critical Thinking	Fake it to Make it	Business Development
Presentation	Holistic	Enhancing Strengths
Business Development	Proud and Grateful	Positioning
Financial Literacy	Grounded	Networking
Resilience	Ready	Next Steps

This stage includes the Edinburgh Award (all), Transitions Pathways Package (all), Alumni platform (all), Writing Retreat (PG), Coaching Circle (UG) and Leading Leaders Scheme (UG).

Mastercard Foundation Scholars Program
Design Day
Saturday, 21 April
10-4pm

We believe that Scholars are the designers and leaders of their own leadership journeys in Edinburgh. Each Scholar comes with a unique set of skills, passions and experiences and supplements these while here through participating in retreats, seminars, workshops and talks meant to encourage, inspire and develop their journey towards understanding and embodying transformative leadership. The Design Day is an opportunity for Scholars to come together and utilise both their shared and individual experiences to play a direct role in developing the Program for the benefit of current and future recipients of the Scholarship.

Outputs from the Design Day will be incorporated into the programming and orientation activities for the 2018/2019 academic year.

CHALLENGES

Over the course of the day, groups will explore one of four challenges which they have already volunteered to be a part of.

- Each of the challenges should tie into the wider learning strategy, ethos, and values of the Scholars Program as outlined and the capacity of the Scholars Program team, Scholars, and community.
- You will work within self selected teams who have volunteers for the different challenges.
- You will be guided through a creative triangulation process to identify the driver behind your experiences which will then shape what you build. You will get a couple hours in the afternoon to design your experiences and build your Show & Tell presentation.
- You will share all the outputs with the Scholars Team to be incorporated into future programming.

SHOW AND TELL

- You will present on your challenge during the Show & Tell at the end of the Design Day. The format of your presentation is up to you but should touch upon your process and final product, as outlined in the challenge briefs. These presentations will be recorded and used to help shape the 2018/2019 academic year programming.
- It's important to think about how you tell the story of the experience you are designing - it could be handbook, a website advertising the particular aspect of the Scholars Program, a virtual learning space, or a syllabus. We are keen for you to build a timetable that takes into account the learning strategy, your drivers, and experiences and allow you to share this is an creative and interactive way.

Challenge 1

Design an orientation experience programme for new Postgraduate Scholars true to the learning strategy, values, and aims of the Scholars Program

In order to ease the transition of new Scholars into the city, University and Scholars Program, the Scholar Program Team organises and delivers a Scholar Orientation Week that takes place one week before the University's own Welcome Week.

This week traditionally contains a mixture of practical activities (e.g. securing back accounts, registering with a doctor, getting used to your Macbook), student led workshops (budgeting, what to expect), team building events (speed-dating, Edinburgh city treasure hunt) and MCF expectation-setting sessions (the Scholars Program, University support networks). The key aims for the Orientation Week are to increase confidence, empower Scholars to feel prepared, build a sense of community and help people feel settled and ready to go by the first lecture.

The Orientation Week should take into account both Scholars' needs and the capacity of the team. Some of the logistics and delivery of the Orientation Week itself will be led by a small group of Scholar Orientation Volunteers (existing Scholars going into their second year). These Volunteers will be chosen after the Design Day through an application process. Some Postgraduate Scholars will also be approached to assist, although their Scholarship comes to an end in August and some will be unavailable in September.

The Challenge

You are invited to design an orientation experience for new Postgraduate Scholars true to your experiences and the values and aims of the Scholars Program.

- Scholars on-campus orientation program takes place before Welcome Week, however - you are invited to explore the concept of orientation beyond the programming for this year (but we do appreciate ideas to strengthen this time of the year).
- Integrate into established orientation and partner activities as much as possible
- Keep in mind scalability as numbers may rise from year to year
- Use your own experiences and those around you to design your experience
- All ideas must take into account the capacity of the MCF Team and Scholar Volunteers to deliver, as well as the budget available.

You will be guided through a creative triangulation process to identify the driver behind your experiences which will then shape what you build. You will get a couple hours in the afternoon to design your experiences and build your Show & Tell presentation.

It's also important to think about how you tell the story of the experience you are designing - it could be handbook, a website advertising the particular aspect of the Scholars Program, a virtual learning space, or a syllabus. We are keen for you to build a timetable that takes into account the learning strategy, your drivers, and experiences but you can share this is an creative and interactive way.

Useful Resources

You can find last year's UG timetable here and the PG timetable here.

Challenge 2

Design an orientation experience programme for new Undergraduate Scholars true to the learning strategy, values, and aims of the Scholars Program

In order to ease the transition of new Scholars into the city, University and Scholars Program, the Scholar Program Team organises and delivers a Scholar Orientation Week that takes place one week before the University's own Welcome Week.

This week traditionally contains a mixture of practical activities (e.g. securing back accounts, registering with a doctor, getting used to your Macbook), student led workshops (budgeting, what to expect), team building events (speed-dating, Edinburgh city treasure hunt) and MCF expectation-setting sessions (the Scholars Program, University support networks). The key aims for the Orientation Week are to increase confidence, empower Scholars to feel prepared, build a sense of community and help people feel settled and ready to go by the first lecture.

The Orientation Week should take into account both Scholars' needs and the capacity of the team. Some of the logistics and delivery of the Orientation Week itself will be led by a small group of Scholar Orientation Volunteers (existing Scholars going into their second year). These Volunteers will be chosen after the Design Day through an application process. Some Postgraduate Scholars will also be approached to assist, although their Scholarship comes to an end in August and some will be unavailable in September.

The Challenge

You are invited to design an orientation experience for new Undergraduate Scholars true to your experiences and the values and aims of the Scholars Program.

- Scholars on-campus orientation program takes place before Welcome Week, however - you are invited to explore the concept of orientation beyond the programming for this year (but we do appreciate ideas to strengthen this time of the year).
- Integrate into established orientation and partner activities as much as possible
- Keep in mind scalability as numbers may rise from year to year
- Use your own experiences and those around you to design your experience
- All ideas must take into account the capacity of the MCF Team and Scholar Volunteers to deliver, as well as the budget available.

You will be guided through a creative triangulation process to identify the driver behind your experiences which will then shape what you build. You will get a couple hours in the afternoon to design your experiences and build your Show & Tell presentation.

It's also important to think about how you tell the story of the experience you are designing - it could be handbook, a website advertising the particular aspect of the Scholars Program, a virtual learning space, or a syllabus. We are keen for you to build a timetable that takes into account the learning strategy, your drivers, and experiences but you can share this is an creative and interactive way.

Useful Resources

You can find last year's UG timetable here and the PG timetable here.

Challenge 3

Design the Postgraduate Scholar transformative leadership experience true to the learning strategy, ethos and values of the Scholars Program.

Last year's Design Day made use of Kaospilot's Vision Backcasting Tool to help undergraduate and postgraduate Scholars build the entire Scholars Program journey, starting from a shared vision.

From this, a learning strategy emerged based on three phases of the development of transformative leadership - **understanding**, **practicing** and **embodying** this concept to prepare Scholars for the return home to their own communities. The skills, mindsets and key knowledge that should are to be developed at each phase have been included on the one page MCF Edinburgh Transformative Leadership Journey Brief.

The Challenge

You are invited to design the Postgraduate transformative leadership experience true to the learning strategy, ethos and values of the Scholars Program.

In addition, MCF programming should make use of peer support and provide a service relevant to their future goals and above of what is already available at the University.

The goal of this strand of the Design Day is thus to allow postgraduates the opportunity to design a PG-specific leadership program within the following criteria:

- Aligns with the existing framework and phases of the Scholars' journey as created in last year's Design Day.
- As we are looking to make change beyond the scholarship, programming should be collaborative, sustainable, and scalable.
- Takes into account the need to mix postgraduates and undergraduates at certain points.
- Takes into account the capacity of the MCF Team to organise, facilitate and deliver session and includes 2 hours per year group per month (currently a 'Midweek Meet'), and 3 hours for all Scholars per month (currently a Scholar Saturday).
- Prepares them for their work-based placement and future career goals.
- Utilises expertise available in the United Kingdom and Edinburgh in particular.
- Does not place undue strain on the MCF programming budget.

Useful Resources

You can read about last year's Design Day process here, and the final the result here.

Challenge 4

Design the Undergraduate Scholar transformative leadership experience true to the learning strategy, ethos and values of the Scholars Program.

Last year's Design Day made use of Kaospilot's Vision Backcasting Tool to help Scholars build the entire Scholars Program journey, starting from a shared vision.

From this, a learning strategy emerged based on three phases of the development of transformative leadership - **understanding**, **practicing** and **embodying** this concept to prepare Scholars for the return home to their own communities. The skills, mindsets and key knowledge that should are to be developed at each phase have been included on the one page MCF Edinburgh Transformative Leadership Journey Brief.

The Challenge

You are invited to design the Undergraduate transformative leadership experience true to the learning strategy, ethos and values of the Scholars Program.

In addition, MCF programming should make use of peer support and provide a service relevant to their future goals and above of what is already available at the University.

The goal of this strand of the Design Day is thus to allow postgraduates the opportunity to design a PG-specific leadership program within the following criteria:

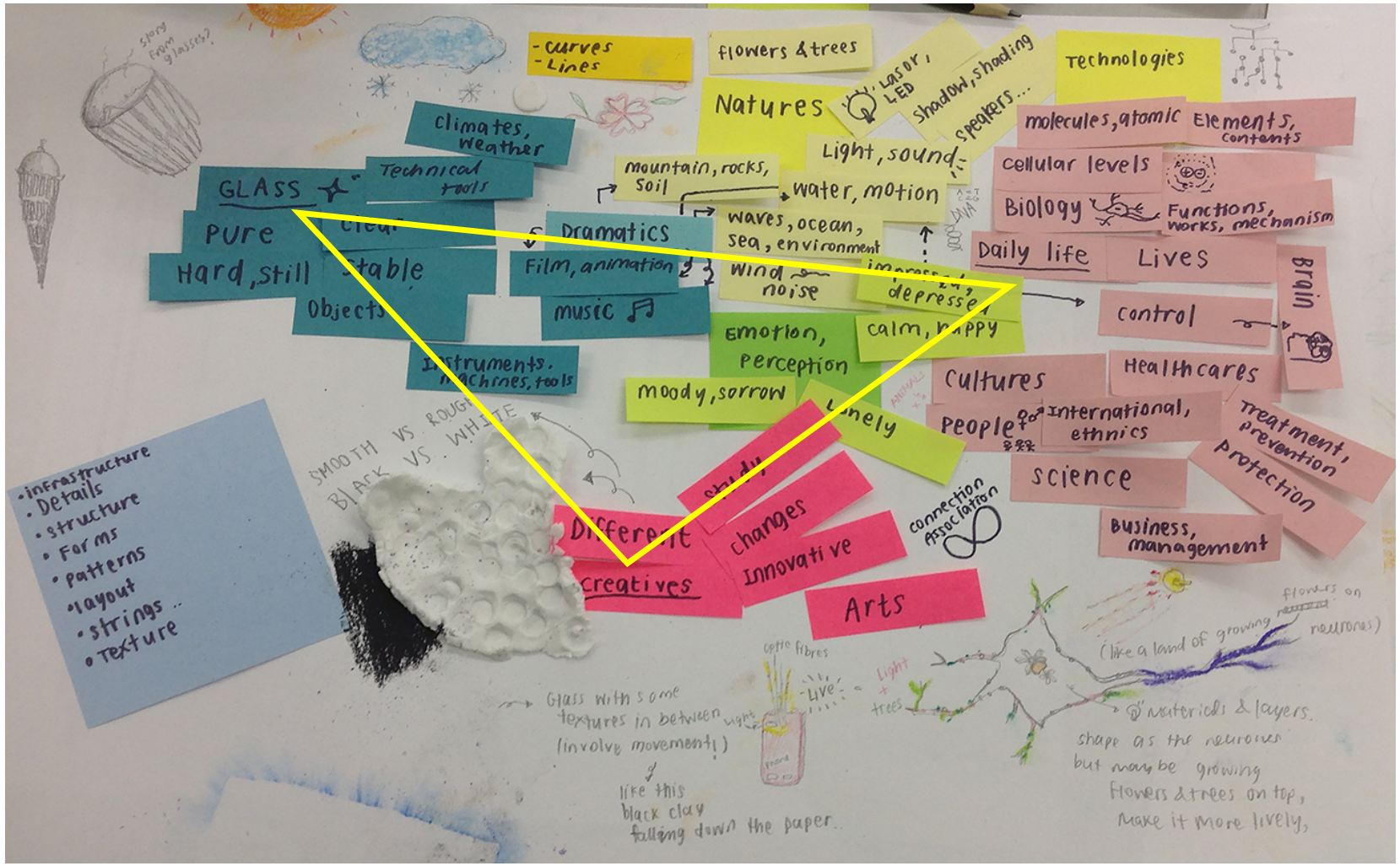
- Aligns with the existing framework and phases of the Scholars' journey as created in last year's Design Day.
- As we are looking to make change beyond the scholarship, programming should be collaborative, sustainable, and scalable.
- Takes into account the need to mix postgraduates and undergraduates where appropriate.
- Takes into account the capacity of the MCF Team to organise, facilitate and deliver session and includes 2 hours per year group per month (currently a 'Midweek Meet'), and 3 hours for all Scholars per month (currently a Scholar Saturday).
- Prepares them for their work-based placement and future career goals.
- Utilises expertise available in the United Kingdom and Edinburgh in particular.
- Does not place undue strain on the MCF programming budget.

Useful Resources

You can read about last year's Design Day process here, and the final the result here.

Creative Triangulation

A Studio Mandala Design Tool for Idea Generation

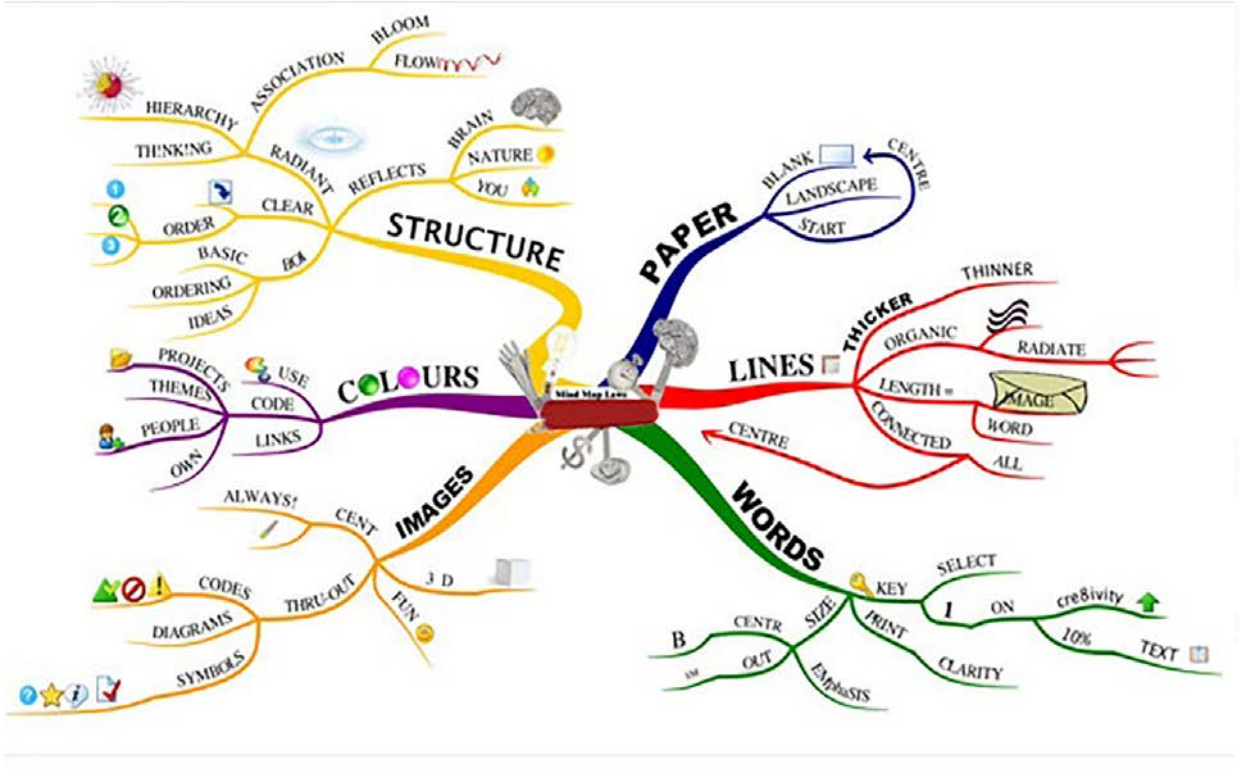


Student Sketch using Word Triangulation for Innovative Learning Week, 2015. Image: Lisa Naas

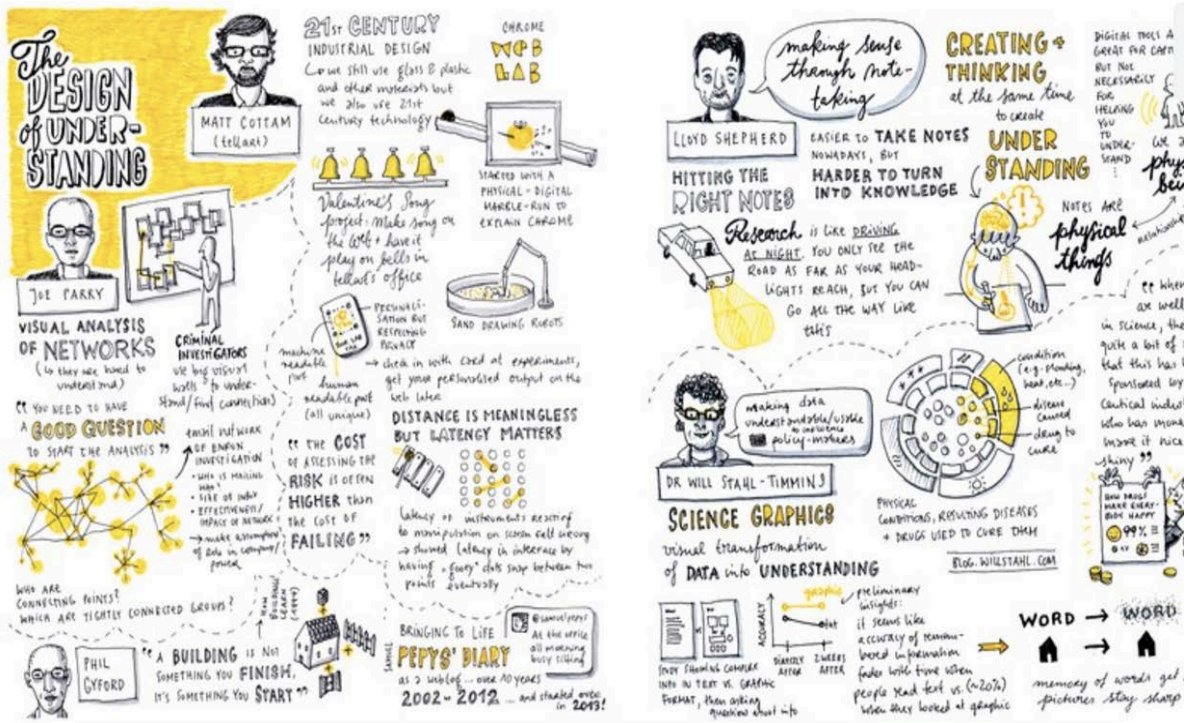
Developed by: Lisa Naas, PhD Student in Design, Edinburgh College of Art

Creative Triangulation

Creative Triangulation fits in the genre of mapping tools like these below,
but I developed it as a reaction to these tools that are more for organising information and less about generating ideas



Screenshot from Tony Buzan's website explaining a Mind Map using a Mind Map form (http://www.tonybuzan.com/about/mind-mapping/).



Screenshot of Sketch-notes from Eva-Lotta Lamm's website: www.sketchnotebooks.com

Creative Triangulation

Incorporates theories and elements of creativity into the design to enable idea generation

- **The design creates a tension between structure and chaos, while still focusing on the primary concepts of a design brief or challenge**
- **The design highlights words as carriers of whole concepts**
- **It allows and enables associative, combinatorial thinking that draws on a user's holistic experience of the concepts being explored**
- **The design takes principles of mindfulness and yoga and acts as a studio mandala, assisting the user in awareness of his/her thoughts, memories, experiences of the concepts**
- **It acknowledges that chance/accident play roles in creativity and allows for them**
- **The design acts as an extension of the mind-space to visualise a train of thought**

Creative Triangulation: Aims

- **To focus thinking on a design problem, question, challenge, or brief**
- **To assist with the visualisation of that thinking**
- **To find common ground or a shared vision among collaborative team members**
- **To find unique ways to join unrelated elements**
- **To work towards the development of a seed idea to forward a creative project through association and combination of elements**

Creative Triangulation: Guidelines and Suggestions

- **Begin with a large, blank sheet of paper; set an exploratory statement or question based on your brief. You might want to use your Challenge statement or turn it into a question or draw from the descriptions of the Challenges.**
- **Choose three words or elements based on your exploratory statement or question-these will be your map anchors or gateways into the design issue; designate a colour for each element**
- **Focus on just one of the anchor elements and write your associations on the sticky notes; attach the associations to the word or place on the map where they develop**
- **Move on to the next anchor word and do the same; you might notice that an interplay of the words brings up memories, experiences, seemingly unrelated thoughts…put everything down on the paper; don't judge your response**
- **Continue on to make associations with the third word**
- **Take a break and shift focus for a bit if you have finished associations but still need a theme or idea**
- **Return to the map-sketch; view it as a whole and develop it from this new perspective**
- **Now try to respond to your initial exploratory statement or question**

Creative Triangulation: Example Demonstration from a Collaborative Project

- Our interdisciplinary Makers Marks team (www.inconcertwithglass.com) was awarded a grant from the Royal Academy of Engineering in 2015 to develop a body of work and exhibition to enable public engagement with engineering; (Makers Marks is a team of glass artists, designers, composers, sound engineers, and computer engineers)

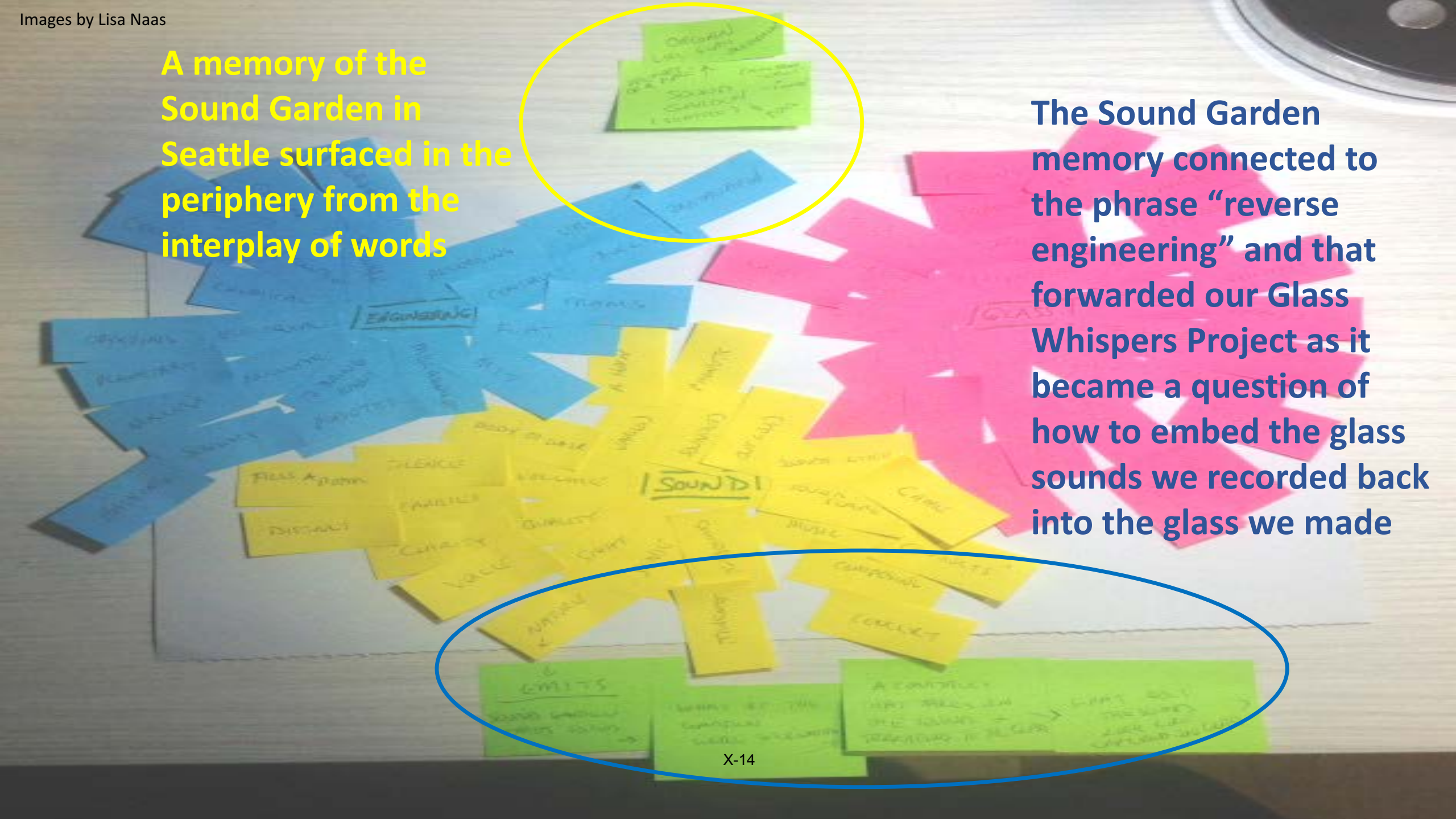
- We had completed sessions of recording the sounds of glassmaking but were stuck with what to do with all the material we had…how were we to turn it into a body of work?

- I used Creative Triangulation to develop the project driver that then led to our collaborative art outputs

- I pulled from our team and the grant brief to develop the exploratory question for the Triangulation:

How can we combine glass, sound, and engineering to create a body of work?

Images by Lisa Naas



A memory of the Sound Garden in Seattle surfaced in the periphery from the interplay of words

The Sound Garden memory connected to the phrase “reverse engineering” and that forwarded our Glass Whispers Project as it became a question of how to embed the glass sounds we recorded back into the glass we made

How can we embed the sounds of the glassmaking back into the glass itself?

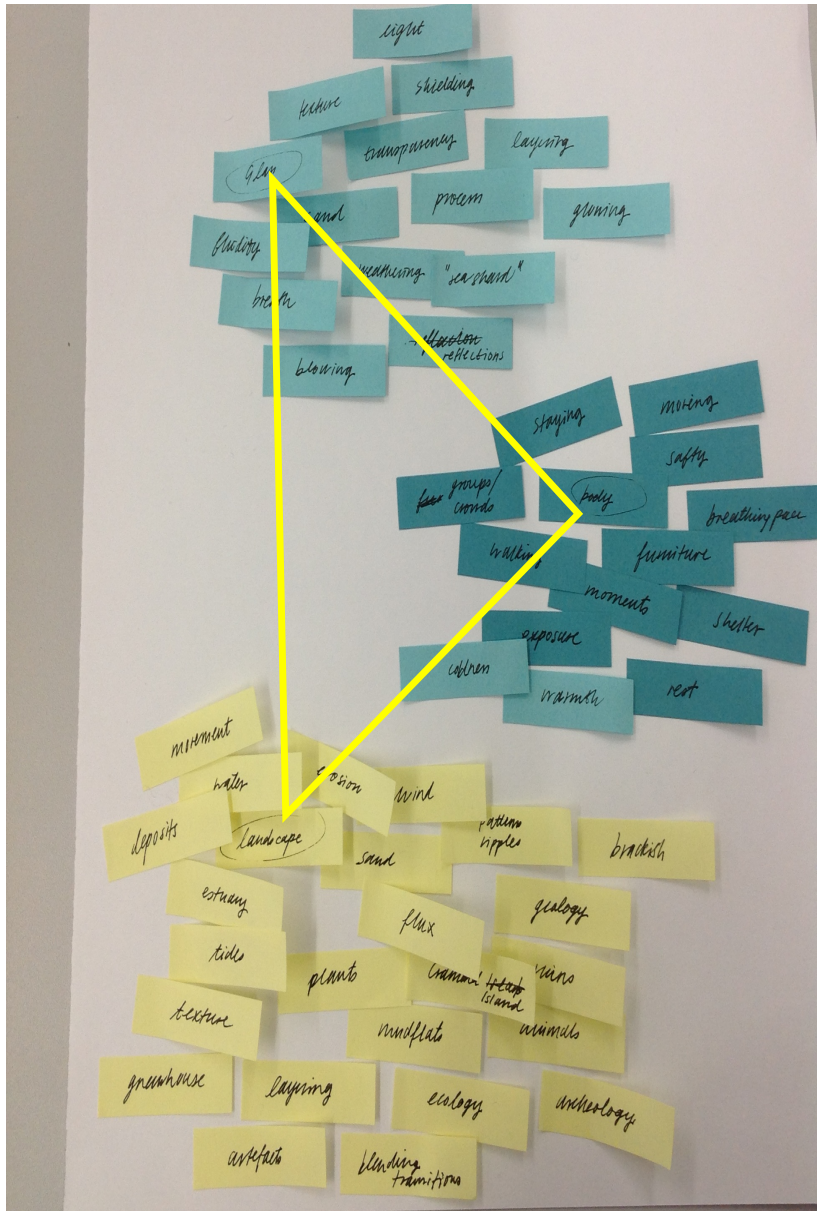


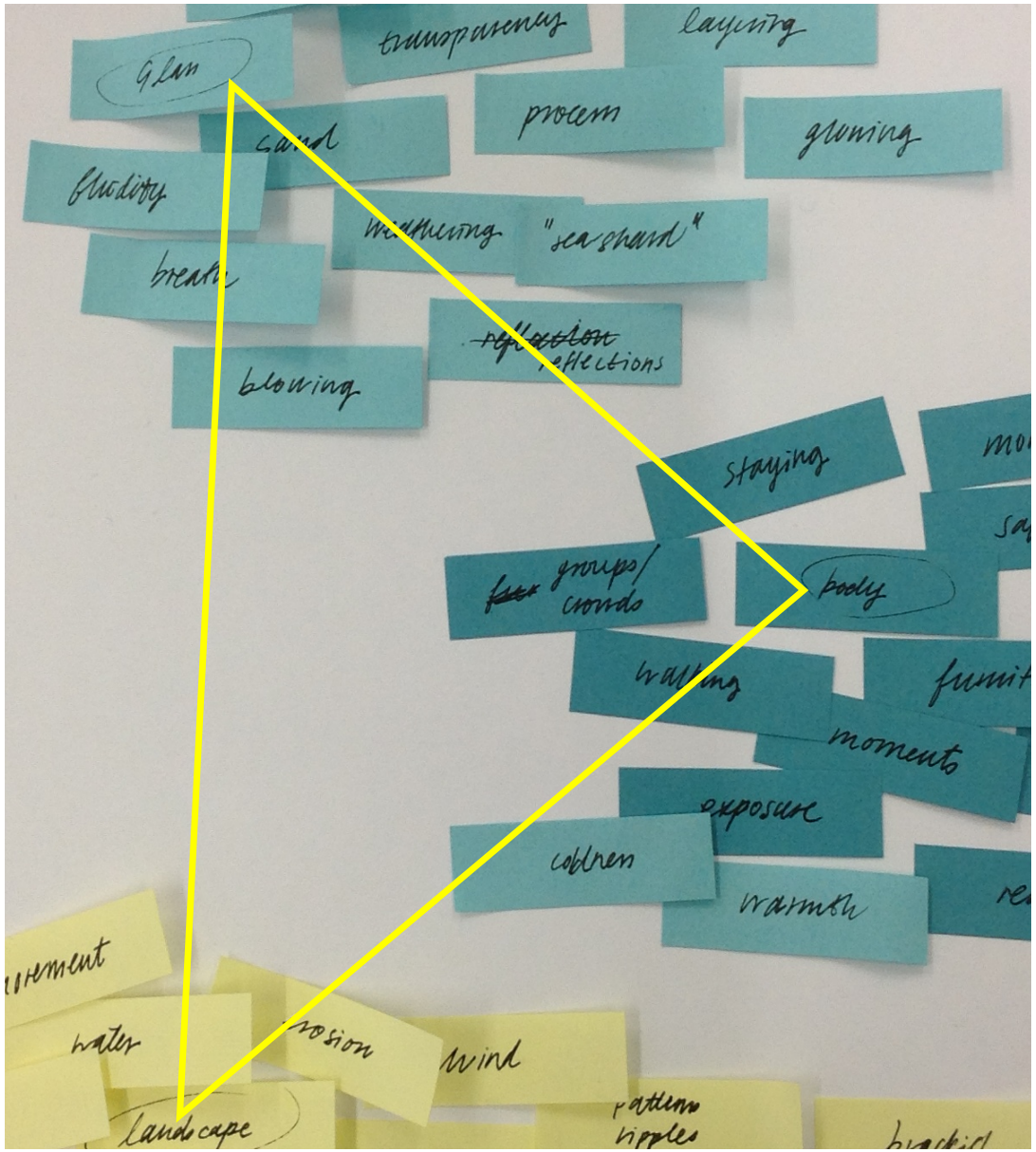
"Visitor Interacting with Sound," 2016 Glass, 2016 Image Alex Hall

Creative Triangulation: Examples from Studies of Students Using the Tool

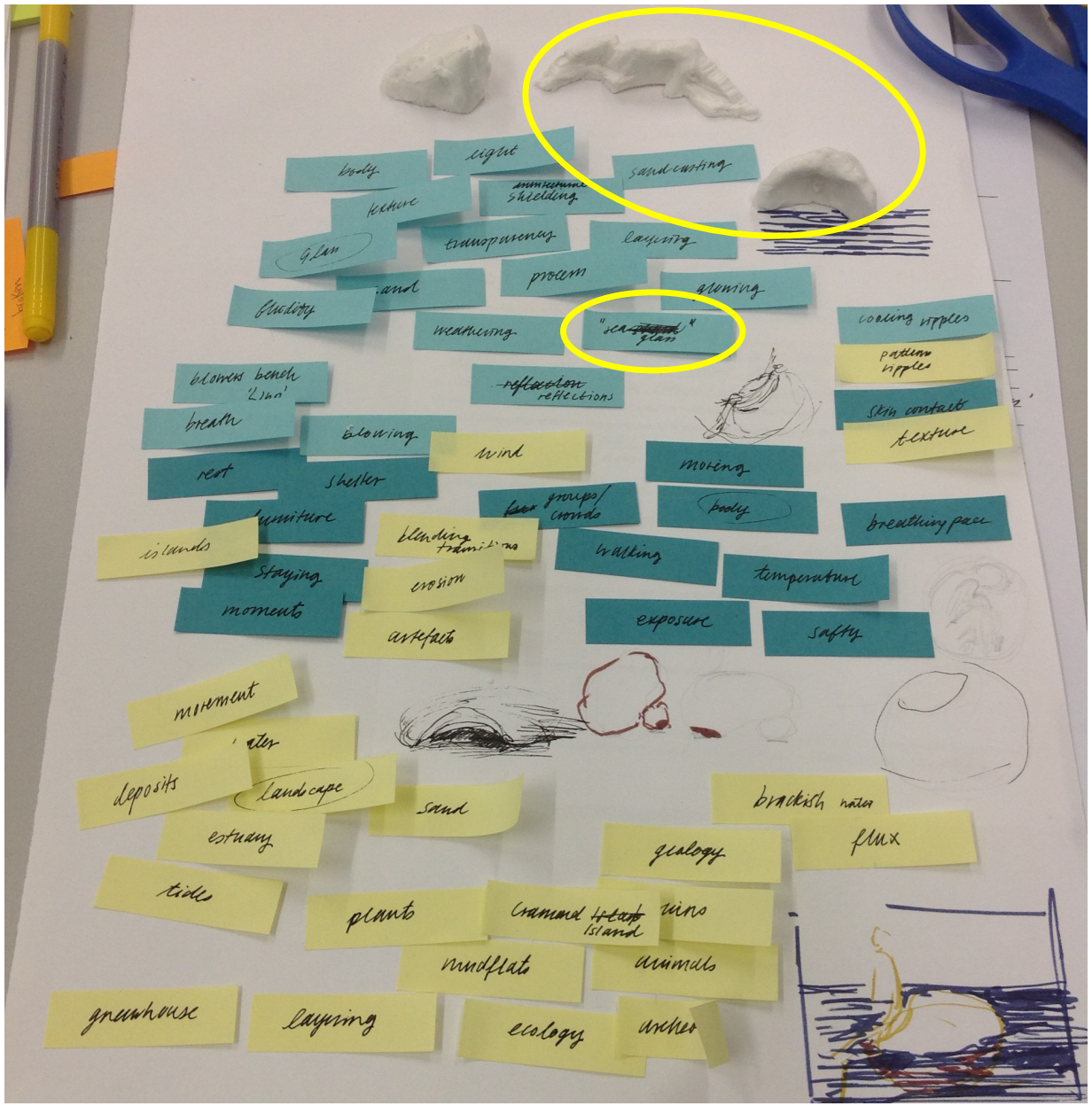
- **The brief was for the students from outside of the glass department to design a glass work by viewing “glass” through the lens of their disciplines**
- **This landscape architecture student’s gateway, anchor elements were: “glass”, “body”, and “landscape”**
- **Her exploratory question was:**

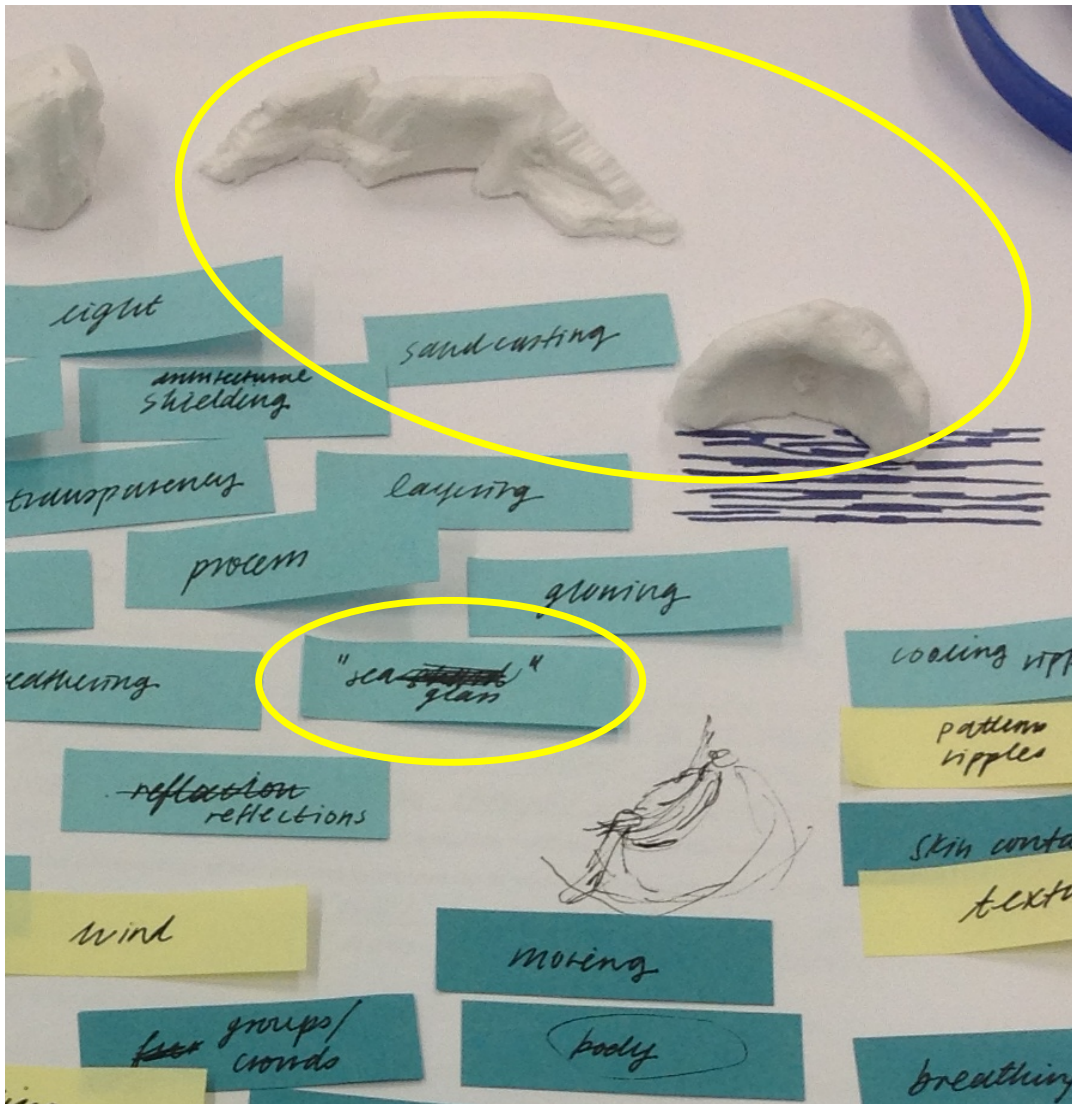
How can I view glass through my discipline of landscape architecture to design a glass work that relates to the body?





Triangulation by Landscape Architecture student from pilot study with gateway/anchor elements highlighted as “glass”, ”body”, and “landscape” (author image, 2015). X-17



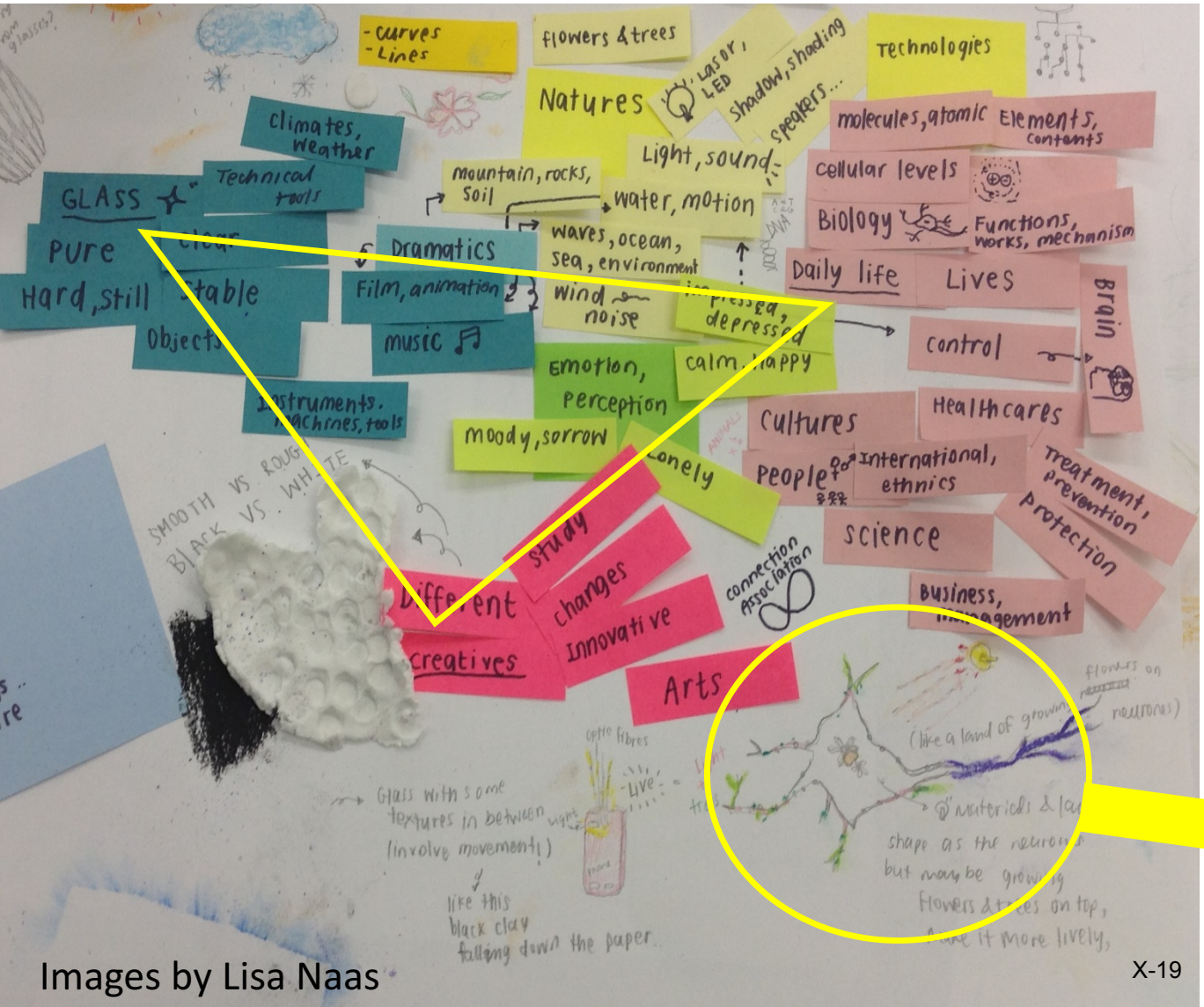


X-18

Landscape Architecture student map after glass instruction; the highlighted circles indicate the clay constructions that represent the cove-like, glass structures as well as the word of “sea-glass” (author image, 2015).

TRIANGULATION

Left: Bio-medical student map after glass instruction, 2015.
Making the glass object on the right , 2015. Images: Lisa Naas





Images by Lisa Naas

Guidelines for "Creative Triangulation" during Scholars Program Design Day 2018

Developed as a Studio Mandala Design Tool by Lisa Naas, PhD Student in Design

1. **Begin with a large blank sheet of paper**

2. **Set an exploratory statement** for the map-sketch and write it at the top of the page. This could be a question, a design problem, or simply a brief statement of intention for the exercise. Regardless of how you write your statement, this will become the focus of the exercise and should encourage your team to work toward a shared vision. *For the Design Day Challenges, you may want to use the actual challenges or restate them to explore the challenge from your perspective. For instance, the first Challenge states: "Design an orientation experience programme for new Postgraduate Scholars true to the learning strategy, values, and aims of the Scholars Program". You might choose to use this statement or turn it around to a question that addresses an aspect of the orientation: How can we design a welcoming orientation experience for new Postgraduate Scholars to ease their transition into the city and the Scholars Program?*

3. **Choose three elements** to act as anchors for the map-sketch (at least two should be words but images or drawings will work as well). These three words or elements should be pivotal to the exploration of your statement or question. Put these words down on the paper in some way to indicate that they are the anchors to the map-sketch, to show that they are the focal points. Choose a colour for each of the anchor words. It might be useful to pull from your exploratory statement or question. *For instance, using the example and Challenge above, you might choose "welcoming", "orientation", and "transition" or perhaps your team will decide that exploring what "orientation" and "transition" mean to "Postgraduate Scholars" is more important and these latter three word elements will become your anchor points.*

4. **Focus on just one of the anchor words** to begin your map-sketch. Use sticky notes or other removable bits of paper that are the same colour chosen for the anchor word. **Write your associations on the sticky notes** and put them down on the anchor word of focus. Try to put down all of the associations, connotations, and responses you have to this anchor word. Put down all words that come to mind, even if they seem irrelevant to the project or to the word itself. Or if the association stems from an association word already attached to the anchor element, place the sticky-note on the paper closest to where the word developed in your mind. Put all thoughts down on the paper, try not to stop your map-sketching by judging them. Even if you have a phonetic response or some other thought that seems to make no sense, write it on a sticky note and attach it to the word already on the paper from where it directly developed. If a sound or image or memory comes to mind, try to relay it in words or a doodle drawing. If you are working in teams, feel free also to follow your mind and place your words if you have a response to someone else's word.

5. When associations seem to have stopped coming to mind for the first anchor word, **move on to the next anchor word** and change sticky-note colours according to the new anchor word. Continue making associations. Remember to look back at your exploratory statement occasionally to keep it in mind.

6. At this point or at a point very soon, with so many words and concepts mingling, it is likely that you might have an association or thought that is not directly linked to any one word already on the page. Perhaps a memory or an experience or an idea will come to mind from the relationship between or among some of the words on the page. Try to capture this in words or drawings and place this in a different colour nearby to where you think it developed, based on the location of words on your map-sketch. Draw lines to connect ideas if you think this might be helpful. If you are working in teams and chatting while doing the exercise, capture any phrase that comes up in conversation that you believe is not yet on the map.

7. **Continue on to focus and make associations with the third word** after associations have stopped for the second. Remember to capture all the thoughts no matter how indirect or seemingly unrelated.

8. If associations have stopped for the third word and you still feel you have not fully explored your statement or have a direction or theme for your project, then **take a break.** Either take a break by shifting focus (walk away from or put away your map-sketch), or take a break from the map-sketch but focus on a tangible idea from the sketching. For instance, if you were working with "Edinburgh", you might consider looking online at the city images or websites.

9. After your break, **return to the map-sketch and look at it as a whole, as a fully-formed sketch**. All of the associative words and many of the drawings will be moveable, so play with them if you'd like. Move them around if it makes sense to you. Respond to the work as a whole and get the responses down on the map.

Informed Consent Form for Lisa Naas, PhD Student, Design (ECA)

Name: [redacted]

Date: 21 April 2018

Project Title: **Creative Triangulation Workshop for Scholars Program Design Day**

Project Summary: Participants will learn "Creative Triangulation" (a new, exploratory method and mapping tool) as an option for developing early ideas/starting points/project drivers to address the challenges posed at Design Day. They will be asked to consider the Scholars Welcome, Orientation, and Program content in relation to the learning strategies and phases of their program. By map-sketching, writing, or constructing ideas through "Creative Triangulation", participants will work together in small groups, seeking to highlight and focus a shared team vision or concept to guide their work on the challenges later during Design Day. The sketches, process, and outputs might be recorded and survey responses will be incorporated into Lisa's dissertation and utilised to develop the tool further.

Objectives

- To introduce participants to associative, creative idea generation through "Creative Triangulation"
- To develop collaborative map-sketches of ideas which might serve to focus a shared vision to respond to the Design Day challenges

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution might be recorded and photographed for the purpose of inclusion, in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of personal data obtained in this study (e.g.: programme, student year).

[redacted] ☑ Please check here if you wish your name to remain anonymous in the dissertation writing.

[redacted]
Participant's Name (Printed)

[redacted]
.....

Lisa Naas
.....
Name of person obtaining consent (Printed)

[redacted]
.....
Signature of person obtaining consent

Informed Consent Form for Lisa Naas, PhD Student, Design (ECA)

Name: [redacted]

Email [redacted]

Date: 21 April 2018

Project Title: **Creative Triangulation Workshop for Scholars Program Design Day**

Project Summary: Participants will learn "Creative Triangulation" (a new, exploratory method and mapping tool) as an option for developing early ideas/starting points/project drivers to address the challenges posed at Design Day. They will be asked to consider the Scholars Welcome, Orientation, and Program content in relation to the learning strategies and phases of their program. By map-sketching, writing, or constructing ideas through "Creative Triangulation", participants will work together in small groups, seeking to highlight and focus a shared team vision or concept to guide their work on the challenges later during Design Day. The sketches, process, and outputs might be recorded and survey responses will be incorporated into Lisa's dissertation and utilised to develop the tool further.

Objectives

- To introduce participants to associative, creative idea generation through "Creative Triangulation"
- To develop collaborative map-sketches of ideas which might serve to focus a shared vision to respond to the Design Day challenges

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution might be recorded and photographed for the purpose of inclusion, in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of personal data obtained in this study (e.g.: programme, student year).

☑ Please check here if you wish your name to remain anonymous in the dissertation writing.

[redacted]

.....

Lisa Naas

.....

Name of person obtaining consent (Printed)

[redacted]

....

Signature of person obtaining consent

Informed Consent Form for Lisa Naas, PhD Student, Design (ECA)

Name:

Email:

Date: 21 April 2018

Project Title: **Creative Triangulation Workshop for Scholars Program Design Day**

Project Summary: Participants will learn "Creative Triangulation" (a new, exploratory method and mapping tool) as an option for developing early ideas/starting points/project drivers to address the challenges posed at Design Day. They will be asked to consider the Scholars Welcome, Orientation, and Program content in relation to the learning strategies and phases of their program. By map-sketching, writing, or constructing ideas through "Creative Triangulation", participants will work together in small groups, seeking to highlight and focus a shared team vision or concept to guide their work on the challenges later during Design Day. The sketches, process, and outputs might be recorded and survey responses will be incorporated into Lisa's dissertation and utilised to develop the tool further.

Objectives

- To introduce participants to associative, creative idea generation through "Creative Triangulation"
- To develop collaborative map-sketches of ideas which might serve to focus a shared vision to respond to the Design Day challenges

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution might be recorded and photographed for the purpose of inclusion, in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of personal data obtained in this study (e.g.: programme, student year).

☑ Please check here if you wish your name to remain anonymous in the dissertation writing.

[redacted]

Lisa Naas

.....

Name of person obtaining consent (Printed)

[redacted]

.....

Signature of person obtaining consent

Informed Consent Form for Lisa Naas, PhD Student, Design (ECA)

Name: [redacted]

Email:

Date: 21 April 2018

Project Title: **Creative Triangulation Workshop for Scholars Program Design Day**

Project Summary: Participants will learn "Creative Triangulation" (a new, exploratory method and mapping tool) as an option for developing early ideas/starting points/project drivers to address the challenges posed at Design Day. They will be asked to consider the Scholars Welcome, Orientation, and Program content in relation to the learning strategies and phases of their program. By map-sketching, writing, or constructing ideas through "Creative Triangulation", participants will work together in small groups, seeking to highlight and focus a shared team vision or concept to guide their work on the challenges later during Design Day. The sketches, process, and outputs might be recorded and survey responses will be incorporated into Lisa's dissertation and utilised to develop the tool further.

Objectives

- To introduce participants to associative, creative idea generation through "Creative Triangulation"
- To develop collaborative map-sketches of ideas which might serve to focus a shared vision to respond to the Design Day challenges

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution might be recorded and photographed for the purpose of inclusion, in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of personal data obtained in this study (e.g.: programme, student year).

☑ Please check here if you wish your name to remain anonymous in the dissertation writing.

[redacted]

Lisa Naas

.....

Name of person obtaining consent (Printed)

[redacted]

.....

Signature of person obtaining consent

Informed Consent Form for Lisa Naas, PhD Student, Design (ECA)

Name:

Email:

Date: 21 April 2018

Project Title: **Creative Triangulation Workshop for Scholars Program Design Day**

Project Summary: Participants will learn "Creative Triangulation" (a new, exploratory method and mapping tool) as an option for developing early ideas/starting points/project drivers to address the challenges posed at Design Day. They will be asked to consider the Scholars Welcome, Orientation, and Program content in relation to the learning strategies and phases of their program. By map-sketching, writing, or constructing ideas through "Creative Triangulation", participants will work together in small groups, seeking to highlight and focus a shared team vision or concept to guide their work on the challenges later during Design Day. The sketches, process, and outputs might be recorded and survey responses will be incorporated into Lisa's dissertation and utilised to develop the tool further.

Objectives

- To introduce participants to associative, creative idea generation through "Creative Triangulation"
- To develop collaborative map-sketches of ideas which might serve to focus a shared vision to respond to the Design Day challenges

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution might be recorded and photographed for the purpose of inclusion, in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of personal data obtained in this study (e.g.: programme, student year).

☐ Please check here if you wish your name to remain anonymous in the dissertation writing.

RITAH NAMWIZA

[redacted]

Participant's Signature

Lisa Naas

.....

Name of person obtaining consent (Printed)

[redacted]

.....

Signature of person obtaining consent

Informed Consent Form for Lisa Naas, PhD Student, Design (ECA)

Name: Grace N. Wasike

Email: [redacted]

Date: 21 April 2018

Project Title: **Creative Triangulation Workshop for Scholars Program Design Day**

Project Summary: Participants will learn "Creative Triangulation" (a new, exploratory method and mapping tool) as an option for developing early ideas/starting points/project drivers to address the challenges posed at Design Day. They will be asked to consider the Scholars Welcome, Orientation, and Program content in relation to the learning strategies and phases of their program. By map-sketching, writing, or constructing ideas through "Creative Triangulation", participants will work together in small groups, seeking to highlight and focus a shared team vision or concept to guide their work on the challenges later during Design Day. The sketches, process, and outputs might be recorded and survey responses will be incorporated into Lisa's dissertation and utilised to develop the tool further.

Objectives

- To introduce participants to associative, creative idea generation through "Creative Triangulation"
- To develop collaborative map-sketches of ideas which might serve to focus a shared vision to respond to the Design Day challenges

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution might be recorded and photographed for the purpose of inclusion, in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of personal data obtained in this study (e.g.: programme, student year).

☐ Please check here if you wish your name to remain anonymous in the dissertation writing.

GRACE N. WASIKE

[redacted]

Lisa Naas

.....

Name of person obtaining consent (Printed)

[redacted]

.....

Signature of person obtaining consent

Informed Consent Form for Lisa Naas, PhD Student, Design (ECA)

Name: [redacted]

Email:

Date: 21 April 2018

Project Title: **Creative Triangulation Workshop for Scholars Program Design Day**

Project Summary: Participants will learn "Creative Triangulation" (a new, exploratory method and mapping tool) as an option for developing early ideas/starting points/project drivers to address the challenges posed at Design Day. They will be asked to consider the Scholars Welcome, Orientation, and Program content in relation to the learning strategies and phases of their program. By map-sketching, writing, or constructing ideas through "Creative Triangulation", participants will work together in small groups, seeking to highlight and focus a shared team vision or concept to guide their work on the challenges later during Design Day. The sketches, process, and outputs might be recorded and survey responses will be incorporated into Lisa's dissertation and utilised to develop the tool further.

Objectives

- To introduce participants to associative, creative idea generation through "Creative Triangulation"
- To develop collaborative map-sketches of ideas which might serve to focus a shared vision to respond to the Design Day challenges

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution might be recorded and photographed for the purpose of inclusion, in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of personal data obtained in this study (e.g.: programme, student year).

☑ Please check here if you wish your name to remain anonymous in the dissertation writing.

[redacted]

Lisa Naas

.....

Name of person obtaining consent (Printed)

[redacted]

.....

Signature of person obtaining consent

Informed Consent Form for Lisa Naas, PhD Student, Design (ECA)

Name: Imrana Buba

Email: [redacted]

Date: 21 April 2018

Project Title: **Creative Triangulation Workshop for Scholars Program Design Day**

Project Summary: Participants will learn "Creative Triangulation" (a new, exploratory method and mapping tool) as an option for developing early ideas/starting points/project drivers to address the challenges posed at Design Day. They will be asked to consider the Scholars Welcome, Orientation, and Program content in relation to the learning strategies and phases of their program. By map-sketching, writing, or constructing ideas through "Creative Triangulation", participants will work together in small groups, seeking to highlight and focus a shared team vision or concept to guide their work on the challenges later during Design Day. The sketches, process, and outputs might be recorded and survey responses will be incorporated into Lisa's dissertation and utilised to develop the tool further.

Objectives

- To introduce participants to associative, creative idea generation through "Creative Triangulation"
- To develop collaborative map-sketches of ideas which might serve to focus a shared vision to respond to the Design Day challenges

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution might be recorded and photographed for the purpose of inclusion, in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of personal data obtained in this study (e.g.: programme, student year).

☐ Please check here if you wish your name to remain anonymous in the dissertation writing.

Imrana Buba

Participant's Name (Printed)

[redacted]

Participant's Signature

Lisa Naas

Name of person obtaining consent (Printed)

[redacted]

Signature of person obtaining consent

Informed Consent Form for Lisa Naas, PhD Student, Design (ECA)

Name: BILLY BYRNES

Email: [redacted]

Date: 21 April 2018

Project Title: **Creative Triangulation Workshop for Scholars Program Design Day**

Project Summary: Participants will learn "Creative Triangulation" (a new, exploratory method and mapping tool) as an option for developing early ideas/starting points/project drivers to address the challenges posed at Design Day. They will be asked to consider the Scholars Welcome, Orientation, and Program content in relation to the learning strategies and phases of their program. By map-sketching, writing, or constructing ideas through "Creative Triangulation", participants will work together in small groups, seeking to highlight and focus a shared team vision or concept to guide their work on the challenges later during Design Day. The sketches, process, and outputs might be recorded and survey responses will be incorporated into Lisa's dissertation and utilised to develop the tool further.

Objectives

- To introduce participants to associative, creative idea generation through "Creative Triangulation"
- To develop collaborative map-sketches of ideas which might serve to focus a shared vision to respond to the Design Day challenges

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution might be recorded and photographed for the purpose of inclusion, in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of personal data obtained in this study (e.g.: programme, student year).

☐ Please check here if you wish your name to remain anonymous in the dissertation writing.

BILLY BYRNES

Participant's Name (Printed)

[redacted]

Lisa Naas

.....

Name of person obtaining consent (Printed)

[redacted]

Signature of person obtaining consent

Informed Consent Form for Lisa Naas, PhD Student, Design (ECA)

Name: Charlegne Rambanapasi

Email: [redacted]

Date: 21 April 2018

Project Title: **Creative Triangulation Workshop for Scholars Program Design Day**

Project Summary: Participants will learn "Creative Triangulation" (a new, exploratory method and mapping tool) as an option for developing early ideas/starting points/project drivers to address the challenges posed at Design Day. They will be asked to consider the Scholars Welcome, Orientation, and Program content in relation to the learning strategies and phases of their program. By map-sketching, writing, or constructing ideas through "Creative Triangulation", participants will work together in small groups, seeking to highlight and focus a shared team vision or concept to guide their work on the challenges later during Design Day. The sketches, process, and outputs might be recorded and survey responses will be incorporated into Lisa's dissertation and utilised to develop the tool further.

Objectives

- To introduce participants to associative, creative idea generation through "Creative Triangulation"
- To develop collaborative map-sketches of ideas which might serve to focus a shared vision to respond to the Design Day challenges

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution might be recorded and photographed for the purpose of inclusion, in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of personal data obtained in this study (e.g.: programme, student year).

☐ Please check here if you wish your name to remain anonymous in the dissertation writing.

CHARLEGNE RAMBANAPASI

Participant's Name (Printed)

[redacted]

Participant's Signature

Lisa Naas

Name of person obtaining consent (Printed)

[redacted]

Signature of person obtaining consent

Informed Consent Form for Lisa Naas, PhD Student, Design (ECA)

Name: Daniel Mwendwa

Email: [redacted]

Date: 21 April 2018

Project Title: **Creative Triangulation Workshop for Scholars Program Design Day**

Project Summary: Participants will learn "Creative Triangulation" (a new, exploratory method and mapping tool) as an option for developing early ideas/starting points/project drivers to address the challenges posed at Design Day. They will be asked to consider the Scholars Welcome, Orientation, and Program content in relation to the learning strategies and phases of their program. By map-sketching, writing, or constructing ideas through "Creative Triangulation", participants will work together in small groups, seeking to highlight and focus a shared team vision or concept to guide their work on the challenges later during Design Day. The sketches, process, and outputs might be recorded and survey responses will be incorporated into Lisa's dissertation and utilised to develop the tool further.

Objectives

- To introduce participants to associative, creative idea generation through "Creative Triangulation"
- To develop collaborative map-sketches of ideas which might serve to focus a shared vision to respond to the Design Day challenges

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution might be recorded and photographed for the purpose of inclusion, in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of personal data obtained in this study (e.g.: programme, student year).

☐ Please check here if you wish your name to remain anonymous in the dissertation writing.

Daniel Mwendwa
Participant's Name (Printed)

[redacted]
Participant's Signature

Lisa Naas
Name of person obtaining consent (Printed)

[redacted]
Signature of person obtaining consent

Informed Consent Form for Lisa Naas, PhD Student, Design (ECA)

Name: Jamila Osman

Email: [redacted]

Date: 21 April 2018

Project Title: **Creative Triangulation Workshop for Scholars Program Design Day**

Project Summary: Participants will learn "Creative Triangulation" (a new, exploratory method and mapping tool) as an option for developing early ideas/starting points/project drivers to address the challenges posed at Design Day. They will be asked to consider the Scholars Welcome, Orientation, and Program content in relation to the learning strategies and phases of their program. By map-sketching, writing, or constructing ideas through "Creative Triangulation", participants will work together in small groups, seeking to highlight and focus a shared team vision or concept to guide their work on the challenges later during Design Day. The sketches, process, and outputs might be recorded and survey responses will be incorporated into Lisa's dissertation and utilised to develop the tool further.

Objectives

- To introduce participants to associative, creative idea generation through "Creative Triangulation"
- To develop collaborative map-sketches of ideas which might serve to focus a shared vision to respond to the Design Day challenges

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution might be recorded and photographed for the purpose of inclusion, in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of personal data obtained in this study (e.g.: programme, student year).

☐ Please check here if you wish your name to remain anonymous in the dissertation writing.

Jamila Osman

[redacted]

Lisa Naas

.....

Name of person obtaining consent (Printed)

[redacted]

.....

Signature of person obtaining consent

Informed Consent Form for Lisa Naas, PhD Student, Design (ECA)

Name: [redacted]

Email:

Date: 21 April 2018

Project Title: **Creative Triangulation Workshop for Scholars Program Design Day**

Project Summary: Participants will learn "Creative Triangulation" (a new, exploratory method and mapping tool) as an option for developing early ideas/starting points/project drivers to address the challenges posed at Design Day. They will be asked to consider the Scholars Welcome, Orientation, and Program content in relation to the learning strategies and phases of their program. By map-sketching, writing, or constructing ideas through "Creative Triangulation", participants will work together in small groups, seeking to highlight and focus a shared team vision or concept to guide their work on the challenges later during Design Day. The sketches, process, and outputs might be recorded and survey responses will be incorporated into Lisa's dissertation and utilised to develop the tool further.

Objectives

- To introduce participants to associative, creative idea generation through "Creative Triangulation"
- To develop collaborative map-sketches of ideas which might serve to focus a shared vision to respond to the Design Day challenges

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution might be recorded and photographed for the purpose of inclusion, in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of personal data obtained in this study (e.g.: programme, student year).

☑ Please check here if you wish your name to remain anonymous in the dissertation writing.

[redacted]

Lisa Naas

.....

Name of person obtaining consent (Printed)

[redacted]

.....

Signature of person obtaining consent

[redacted]nt, Design (ECA)

Name: [redacted]

Email:

Date: 21 April 2018

Project Title: **Creative Triangulation Workshop for Scholars Program Design Day**

Project Summary: Participants will learn "Creative Triangulation" (a new, exploratory method and mapping tool) as an option for developing early ideas/starting points/project drivers to address the challenges posed at Design Day. They will be asked to consider the Scholars Welcome, Orientation, and Program content in relation to the learning strategies and phases of their program. By map-sketching, writing, or constructing ideas through "Creative Triangulation", participants will work together in small groups, seeking to highlight and focus a shared team vision or concept to guide their work on the challenges later during Design Day. The sketches, process, and outputs might be recorded and survey responses will be incorporated into Lisa's dissertation and utilised to develop the tool further.

Objectives

- To introduce participants to associative, creative idea generation through "Creative Triangulation"
- To develop collaborative map-sketches of ideas which might serve to focus a shared vision to respond to the Design Day challenges

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution might be recorded and photographed for the purpose of inclusion, in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of personal data obtained in this study (e.g.: programme, student year).

☑ Please check here if you wish your name to remain anonymous in the dissertation writing.

[redacted]

Lisa Naas

.....

Name of person obtaining consent (Printed)

[redacted]

.....

Signature of person obtaining consent

Informed Consent Form for Lisa Naas, PhD Student, Design (ECA)

Name: [redacted]

Email:

Date: 21 April 2018

Project Title: **Creative Triangulation Workshop for Scholars Program Design Day**

Project Summary: Participants will learn "Creative Triangulation" (a new, exploratory method and mapping tool) as an option for developing early ideas/starting points/project drivers to address the challenges posed at Design Day. They will be asked to consider the Scholars Welcome, Orientation, and Program content in relation to the learning strategies and phases of their program. By map-sketching, writing, or constructing ideas through "Creative Triangulation", participants will work together in small groups, seeking to highlight and focus a shared team vision or concept to guide their work on the challenges later during Design Day. The sketches, process, and outputs might be recorded and survey responses will be incorporated into Lisa's dissertation and utilised to develop the tool further.

Objectives

- To introduce participants to associative, creative idea generation through "Creative Triangulation"
- To develop collaborative map-sketches of ideas which might serve to focus a shared vision to respond to the Design Day challenges

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution might be recorded and photographed for the purpose of inclusion, in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of personal data obtained in this study (e.g.: programme, student year).

☑ Please check here if you wish your name to remain anonymous in the dissertation writing.

[redacted]

Lisa Naas

.....

Name of person obtaining consent (Printed)

[redacted]

Signature of person obtaining consent

Informed Consent Form for Lisa Naas, PhD Student, Design (ECA)

Name: [redacted]

Email: [redacted]

Date: 21 April 2018

Project Title: **Creative Triangulation Workshop for Scholars Program Design Day**

Project Summary: Participants will learn "Creative Triangulation" (a new, exploratory method and mapping tool) as an option for developing early ideas/starting points/project drivers to address the challenges posed at Design Day. They will be asked to consider the Scholars Welcome, Orientation, and Program content in relation to the learning strategies and phases of their program. By map-sketching, writing, or constructing ideas through "Creative Triangulation", participants will work together in small groups, seeking to highlight and focus a shared team vision or concept to guide their work on the challenges later during Design Day. The sketches, process, and outputs might be recorded and survey responses will be incorporated into Lisa's dissertation and utilised to develop the tool further.

Objectives

- To introduce participants to associative, creative idea generation through "Creative Triangulation"
- To develop collaborative map-sketches of ideas which might serve to focus a shared vision to respond to the Design Day challenges

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution might be recorded and photographed for the purpose of inclusion, in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of personal data obtained in this study (e.g.: programme, student year).

☑ Please check here if you wish your name to remain anonymous in the dissertation writing.

[redacted]

Lisa Naas

.....

Name of person obtaining consent (Printed)

[redacted]

.....

Signature of person obtaining consent

Informed Consent Form for Lisa Naas, PhD Student, Design (ECA)

Name: Lauryn Mwale

Email: [redacted]

Date: 21 April 2018

Project Title: **Creative Triangulation Workshop for Scholars Program Design Day**

Project Summary: Participants will learn "Creative Triangulation" (a new, exploratory method and mapping tool) as an option for developing early ideas/starting points/project drivers to address the challenges posed at Design Day. They will be asked to consider the Scholars Welcome, Orientation, and Program content in relation to the learning strategies and phases of their program. By map-sketching, writing, or constructing ideas through "Creative Triangulation", participants will work together in small groups, seeking to highlight and focus a shared team vision or concept to guide their work on the challenges later during Design Day. The sketches, process, and outputs might be recorded and survey responses will be incorporated into Lisa's dissertation and utilised to develop the tool further.

Objectives

- To introduce participants to associative, creative idea generation through "Creative Triangulation"
- To develop collaborative map-sketches of ideas which might serve to focus a shared vision to respond to the Design Day challenges

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution might be recorded and photographed for the purpose of inclusion, in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of personal data obtained in this study (e.g.: programme, student year).

☐ Please check here if you wish your name to remain anonymous in the dissertation writing.

L. MWALE

.....

Participant's Name (Printed)

[redacted] .....

Participant's Signature

Lisa Naas

.....

Name of person obtaining consent (Printed)

[redacted]

.....

Signature of person obtaining consent

Informed Consent Form for Lisa Naas, PhD Student, Design (ECA)

Name: Ramlah Abeaw

Email: [redacted]

Date: 21 April 2018

Project Title: **Creative Triangulation Workshop for Scholars Program Design Day**

Project Summary: Participants will learn "Creative Triangulation" (a new, exploratory method and mapping tool) as an option for developing early ideas/starting points/project drivers to address the challenges posed at Design Day. They will be asked to consider the Scholars Welcome, Orientation, and Program content in relation to the learning strategies and phases of their program. By map-sketching, writing, or constructing ideas through "Creative Triangulation", participants will work together in small groups, seeking to highlight and focus a shared team vision or concept to guide their work on the challenges later during Design Day. The sketches, process, and outputs might be recorded and survey responses will be incorporated into Lisa's dissertation and utilised to develop the tool further.

Objectives

- To introduce participants to associative, creative idea generation through "Creative Triangulation"
- To develop collaborative map-sketches of ideas which might serve to focus a shared vision to respond to the Design Day challenges

I hereby confirm and agree that I have consented to contribute to the Project described above and that I am aware that my contribution might be recorded and photographed for the purpose of inclusion, in whole or in part.

The nature of the project has been fully explained to me and I agree that any material recorded may be used for developing this project further, for future related projects stemming from this work, and for work related to Lisa's PhD in Design at Edinburgh College of Art, The University of Edinburgh.

I will also authorize the dissemination of personal data obtained in this study (e.g.: programme, student year).

☐ Please check here if you wish your name to remain anonymous in the dissertation writing.

Ramlah Abeaw
Participant's Name (Printed)

[redacted]
Participant's Signature

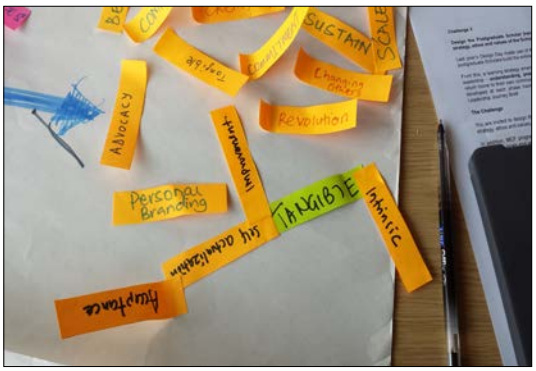
Lisa Naas
Name of person obtaining consent (Printed)

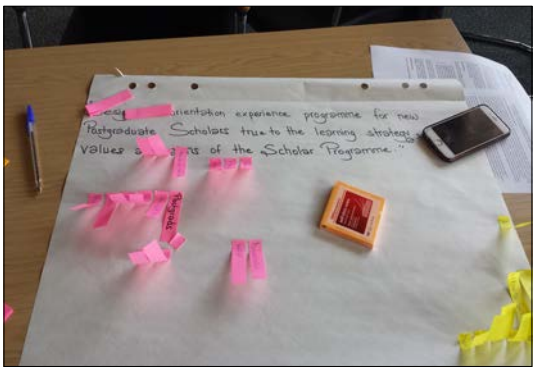
[redacted]
Signature of person obtaining consent

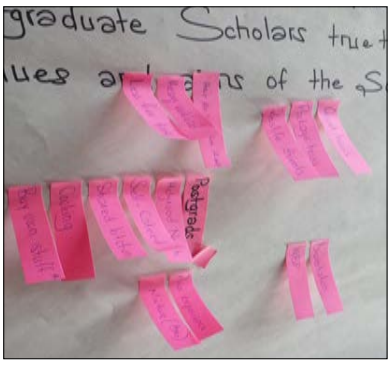
Mastercard Scholars Design Day Photos

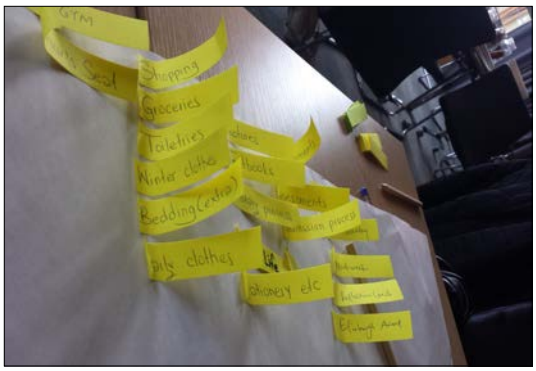


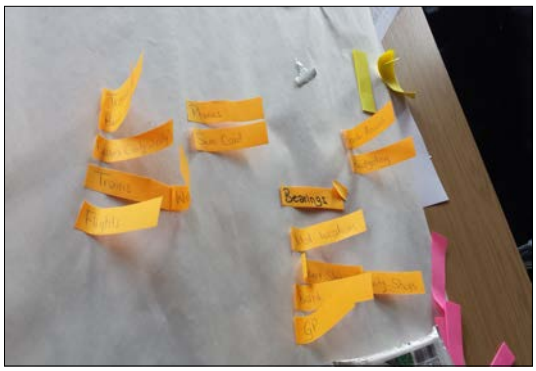






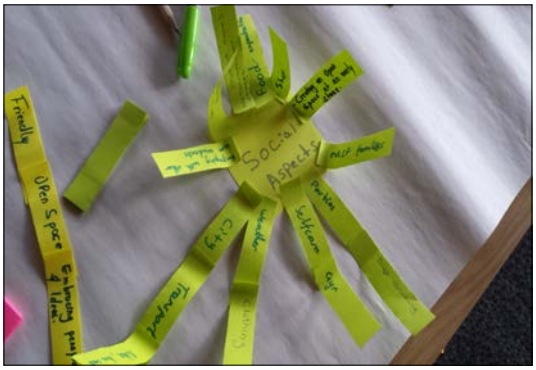


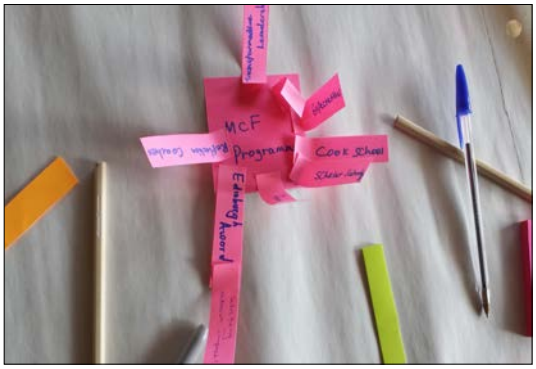




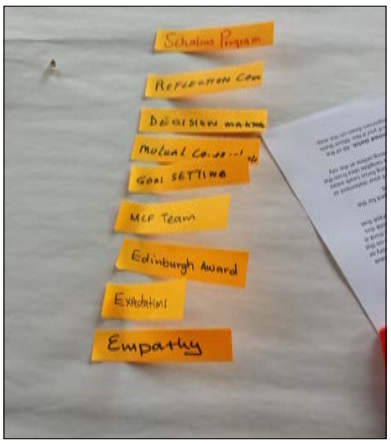



Socities
Timetabling
Uni support
Books


Social Aspects
Friendly
Open Space
City


MCF
Programs
Cook School

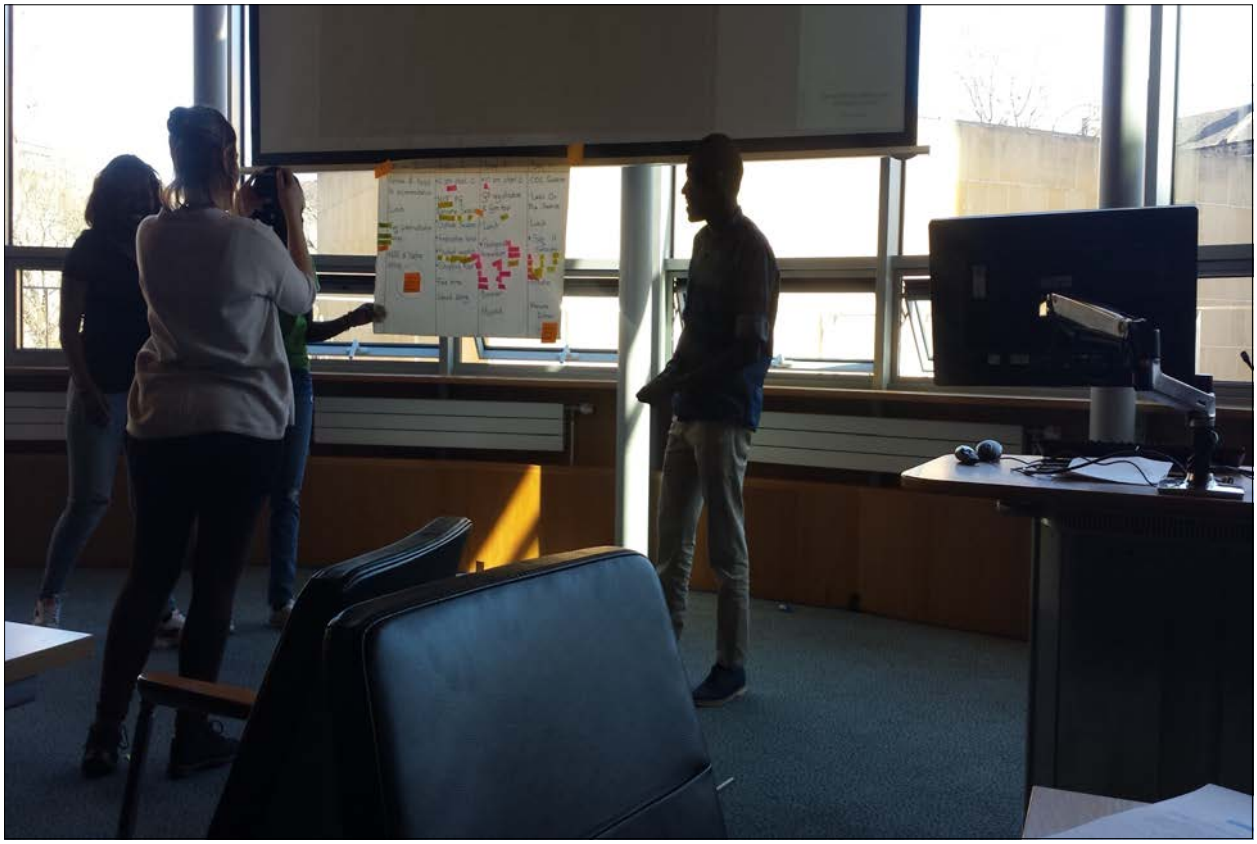


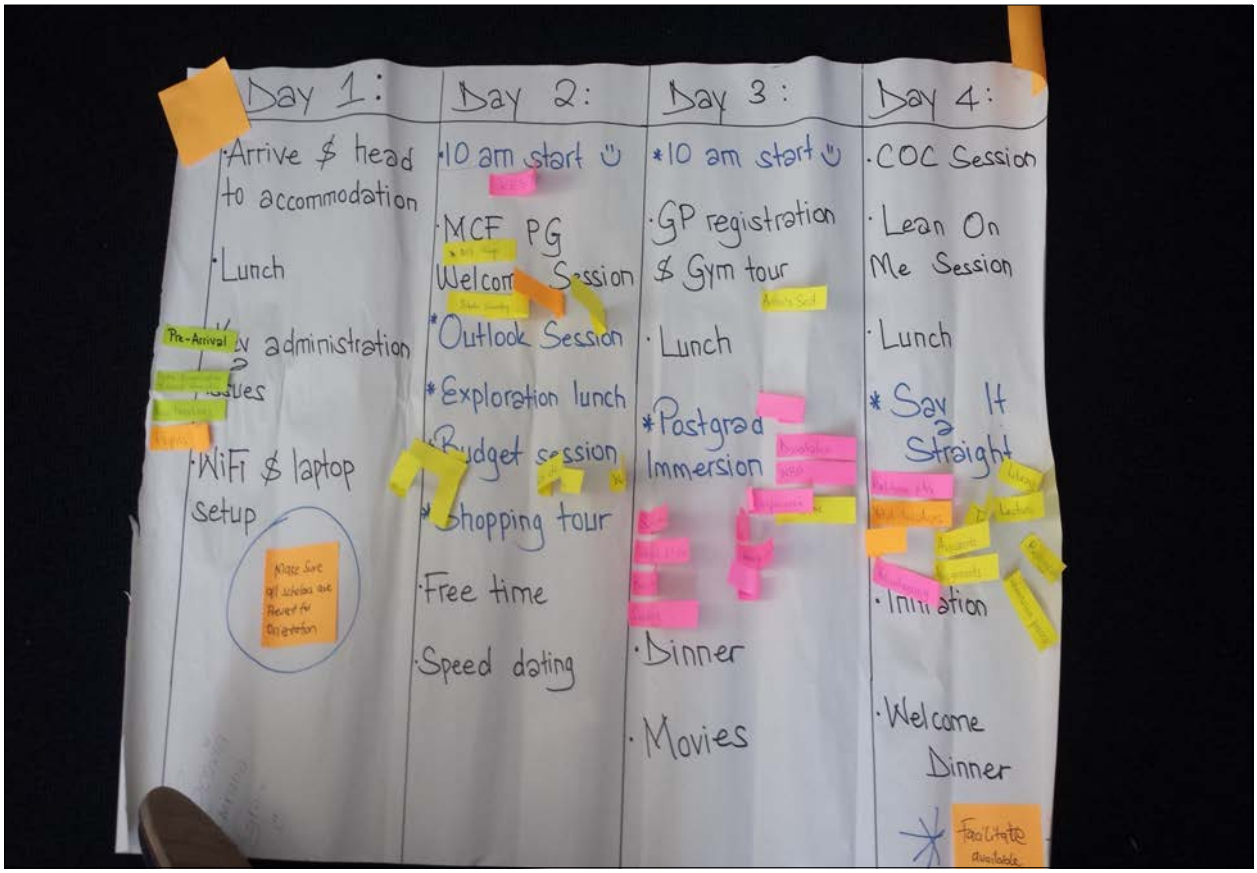

Scholars Program
Decision making
Goal SETTING
MCF Team
Edinburgh Award
Empathy


Authenticity
Studies
Good Relationships
Positivity
News



Mastercard Scholars Presentation Photos
(lifting work from the map-sketch and curating it for the presentation)





OBSERVATIONS

Mastercard Scholars Design Day
21 April

Overview of the Program/Strategy/Challenges-Brief for the Day

1 group 4
1 group 3
2 groups 5

All groups engaged and talking to one another while working on it…the group of four took a longer time discussing how to start; after lunch the groups did reconvene but the group of 4 struggled with the transition from first go at the map to what to do with the information they had listed to make a connection to the challenge; in talking with them, it seemed they had the words, but didn't put them on paper to make the connections (they also asked if they had to make a connection from the map to the final…their words were orientation, postgrad, scholars programs

Seems consensus was in terms of the arrival and the immediate training immersion and intensity of that (first ever airplane flights, long flights, no sleep, no showers, etc)

Midway through the afternoon session, the group of 3 (ch 1-orientation for new post grads joined the group of 4 with the large triangle portrait (ch 3-design the new PG experience)

Presentation Notes

First Group

Large triangle group (understanding, practicing, embodying)
Taken from their maps; notes in three sections on the flipchart paper, but they said ignore the form and imagine a triangle
-handbook for the next cohort
-transformative leadership cannot exist without the three…the whole experience is a triangle
-mysteries around where, when and how…demystify
-an end to end to start before arriving
-PG journey separate from UG
-want comprehensive program above the basics, already have the basics
-skills to review…
-first semester…involved in understanding, have a comprehensive session about leadership, identify the skills needed and prioritise around that
-networking and engaging; career engagement sessions
-mentoring, networking
-embodiment

Second Group

Undergrad orientation
"Adventure awaits"
Pre-arrival- a month before
-scholar guide; vlogs

Second Group Con'd

2 weeks before: meet your family, online q and a
day arrival-rooms and rest and laptop, brief
Day 1 older students telling newer students
Did a full presentation and breakdown of each day, considering logistics

"Lean on me" thread throughout was older students giving advice to the new students
building relaxing time

Third Group
PG orientation
Took from the triangulation and moved the words into their timetable structure
Earlier budget breakdown
Worked from last year's structure…pg orientation
Cut the outlook session in half, just the calendar
Partially split to focus on different needs of PGs than UGs
Possible for team
Driver behind the program from triangulation: too rushed last year, time for rest and relax because by the third day people were breaking down and energy drained

Fourth group
Undergrad orientation
Kept the same structure but added
Added: buddy system, general survival tips, FAQs tailored to new cohort
Changes: rest on the first day, scrap the outlook or make it a drop in

-more comprehensive tours of campus
-add a more practical explanation of how the city works
navigating the city

question from Grace to UG's about splitting UG orientation and PG orientation…seems a consensus to split some of orientation

Can the team help cover costs and accommodations to help PGs scattered to come back and assist with making a softer landing for the new PG cohort

Do feedback a little earlier

Personalizing…demographic varies…UG-PG directly but also employment to PG
Early questions to cohort about them and their experiences
Customize and pick and choose your own journey

Scholars Program Design Day: Creative Triangulation Map-Sketch Questionnaire
Event Date: 21 April 2018
Moderator: Lisa Naas [redacted]

Year: ____Undergraduate Student ✓ Postgraduate Student

Gender: ✓ Female ____ Male ____Unspecified ____ Rather not say

Discipline/School: School of Social & Political Science – GHP

Sketching/Ideas Workshop Questions

Did you try the Creative Triangulation Map-Sketch? ✓ yes ____ no
If yes, what three words did you use? UNDERSTANDING, PRACTICE, EMBODYING

If you tried Triangulation, did you try ____ individually ____ or with a group? How many in your group? 5
Which Challenge did you work on? Creating a realistic transformative leadership journey

Did you continue developing your map-sketch after lunch? NO
Did you refer to your map-sketch during the afternoon work session to create the outputs for Design Day? NO
If yes, how did you use it? ____

On a scale of 1-10 with 10 being the highest rating, how useful did you find the Triangulation method for developing a shared team vision or project driver for responding to the Design Day challenges? 5

In a sentence or two, please describe any ideas that were derived from the Triangulation:
Good brainstorming technique.

Did you incorporate any of your ideas or thoughts from your Triangulation into your response to the Design Day Challenges? NO If yes, please describe in a sentence or two ____

Do you think you might try using this Triangulation method again in the future? Maybe
If no, could you explain why not? I found it hard to relate it to my work.
If yes, from the perspective of the project work you do in your discipline or studies, how do you think you might use the Triangulation method? ____

If you did not try the Word Triangulation or if you did not develop the map-sketch after the workshop, could you explain your reasons? ____

Thank you so much for your feedback on any aspect of the technique (good or bad). Please use the back of the paper to include any remarks you want to make...I really appreciate your time! -Lisa Naas

Scholars Program Design Day: Creative Triangulation Map-Sketch Questionnaire

Event Date: 21 April 2018

Moderator: Lisa Naas, [redacted]

Year: ✓ Undergraduate Student ____ Postgraduate Student

Gender: ✓ Female ____ Male ____ Unspecified ____ Rather not say

Discipline/School: Engineering

Sketching/Ideas Workshop Questions

Did you try the Creative Triangulation Map-Sketch? ✓ yes ____ no

If yes, what three words did you use? Scholars Program, Undergraduate scholars, Orientation.

If you tried Triangulation, did you try ____ individually ____ or with a group? How many in your group? 4

Which Challenge did you work on? Designing Orientation for Undergraduate Scholars.

Did you continue developing your map-sketch after lunch? Not really

Did you refer to your map-sketch during the afternoon work session to create the outputs for Design Day? Yes.

If yes, how did you use it? picked out certain ideas (common) in order to help organise thoughts.

On a scale of 1-10 with 10 being the highest rating, how useful did you find the Triangulation method for developing a shared team vision or project driver for responding to the Design Day challenges? 7

In a sentence or two, please describe any ideas that were derived from the Triangulation:

The Expectation of the undergraduate scholar and that of the ACF program. ~~Above all~~ it gave us ideas on how to make the orientation better through new suggestions which were in the triangle.

Did you incorporate any of your ideas or thoughts from your Triangulation into your response to the Design Day Challenges? Yes If yes, please describe in a sentence or two The triangulation method gave us ideas on how those of the words related and conflicted hence was able to obtain challenges that might arise.

Do you think you might try using this Triangulation method again in the future? Yes

If no, could you explain why not? ____

If yes, from the perspective of the project work you do in your discipline or studies, how do you think you might use the Triangulation method? I think it is a useful method in solving a lot of problems either practically or through essay writings.

If you did not try the Word Triangulation or if you did not develop the map-sketch after the workshop, could you explain your reasons? ____

Thank you so much for your feedback on any aspect of the technique (good or bad). Please use the back of the paper to include any remarks you want to make...I really appreciate your time! -Lisa Naas

Scholars Program Design Day: Creative Triangulation Map-Sketch Questionnaire
Event Date: 21 April 2018
Moderator: Lisa Naas, [redacted]

Year: ✓ Undergraduate Student ~~✓~~ ____ Postgraduate Student

Gender: ✓ Female ____ Male ____ Unspecified ____ Rather not say

Discipline/School: _____

Sketching/Ideas Workshop Questions

Did you try the Creative Triangulation Map-Sketch? ✓ yes ____ no
If yes, what three words did you use? Orientation Undergraduate Scholars Program

If you tried Triangulation, did you try ____ individually ✓ or with a group? How many in your group? 4
Which Challenge did you work on? Designing orientation week

Did you continue developing your map-sketch after lunch? A bit
Did you refer to your map-sketch during the afternoon work session to create the outputs for Design Day? Yes
If yes, how did you use it? It opened up discussions on common themes and led us to discovering our driver for the challenge

On a scale of 1-10 with 10 being the highest rating, how useful did you find the Triangulation method for developing a shared team vision or project driver for responding to the Design Day challenges? 8

In a sentence or two, please describe any ideas that were derived from the Triangulation:
Practicality of the orientation including with regards to numbers. Avoidance of "Hitting the ground running."

Did you incorporate any of your ideas or thoughts from your Triangulation into your response to the Design Day Challenges? Yes If yes, please describe in a sentence or two I felt really strongly about a more practical approach to campus tours and Welcome Week, they were in the solution we had

Do you think you might try using this Triangulation method again in the future? Absolutely
If no, could you explain why not? _____

If yes, from the perspective of the project work you do in your discipline or studies, how do you think you might use the Triangulation method? If stuck on a project, the triangulation can help open up doors and new or old ways of thinking

If you did not try the Word Triangulation or if you did not develop the map-sketch after the workshop, could you explain your reasons? _____

Thank you so much for your feedback on any aspect of the technique (good or bad). Please use the back of the paper to include any remarks you want to make...I really appreciate your time! -Lisa Naas

Scholars Program Design Day: Creative Triangulation Map-Sketch Questionnaire

Event Date: 21 April 2018

Moderator: Lisa Naas, [redacted]

Year: ✓ Undergraduate Student ____ Postgraduate Student

Gender: ____ Female ✓ Male ____ Unspecified ____ Rather not say

Discipline/School: SCHOOL OF ENGINEERING

Sketching/Ideas Workshop Questions

Did you try the Creative Triangulation Map-Sketch? ✓ yes ____ no

If yes, what three words did you use? Orientation Undergraduate MCF

If you tried Triangulation, did you try ____ individually ✓ or with a group? How many in your group? 4

Which Challenge did you work on? Designing orientation for first year Undergraduate students.

Did you continue developing your map-sketch after lunch? No

Did you refer to your map-sketch during the afternoon work session to create the outputs for Design Day? Yes

If yes, how did you use it? We used to give us a direction of what's important to concentrate on.

On a scale of 1-10 with 10 being the highest rating, how useful did you find the Triangulation method for developing a shared team vision or project driver for responding to the Design Day challenges? 9/10

In a sentence or two, please describe any ideas that were derived from the Triangulation:

I got to identify what can work and what can't.

Did you incorporate any of your ideas or thoughts from your Triangulation into your response to the Design Day Challenges? YES If yes, please describe in a sentence or two Through the triangulation we were able to notice the main challenges of the orientation process.

Do you think you might try using this Triangulation method again in the future? YES

If no, could you explain why not? ____

If yes, from the perspective of the project work you do in your discipline or studies, how do you think you might use the Triangulation method? It's a nice way to generate project ideas.

If you did not try the Word Triangulation or if you did not develop the map-sketch after the workshop, could you explain your reasons? ____

Thank you so much for your feedback on any aspect of the technique (good or bad). Please use the back of the paper to include any remarks you want to make...I really appreciate your time! -Lisa Naas

Scholars Program Design Day: Creative Triangulation Map-Sketch Questionnaire
Event Date: 21 April 2018
Moderator: Lisa Naas, [redacted]

Year: ✓ Undergraduate Student ____ Postgraduate Student

Gender: ____ Female ✓ Male ____ Unspecified ____ Rather not say

Discipline/School: Informatics

Sketching/Ideas Workshop Questions

Did you try the Creative Triangulation Map-Sketch? ✓ yes ____ no
If yes, what three words did you use? orientation, new undergraduates/hons, S/hons progra

If you tried Triangulation, did you try ____ individually ✓ or with a group? How many in your group? 4
Which Challenge did you work on? Scholars orientation

Did you continue developing your map-sketch after lunch? yes
Did you refer to your map-sketch during the afternoon work session to create the outputs for Design Day? yes
If yes, how did you use it? _____

On a scale of 1-10 with 10 being the highest rating, how useful did you find the Triangulation method for developing a shared team vision or project driver for responding to the Design Day challenges? 8

In a sentence or two, please describe any ideas that were derived from the Triangulation:

Did you incorporate any of your ideas or thoughts from your Triangulation into your response to the Design Day Challenges? yes If yes, please describe in a sentence or two

Do you think you might try using this Triangulation method again in the future? yes
If no, could you explain why not? _____

If yes, from the perspective of the project work you do in your discipline or studies, how do you think you might use the Triangulation method? Generating ideas about projects (programs, my ideas) and startup

If you did not try the Word Triangulation or if you did not develop the map-sketch after the workshop, could you explain your reasons? _____

Thank you so much for your feedback on any aspect of the technique (good or bad). Please use the back of the paper to include any remarks you want to make...I really appreciate your time! -Lisa Naas

Scholars Program Design Day: Creative Triangulation Map-Sketch Questionnaire
Event Date: 21 April 2018
Moderator: Lisa Naas, [redacted]

Year: ____Undergraduate Student ✓ Postgraduate Student

Gender: ✓ Female ____ Male ____Unspecified ____ Rather not say

Discipline/School: School of Social & Political Science

Sketching/Ideas Workshop Questions

Did you try the Creative Triangulation Map-Sketch? ✓ yes ____no
If yes, what three words did you use? Postgrads, daily life, bearings

If you tried Triangulation, did you try ____ individually ✓ or with a group? How many in your group? 3
Which Challenge did you work on? ____

Did you continue developing your map-sketch after lunch? Yup!
Did you refer to your map-sketch during the afternoon work session to create the outputs for Design Day? Yes
If yes, how did you use it? Individual inputs were used to feed into the framework / schedule and eventual outcome.

On a scale of 1-10 with 10 being the highest rating, how useful did you find the Triangulation method for developing a shared team vision or project driver for responding to the Design Day challenges? 9

In a sentence or two, please describe any ideas that were derived from the Triangulation:

Did you incorporate any of your ideas or thoughts from your Triangulation into your response to the Design Day Challenges? ✓ If yes, please describe in a sentence or two

Do you think you might try using this Triangulation method again in the future? ✓
If no, could you explain why not? ____

If yes, from the perspective of the project work you do in your discipline or studies, how do you think you might use the Triangulation method? Brainstorming & originating ideas.

If you did not try the Word Triangulation or if you did not develop the map-sketch after the workshop, could you explain your reasons? N/A

Thank you so much for your feedback on any aspect of the technique (good or bad). Please use the back of the paper to include any remarks you want to make...I really appreciate your time! -Lisa Naas

Scholars Program Design Day: Creative Triangulation Map-Sketch Questionnaire
Event Date: 21 April 2018
Moderator: Lisa Naas, [redacted]

Year: ____Undergraduate Student ✓ Postgraduate Student

Gender: ✓ Female ____ Male ____Unspecified ____ Rather not say

Discipline/School: Geoscience

Sketching/Ideas Workshop Questions

Did you try the Creative Triangulation Map-Sketch? ✓ yes ____ no
If yes, what three words did you use? Bearing / Postgrad / Daily-life

If you tried Triangulation, did you try ____ individually ✓ or with a group? How many in your group? 3
Which Challenge did you work on? designing an Orientation Program

Did you continue developing your map-sketch after lunch? -
Did you refer to your map-sketch during the afternoon work session to create the outputs for Design Day? Yes
If yes, how did you use it? Used the posted notes to explain orientation activities

On a scale of 1-10 with 10 being the highest rating, how useful did you find the Triangulation method for developing a shared team vision or project driver for responding to the Design Day challenges? 8

In a sentence or two, please describe any ideas that were derived from the Triangulation:

Did you incorporate any of your ideas or thoughts from your Triangulation into your response to the Design Day Challenges? ____If yes, please describe in a sentence or two

Do you think you might try using this Triangulation method again in the future? Yes.
If no, could you explain why not?

If yes, from the perspective of the project work you do in your discipline or studies, how do you think you might use the Triangulation method? planning

If you did not try the Word Triangulation or if you did not develop the map-sketch after the workshop, could you explain your reasons?

Thank you so much for your feedback on any aspect of the technique (good or bad). Please use the back of the paper to include any remarks you want to make...I really appreciate your time! -Lisa Naas

Scholars Program Design Day: Creative Triangulation Map-Sketch Questionnaire

Event Date: 21 April 2018

Moderator: Lisa Naas, [redacted]

Year: ____Undergraduate Student ✓ Postgraduate Student

Gender: ____ Female ✓ Male ____Unspecified ____ Rather not say

Discipline/School: Social and Political Science

Sketching/Ideas Workshop Questions

Did you try the Creative Triangulation Map-Sketch? ✓ yes ____ no

If yes, what three words did you use? ~~postgraduate~~, Daily life ad Bearings

If you tried Triangulation, did you try ____ individually ✓ or with a group? How many in your group? 3

Which Challenge did you work on? To develop orientation for postgraduate MCF Scholars.

Did you continue developing your map-sketch after lunch? NO

Did you refer to your map-sketch during the afternoon work session to create the outputs for Design Day? ~~no~~ yes

If yes, how did you use it? I Consider Ne daily life & postgraduate students, Te skills that postgraduate need ad Ne information Nat we can help Nem acquire duig Ne orientation week

On a scale of 1-10 with 10 being the highest rating, how useful did you find the Triangulation method for developing a shared team vision or project driver for responding to the Design Day challenges? 7

In a sentence or two, please describe any ideas that were derived from the Triangulation:

(1) Most postgraduate students have same skills ad experience Nat require differat plan duig Ne orientation week.

(2) Most students will prefer same time to rest after Ney arrive.

Did you incorporate any of your ideas or thoughts from your Triangulation into your response to the Design Day Challenges? ✓ If yes, please describe in a sentence or two yes I incorporated Ne daily life & Ne postgraduate students ad Ne information Nat Ney need to know.

Do you think you might try using this Triangulation method again in the future? ✓

If no, could you explain why not? ____

If yes, from the perspective of the project work you do in your discipline or studies, how do you think you might use the Triangulation method? I will use it duig design process, to generate project ideas ad implementation process

If you did not try the Word Triangulation or if you did not develop the map-sketch after the workshop, could you explain your reasons? ____

Thank you so much for your feedback on any aspect of the technique (good or bad). Please use the back of the paper to include any remarks you want to make...I really appreciate your time! -Lisa Naas

Scholars Program Design Day: Creative Triangulation Map-Sketch Questionnaire
Event Date: 21 April 2018
Moderator: Lisa Naas, [redacted]

Year: ____Undergraduate Student ✓ Postgraduate Student

Gender: ____ Female ✓ Male ____Unspecified ____ Rather not say

Discipline/School: _____

Sketching/Ideas Workshop Questions

Did you try the Creative Triangulation Map-Sketch? ✓ yes ____ no
If yes, what three words did you use? Understanding, embodying, Practicing

If you tried Triangulation, did you try ____ individually ____or with a group? How many in your group? 5
Which Challenge did you work on? _____

Did you continue developing your map-sketch after lunch? Yes
Did you refer to your map-sketch during the afternoon work session to create the outputs for Design Day? ____
If yes, how did you use it? _____

On a scale of 1-10 with 10 being the highest rating, how useful did you find the Triangulation method for developing a shared team vision or project driver for responding to the Design Day challenges? _____

In a sentence or two, please describe any ideas that were derived from the Triangulation:

Did you incorporate any of your ideas or thoughts from your Triangulation into your response to the Design Day Challenges? ____If yes, please describe in a sentence or two_____

Do you think you might try using this Triangulation method again in the future? Yes
If no, could you explain why not? _____

If yes, from the perspective of the project work you do in your discipline or studies, how do you think you might use the Triangulation method? In my Research, for Problem Solving

If you did not try the Word Triangulation or if you did not develop the map-sketch after the workshop, could you explain your reasons?_____

Thank you so much for your feedback on any aspect of the technique (good or bad). Please use the back of the paper to include any remarks you want to make...I really appreciate your time! -Lisa Naas

Scholars Program Design Day: Creative Triangulation Map-Sketch Questionnaire
Event Date: 21 April 2018
Moderator: Lisa Naas [redacted]

Year: ✓ Undergraduate Student ____ Postgraduate Student

Gender: ✓ Female ____ Male ____ Unspecified ____ Rather not say

Discipline/School: Civil Engineering

Sketching/Ideas Workshop Questions

Did you try the Creative Triangulation Map-Sketch? ✓ yes ____ no
If yes, what three words did you use? University, MCF Experience & Expectations, Social/Edinburgh.

If you tried Triangulation, did you try ____ individually ✓ or with a group? How many in your group? 4
Which Challenge did you work on? Designing Orientation week.

Did you continue developing your map-sketch after lunch? Yes.
Did you refer to your map-sketch during the afternoon work session to create the outputs for Design Day? ____
If yes, how did you use it? Used the main words to creak the core of the precentation.

On a scale of 1-10 with 10 being the highest rating, how useful did you find the Triangulation method for developing a shared team vision or project driver for responding to the Design Day challenges? 7

In a sentence or two, please describe any ideas that were derived from the Triangulation:
The method helped us identify the core areas that we wanted to address in the orientation work.

Did you incorporate any of your ideas or thoughts from your Triangulation into your response to the Design Day Challenges? ✓ If yes, please describe in a sentence or two

Do you think you might try using this Triangulation method again in the future? Yes.
If no, could you explain why not? ____

If yes, from the perspective of the project work you do in your discipline or studies, how do you think you might use the Triangulation method? Project brainstorming.

If you did not try the Word Triangulation or if you did not develop the map-sketch after the workshop, could you explain your reasons? ____

Thank you so much for your feedback on any aspect of the technique (good or bad). Please use the back of the paper to include any remarks you want to make...I really appreciate your time! -Lisa Naas

Scholars Program Design Day: Creative Triangulation Map-Sketch Questionnaire
Event Date: 21 April 2018
Moderator: Lisa Naas, [redacted]

Year: ✓ Undergraduate Student ____ Postgraduate Student

Gender: ✓ Female ____ Male ____ Unspecified ____ Rather not say

Discipline/School: BSc Mathematics

Sketching/Ideas Workshop Questions

Did you try the Creative Triangulation Map-Sketch? ✓ yes ____ no
If yes, what three words did you use? MCF, Social life, University

If you tried Triangulation, did you try ____ individually ✓ or with a group? How many in your group? 4
Which Challenge did you work on? The Orientation week

Did you continue developing your map-sketch after lunch? No
Did you refer to your map-sketch during the afternoon work session to create the outputs for Design Day? ____
If yes, how did you use it? As a source of all of our central ideas

On a scale of 1-10 with 10 being the highest rating, how useful did you find the Triangulation method for developing a shared team vision or project driver for responding to the Design Day challenges? 7

In a sentence or two, please describe any ideas that were derived from the Triangulation:
How ideas are linked.
How a build up can be done

Did you incorporate any of your ideas or thoughts from your Triangulation into your response to the Design Day Challenges? ____ If yes, please describe in a sentence or two The Triangulation was a source of all of our major ideas & expansion.

Do you think you might try using this Triangulation method again in the future? Maybe
If no, could you explain why not? ____

If yes, from the perspective of the project work you do in your discipline or studies, how do you think you might use the Triangulation method? The colours & breakdown of the concepts will be helpful in essay writing

If you did not try the Word Triangulation or if you did not develop the map-sketch after the workshop, could you explain your reasons? ____

Thank you so much for your feedback on any aspect of the technique (good or bad). Please use the back of the paper to include any remarks you want to make...I really appreciate your time! -Lisa Naas

Scholars Program Design Day: Creative Triangulation Map-Sketch Questionnaire
Event Date: 21 April 2018
Moderator: Lisa Naas, [redacted]

Year: ✓ Undergraduate Student ____ Postgraduate Student

Gender: ✓ Female ____ Male ____ Unspecified ____ Rather not say

Discipline/School: Informatics

Sketching/Ideas Workshop Questions

Did you try the Creative Triangulation Map-Sketch? ✓ yes ____ no
If yes, what three words did you use? University, Social Aspects and not Programming

If you tried Triangulation, did you try ____ individually ✓ or with a group? How many in your group? 4
Which Challenge did you work on? Trying to come up with a timetable for orientation week for incoming scholars

Did you continue developing your map-sketch after lunch? yes
Did you refer to your map-sketch during the afternoon work session to create the outputs for Design Day? yes
If yes, how did you use it? I looked for the ideas we mentioned and the authors when planning our timetable.

On a scale of 1-10 with 10 being the highest rating, how useful did you find the Triangulation method for developing a shared team vision or project driver for responding to the Design Day challenges? 8

In a sentence or two, please describe any ideas that were derived from the Triangulation:
We realized that some parts were interelated and the triangulation made it easier for us.

Did you incorporate any of your ideas or thoughts from your Triangulation into your response to the Design Day Challenges? ✓ If yes, please describe in a sentence or two we took ideas we mentioned in our triangulation on our timetable for the orientation week.

Do you think you might try using this Triangulation method again in the future? yes
If no, could you explain why not? ____

If yes, from the perspective of the project work you do in your discipline or studies, how do you think you might use the Triangulation method? I will be doing more projects in the coming years and it would be helpful when working with a group of people.

If you did not try the Word Triangulation or if you did not develop the map-sketch after the workshop, could you explain your reasons? ____

Thank you so much for your feedback on any aspect of the technique (good or bad). Please use the back of the paper to include any remarks you want to make...I really appreciate your time! -Lisa Naas

Scholars Program Design Day: Creative Triangulation Map-Sketch Questionnaire
Event Date: 21 April 2018
Moderator: Lisa Naas [redacted]

Year: ✓ Undergraduate Student ____ Postgraduate Student

Gender: ____ Female ✓ Male ____ Unspecified ____ Rather not say

Discipline/School: Engineering

Sketching/Ideas Workshop Questions

Did you try the Creative Triangulation Map-Sketch? ✓ yes ____ no
If yes, what three words did you use? University, MCF, Social life

If you tried Triangulation, did you try ____ individually ✓ or with a group? How many in your group? 4
Which Challenge did you work on? Orientation week

Did you continue developing your map-sketch after lunch? Yes
Did you refer to your map-sketch during the afternoon work session to create the outputs for Design Day? Yes
If yes, how did you use it? We used the words around to create a structure of the presentation

On a scale of 1-10 with 10 being the highest rating, how useful did you find the Triangulation method for developing a shared team vision or project driver for responding to the Design Day challenges? 8

In a sentence or two, please describe any ideas that were derived from the Triangulation:
An easier way to split things into groups and find out what intertwines

Did you incorporate any of your ideas or thoughts from your Triangulation into your response to the Design Day Challenges? Yes If yes, please describe in a sentence or two To timetable and as a basis of what we want to do

Do you think you might try using this Triangulation method again in the future? Yes
If no, could you explain why not? ____

If yes, from the perspective of the project work you do in your discipline or studies, how do you think you might use the Triangulation method? It allows you to focus on different parts and then how they relate to each other

If you did not try the Word Triangulation or if you did not develop the map-sketch after the workshop, could you explain your reasons? ____

Thank you so much for your feedback on any aspect of the technique (good or bad). Please use the back of the paper to include any remarks you want to make...I really appreciate your time! -Lisa Naas

Appendix Y.
Research Dissemination and Development

CREATIVE RESILIENCE

Full-length submission draft for publication consideration

Developing new ideas with "Creative Word Triangulation"

Lisa Naas, University of Edinburgh

Keywords: Ideas, association, technique, mindfulness, relationships

Creative resilience is the ability to develop new ideas despite changing or challenging circumstances, despite previous failures, despite unknowns, and despite even lack of access or resources.

Lisa Naas is Executive Director of the Newburyport Art Association (NAA) in Massachusetts, where access to the visual arts for everyone is central to the organization's mission. Recently relocated from Scotland, she is also a PhD Candidate at the University of Edinburgh. There, she is completing final revisions to her PhD dissertation, focused on generating creative ideas through mindfulness and word association. She is also an award-winning artist/designer, exhibiting her work in glass internationally.

Throughout her life, Naas has relied on her skills in creativity and idea generation to respond to and overcome challenging circumstances. As a first-generation college student and Pell Grant recipient, she put herself through school, studying visual art at Carleton College and using education and the arts as a way out of a difficult home life. She graduated in 1996, carving an early path for herself in Boston, where she supported students and artists at all levels of their careers at world-renowned institutions. Inspired by those around her while working with the Tanglewood Music Festival, Naas re-dedicated herself to her studio work in 2009. The art (as it always does) opened more doors, taking her to Scotland for her MFA in Glass, her PhD studies in creativity, and for travels throughout Europe.

Naas firmly believes that shifting perspective, seeing new relationships, breaking patterns, working through unknowns, and developing new associations are keys to creative resilience. Her research shows that creativity can be practiced and learned—creativity is accessible to everyone. "Creative Word Triangulation", her new idea generation technique, facilitates this access.

Key takeaways: By remaining flexible and adaptable, and by regularly shifting perspective to see new relationships, we boost our capacity for creative resilience. My practice-based, doctoral research into word and concept association in creative idea generation led me to design "Creative Word Triangulation", which facilitates this flexibility and perspective shifting to aid ideation and enhance creative resilience.

Introduction

Artistic expression, innovative design, scientific invention, concept construction—these are phenomena of creative capacity, born of ideas. Ideas can be both the fancy of the imagination but also practical solutions to real-world problems. Bottom line—we need ideas! But what happens when you have a problem to solve or project to start or situation to resolve and you are struggling to develop ideas? Or you cannot produce enough ideas to find one that satisfies all parameters or client needs?

Tools and methods to jumpstart creative, new ideas are so common that a product market exists to meet demand. One need only search Amazon online with "writer's block", "creativity tools", or "create ideas" to find dozens of self-help items to help spark ideas (Amazon 2021). All intend to aid individual idea generation. Creative fields and companies also use various tools to problem-solve, streamline projects, and spark creativity and ideas. The most common formats for ideation tools and techniques appear to be prompting tools [like Brian Eno's 'Oblique Strategies' (Eno, n.d.), IDEO Method Cards (IDEO 2003), and Magnetic Poetry (Walker Art Center 2020)] and mind maps [like Tony Buzan's "Mind Map" (1994) and various modified mind maps like Ayoa's (Ayoa n.d.)]. They enable users to show and explore relationships between subjects and ideas.

My "Creative Word Triangulation" is a type ofprompting tool and, in format, could be classed as a kind of mind map. Its technique, however, is new, incorporating mindfulness. While relying on the user's own concepts and knowledge like mind maps, it differs in design, user process, and intention. Feedback from workshopping the tool was positive for individual and collaborative use, from undergraduates to postgraduates to professionals involved, with twenty-eight of thirty-four total respondents (82%) confirming both that "Creative Word Triangulation" helped them with their ideation process and that they would use the tool again (Naas 2021). This contribution to *Creative Resilience* will offer a description of "Creative Word Triangulation" with examples from user sessions and step-by-step instructions for trying the tool at home or in a classroom setting.

"Creative Word Triangulation" Design

"Creative Word Triangulation" uses paper and pen for access and economy in developing ideas. Other artist's materials like pencils, markers, watercolors, and clay can also be part of user sessions. I designed mapping characteristics into "Creative Word Triangulation" because the tool's aim is to help the user locate, find, or discover idea fragments or partial ideas to spark and develop projects or solutions to the issue at hand.

To design the form, I looked to triangulation in a geo-surveying context, where one solves for the position of an unknown ship point by using two known, observational points (Figure 1). This geo-surveying triangulation is based on the relationships between the sides of a right triangle and uses two points or coordinates to find a third point through the Pythagorean theorem (Math Planet, n.d).

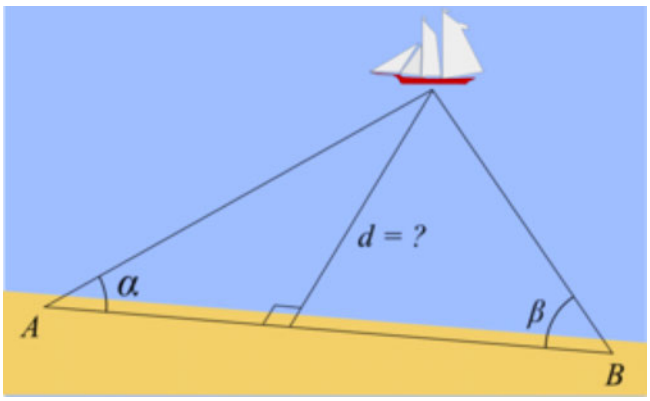


Figure 1. An example of triangulation to find the position of the ship from the shoreline (Wikimedia Commons 2015)

"Creative Word Triangulation" is predicated on the user seeking to understand how three elements, which are integral to their problem, might be bridged, related, or associated. Users select three "coordinate" words, which become anchor points for a very personalised and customisable ideation map. I encourage users to choose two familiar concept words and one less familiar word or visual to stand in for the shore points and the unknown ship point. This three-point gateway of words, images, or elements is separated by space on a page, to allow for associations to bridge the blanks and help the user develop ideas, originating from new relationships (see Figure 2).

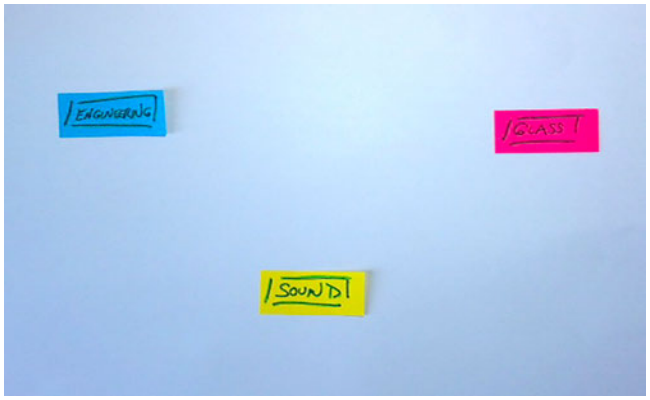


Figure 2. The start of a "Creative Word Triangulation" session with anchors "engineering", "glass", and "sound"

Users employ an associative and "mindful" technique for working with the words. Author and Buddhist meditation teacher, B. Alan Wallace explains that mindfulness is a gentle meditation and lifestyle practice centred around breathing, which aims to calm and focus the practitioner's awareness on the present moment, sensations, experiences, and breathing (2006). To heighten awareness of relationships among the words, I brought aspects of mindfulness into the design.

"Creative Word Triangulation" begins with one word first: the user places all awareness and attention on just one word to make associations with that concept, before moving to the second anchor word for more associations. I suggest that users "watch" their thoughts like meditators do, however, rather than

release the thoughts as in meditation, I advise users to capture all thoughts on the page with sticky notes.

At the start of many practices, including those in which I have participated, the meditator often creates an intention as a point of reference. I designed a "Creative Word Triangulation" session to be similar; I encourage users to write an intention, question, or statement for the page and refer to it throughout the "map-sketching" process, in the same way that a meditation or mindfulness practitioner continually returns attention to the breath. ("Map-sketching" is the term I use for working with the words and a "map-sketch" is the resulting visualisation that is created on the page during the session.)

To maximise relationship potential among the three anchor words, I suggest that users visually locate all associations with the anchors as they come to mind, by putting words, images, memories, etc. on sticky notes and locating them on the page where they developed. As users place associations, the map-sketch develops into visual possibilities for the project at hand. It also creates a focused, personalised library of subject matter and concepts, specific to the user at the time and place of the map-sketching.

Using "Creative Word Triangulation"

I have used "Creative Word Triangulation" successfully in my artistic practice, in response to live briefs and creative blocks, resulting in multiple creative works over the years. As part of my doctoral research, I also workshopped the tool with undergraduate students, postgraduate students, and emerging, professional artists from a variety of disciplines and backgrounds. Each had a different, personal experience using "Creative Word Triangulation". I have included two different student examples from these workshops. Both students were tasked with the same brief, which by default became their map-sketch intention: to design a glass object by viewing "glass" through the lens of their discipline.

Figures 3a–c below display different stages of the "Creative Word Triangulation" map-sketch created by a postgraduate student studying Landscape Architecture. She began her Triangulation with "glass", "landscape", and "body" as anchor words, and mapped by clustering word associations. The image in Figure 3a shows her work before she took a break and engaged with glass in the studios. After studio work, she returned to map-sketching and integrated the word clusters, weaving some of them together (Figure 3b). As she was making connections, she moved the word pieces to indicate those new relationships. She explained that the small clay models (Figure 3c) depicted cove-like shelters that she wanted to make in glass and install in a seaside landscape. Describing ideas derived from the map-sketching, she wrote: "I began to think about glass as a medium for furniture or shelter in a coastal setting. Natural erosion became an interesting trail when thought of in conjunction with 'sea-glass'" (Naas 2021, K-83). In this case, the word association led to a combination of elements; she put the glass and the physical sea together in her discipline of landscape architecture after arriving at "sea glass" or "sea shard" as she originally wrote. She identified a relationship and from that, envisioned a design in glass through her discipline of landscape architecture.

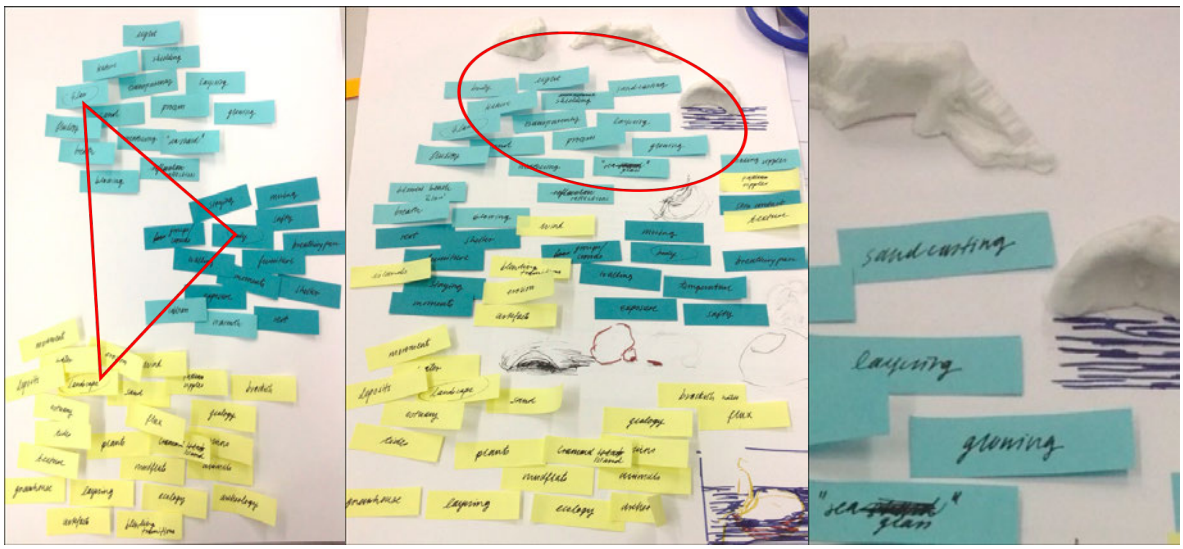


Figure 3a. (left) Map-sketch start by Landscape Architecture student with anchor elements highlighted in red; Figure 3b. (center) The developed map-sketch after glass skills introduction; Figure 3c. (right) Detail of red highlighted area in 3b. showing clay constructions and "sea-glass"

In the next example, an undergraduate studying Biomedical Sciences and Management used "glass," "daily life," and "creatives" to anchor her map (Figure 4a). From her word association, "science" and "organic" connected the three anchors, which she said led to her glass design idea (circled below).

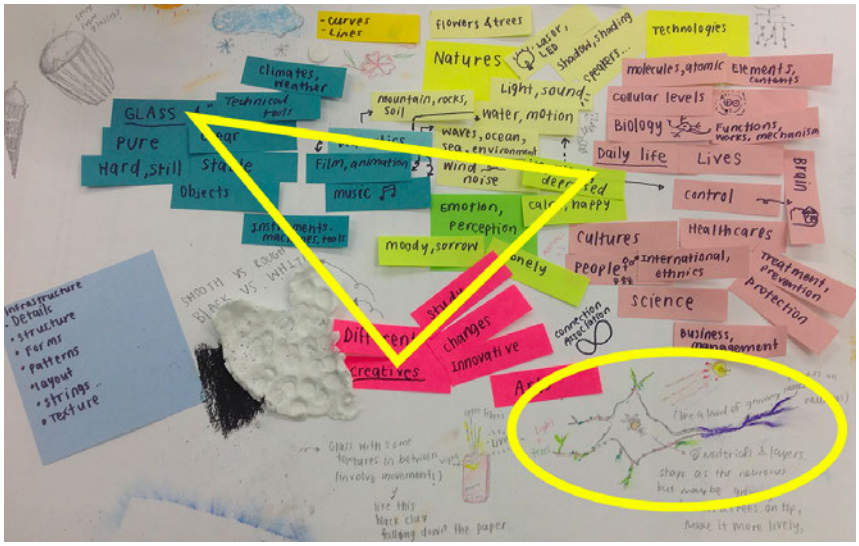


Figure 4a. Completed Map-Sketch from session using 'glass', 'daily life', and 'creatives'

The student described her sketch idea as having a neuron-like, organic form that moves or flows like glass (Figure 4b). The neuron form was there in her map early, when she arrived at the word "biology" (directly above "daily life") where she doodled beside it. Later in the workshop, she made the physical object of her design, successfully completing the day's brief and relying heavily on "Creative Word Triangulation" for her idea. Figure 4c shows her making the object.

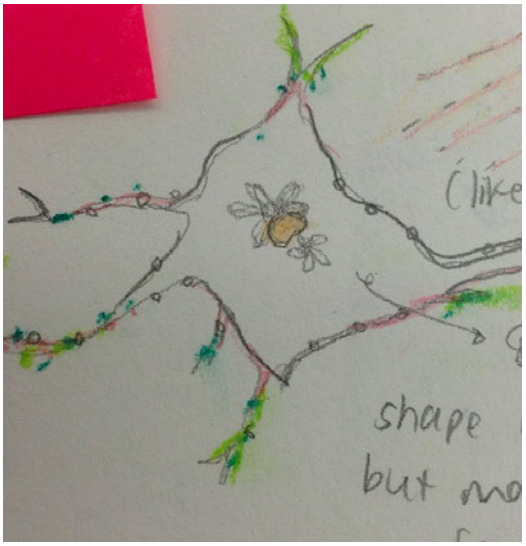


Figure 4b. Detail from highlighted circle of 4a.



Figure 4c. Making the glass neuron object.

"Creative Word Triangulation" for Home or Classroom

What you will need: a quiet space where you will not be interrupted, a large, flat work surface with good lighting, one large sheet of paper, sticky notes of various colors, pens and/or pencils, and your favorite art materials if you have them

1. **Begin by spreading out a large blank sheet of paper**

2. **Set an exploratory statement** for the map-sketch and write it on the paper. This could be a question, a design problem, or simply a brief statement of intention, that will become the focus of the exercise.

3. **Choose three elements** to act as anchors for the map-sketch (at least two should be words but images or drawings will work as well). These three words or elements should be pivotal to your exploratory statement. Two should be familiar words and the third can be a lesser known or a lesser understood word or concept. Put these words down on the paper in some way to indicate that they are the map-sketch anchors—focal points. Choose a different colour for each anchor word.

4. **Focus on just one anchor word** to begin your map-sketch. Use sticky notes or other removable bits of paper that are the same colour as what you chose for the anchor word. **Write your associations on the sticky notes** and attach them to the anchor word of focus. Try to put down all associations, connotations, and responses you have to this anchor word. Put down all words that come to mind, even if they seem irrelevant to the project or word itself. If the association stems from an association word already attached to the anchor word, place the sticky note on the paper closest to where the word developed in your mind. Put all thoughts down on the paper. Try not to stop your map-sketching by judging. Even if you have a phonetic response or some seemingly random thought, write it on a sticky note and attach it to the paper from where it directly developed. If a sound or image or memory comes to mind, try to relay it in a few words or a drawing.

5. When associations stop coming easily to mind for the first anchor word, **move on to the next anchor word** and change sticky note colours according to the new anchor word. Continue making associations. Remember to refer to your exploratory statement occasionally.

6. With words and concepts mingling, you might have an association or thought not directly linked to any one word on the page. Perhaps a memory or experience or idea will surface from the relationships among the words on the page. Try to capture this in words or drawings and place this in a different colour nearby to where you think it developed, based on the location of words on your map-sketch. Draw lines to connect ideas if you think this might be helpful.

7. **Continue on to focus and make associations with the third anchor** after associations have stopped for the second. Remember to capture all thoughts, no matter how indirect or seemingly unrelated.

8. If associations have stopped for the third word and you still feel you have not fully explored your statement or have a direction for your project, **take a break** (e.g. take a walk or at least shift your focus from the map-sketch to any tangible idea from it).

9. After your break, **return to the map-sketch and look at it as a fully-formed sketch**. Play with the movable concept pieces and/or associate with the work as a whole. Record impressions on the map.

10. **Now, try to respond to your initial exploratory statement or question**.

Conclusion

Through mindfulness and association, "Creative Word Triangulation" helps capture the undercurrent of thoughts, feelings, memories, and sensory experiences, which occur in parallel to purposeful thinking about the subject or brief at hand. It aids the user in seeing intersections and new associations, shifting perspective, and breaking patterns, all of which are widely accepted as key elements to creativity and new ideas (De Bono 1977, Ghiselin 1954, Johansson 2004, Mednick 1962, Wallas 1926). As such, "Word Triangulation" is a contribution to the genre of tools for creative ideation and its design makes it accessible, economical, and personalizable to the user and their project, problem, or situation. As one of my workshop students so aptly put it: "Creative Word Triangulation" is "an ice-breaker for the page".

References

Amazon. 2021. "Amazon Prime." Accessed September 23, 2021. https://www.amazon.com/.

Buzan, Tony with Barry Buzan. 1994. *The Mind Map Book: How to Use Radiant Thinking to Maximize Your Brain's Untapped Potential*. New York: Penguin Books.

De Bono, Edward. 1977. *Lateral Thinking: A Textbook of Creativity*. London: Penguin Group.

Eno, Brian. 2001. “Oblique Strategies.” Accessed September 23, 2021. https://www.enoshop.co.uk/product/oblique-strategies?filter=Oblique%20Strategies.

Ghiselin, Brewster. 1954. *The Creative Process: A Symposium. Berkeley and Los Angeles: University of California Press*. London: Cambridge University Press.

IDEO. 2003. “Method Cards.” Accessed September 21, 2021. https://www.ideo.com/post/method-cards.

Johansson, Frans. 2004. *The Medici Effect: Breakthrough Insights at the Intersection of Ideas, Concepts and Cultures*. Boston: Harvard Business School Press.

Math Planet. n.d. “The Pythagorean Theorem.” Accessed September 21, 2021. https://www.mathplanet.com/education/pre-algebra/right-triangles-and-algebra/the-pythagorean-theorem.

Mednick, Sarnoff. 1962. “The Associative Basis of the Creative Process.” *Psychological Review* 69 (3): 220–232.

Naas, Lisa. 2021. *Association in Idea Generation: A Black Box Dissertation Staged in Lyric Inquiry and Glass Concepts*. Unpublished PhD Diss., Edinburgh: University of Edinburgh.

Wallace, B. Alan. 2006. *The Attention Revolution, Unlocking the Power of the Focused Mind*. Somerville, Massachusetts: Wisdom Publications, Inc.

Wallas, Graham. 1926. *The Art of Thought*. London: Jonathan Cape.

Wikimedia Commons. 2015. “Triangulation-boat.png”. Accessed September 23, 2021. https://commons.wikimedia.org/wiki/File:Triangulation-boat.png.

Creative Resilience book: Call for contributions!

****
OVERVIEW
****

When it comes to dealing with challenges, creative educators and students have unique perspectives to offer each other and other disciplines. Our unconventional ways of defining and approaching problems and viewing the world through a visionary lens help us rise to meet constraints in fresh and creative ways. Our increasingly complex and trying times need creative educators' perspectives on resilience, in the classroom and beyond.

Now is the time to activate and share our superpowers. Or, in the words of Toni Morrison, “This is precisely the time when artists go to work.”

CREATIVE RESILIENCE will be an edited collection of case studies, project ideas, exercises, short essays, and visual narratives on best practices observed from classrooms in creative disciplines. The collection will offer lessons from creative faculty and courses that can bolster readers' practices, learning process, and motivation to use creativity in an ever-changing environment.

While we are looking primarily for submissions from faculty in creative disciplines (such as art and design, music, performance, etc.), graduate students, recent graduates, and upper-level undergraduate students (3rd year and up) are encouraged to apply.

Takeaways should be of interest not only to educators and students in creative disciplines, but there should also be an element, embedded lesson, or idea that is transferable to people who are not studying or working in creative practice.

****
DETAILS
****

Please complete this form with your contribution proposal(s) for the book CREATIVE RESILIENCE: Lessons from artists & designers for an uncertain future (working title), edited by Kelly M. Murdoch-Kitt (University of Michigan) and Dr. Denielle J. Emans (Virginia Commonwealth University in Qatar).

This initial submission requires a 300–500 word overview of your proposed contribution.

• Due between May 31-June 7: 300–500-word initial overview of your proposed contribution and the completed proposal form. Please compose your overview text in another document prior to pasting it into the submission form.
• June 8–30: Double-blind peer reviews
• July 1: Accepted contributors will be notified
• August 15: Selected contributors submit completed works, up to 2,500 words.

There are no publication fees associated with a successful submission.

Please direct any questions about this project or your submission to:

orbit-team@umich.edu
Subject: Creative Resilience inquiry

* Required

Basic information

First Name *

Your answer

Last Name *

Your answer

Preferred pronouns *

Your answer

Preferred Email Address *

Your answer

Institution/organization *

Your answer

Role / title *

Your answer

Creative practice

Tell us about your areas of creative practice, teaching, and/or research.

I am... *

- [ ] A designer
- [ ] An artist
- [ ] A hybrid artist / designer

Area(s) of creative practice (check all that apply) *

- [ ] 2D
- [ ] 3D
- [ ] 4D / motion
- [ ] Experiential / UX
- [ ] Art/Design Theory
- [ ] Art/Design History
- [ ] Performance
- [ ] Other:

Media orientation: My work is primarily... *

- [ ] Digital

- [ ] Physical / analog
- [ ] A mix of digital and physical
- [ ] Other:

Tell us a bit more specifically about your work; how would you describe your creative practice, teaching, and/or research in 1 sentence? *

Your answer

Your proposal submission

Selected submissions will be due by July 15, 2021, and should be no more than 2,500 words.

I'm submitting a: *

- ( ) Case study
- ( ) Project / Assignment
- ( ) Quick Exercise
- ( ) Perspective / observation (21st century best practices)
- ( ) Visual narrative
- ( ) Other:

My contribution is related to the following category/categories (check all that apply): *

- [ ] Critical thinking
- [ ] Interpersonal skills
- [ ] Cultural understanding
- [ ] Collaboration
- [ ] Growth mindset
- [ ] Open / lateral thinking
- [ ] Problem definition
- [ ] Systems thinking
- [ ] Wicked Problems (Antiracism, Climate Action, Equity & Access, etc.)
- [ ] Everyday creativity
- [ ] Other:

If your contribution is be co-authored, please list your co-authors' names and institutions:

Your answer

150-word bio; tell us what makes you uniquely qualified to offer this perspective. (If you have co-authors, please also include their bios here.) *

Your answer

300–500 word overview of your proposed submission (conversational language for a general audience): describe your case study, project / assignment, quick exercise, or best practice / observation essay, and how it contributes to resiliency and/or coping with uncertainty. PLEASE SAVE A COPY OF YOUR SUBMISSION in case of form submission glitches! Please omit use of proper names (your name, your institution or organization, etc.) for the purposes of blind review. *

Your answer

Do you have (or could you create) any images related to your submission? Please describe and let us know if you have permission to share / publish these images (from identifiable individuals and/or people who have created the work you are showing, and/or copyrighted images). [[You may also email an example image to us at orbit-team@umich.edu, Subject line: “Creative Resilience example image.”]] *

Your answer

Y-15

Your answer

Audience / readership

My contribution will be best for (check all that apply): *

- [ ] Academics / educators in the arts or design
- [ ] Academics in other disciplines
- [ ] Students in art
- [ ] Students in design
- [ ] Students in performing arts
- [ ] Art professionals
- [ ] Design professionals
- [ ] Performing arts professionals
- [ ] Professionals in a range of disciplines
- [ ] Students in a range of disciplines
- [ ] Other:

What aspects of your submission would be of greatest interest to art/design students? Why? *

Your answer

What aspects of your submission would be of greatest interest to people *outside* of art and design? Why? *

Your answer

Have you done primary or secondary research that supports the findings in your proposal? If so, please briefly describe it. *

Your answer

Optional

Are you interested in volunteering to help the editorial team bring this collection together through reviewing submissions, working with selected authors to develop complete submissions, or being involved in other ways? (Likely Summer–Winter 2021)

- ○ Yes
- ○ No
- ○ Maybe
- ○ Other:

As part of our commitment to equity and inclusion, you may choose to let us know if you identify with groups historically underrepresented in academia and academic publications (based on race, nationality, gender identity sexual orientation etc.). We will make selections based on the

identity, sexual orientation, etc.). We will make selections based on the quality and variety of submissions first, but will also take diverse representation into consideration as part of our selection process.

Your answer

Is there anything else you'd like to tell us about yourself or your submission?

Your answer

Submit

Never submit passwords through Google Forms.

This form was created inside of University of Michigan. Report Abuse

Google Forms

QUESTIONS AND CONSIDERATIONS

Creative Resilience is the ability to adapt and thrive in new situations through a multiplicity of skills such as flexibility, grit, elasticity, durability, reliability, sustainability, resourcefulness, wellness, and capability. These skills are foundational to creative practice and are baked into the way we learn to work with new audiences, materials, or circumstances. A capacity for Creative Resilience is also foundational to the way artists and designers work to envision preferable futures. The literature underscores that adaptability in creative individuals and teams—exemplified by characteristics such as a growth mindset and skills such as lateral thinking—leads to the most innovative ideas. The book will include a range of case studies, perspective pieces, and activities that provide a micro/macro view of Creative Resilience within individuals, classrooms, workplaces, and communities. Readers will learn how to activate resilient capabilities through a variety of concrete, transferrable creative methods, and viewpoints.

As you develop your full-length draft for possible publication, please refer to the following guidelines and questions to format your specific submission type. Please use the provided google doc template and image folder to submit your draft and related images.

15th of September, 2021:
Deadline for submission of full-length draft and images

The book ecosystem:
The editors will consider your submission for a section of the book about **open/lateral thinking**. As you further develop your idea, please keep this section topic in mind, alongside the larger book theme of Creative Resilience. Let us know if you have any questions or would like to discuss further how we see your proposal fitting into this section of the book.

LISA: For your full-length draft, we would like you to develop your proposal as a case study, walking us through your methodology in step-by-step detail so that others can replicate your CWT approach.

CASE STUDY // Maximum 2,500 words

These submissions will provide a detailed and specific study of something over a specific span of time—this could be a particular phenomenon, project, experience, population, etc. Please make sure to analyze or illustrate a thesis or principle behind the outcomes of the study, showcasing the transferable concept(s) that are most relevant to the book's overall theme of Creative Resilience. In other words, how does this case study highlight a useful concept/idea for readers? What is the takeaway from the case study that might be applied in other settings or contexts that require or could benefit from Creative Resilience?

Using the formatting guidelines detailed in this document, your proposal should include:

- Write in the third person
- Write in US English (e.g. color, theater)
- Please utilize references and provide some specific examples to reinforce your points, including and beyond those from creative fields
- Briefly discuss methods used to conduct the study
- Narrative / analysis

Questions to consider as you develop your piece:

Along with the quality of the writing, the following questions are the basis for our second-round review criteria. In addition to these, please keep in mind that *Creative Resilience* is a book about how creative people manage challenges in their work, classrooms, and personal lives through examples that have not been thoroughly explored in the mainstream resiliency literature. It is not specifically a book about COVID-19 nor about adapting teaching to use virtual tools.

- **With that in mind, what are the *most valuable takeaways* from your experience that will help readers to learn or grow in the short and long term?**
- Beyond "because of COVID," what was the **motivation** to do what you did? What are the larger issues or root problems that your piece addresses?
- How can you tell the story, share the method, etc. in a way that is accessible to a wider audience, without jargon (or with jargon defined in accessible terms)?
- What makes it **creative**?
- How did it **demonstrate resilience**?
- How is this example timely but also **timeless** in that it offers ideas that are **transferable** to people in *other* creative fields or disciplines outside of art and design?
- What is the human / emotional element that will draw readers into your words?
- Who else has written about this topic and can provide additional research / writing / insight on the topic?
- Please make sure to expand and define words that we often take for granted (such as empathy) to ensure clarity / understanding for readers of all stripes. For example, many of the submissions we received mention empathy, however, if this applies to you, please keep in mind that "empathy" does not necessarily equate to "resilience."

FORMATTING YOUR SUBMISSION

Dear Author(s): Please remember to remove ALL instructions and helper text from your document before submitting your full-length draft!

Working title: Please provide a suggested title, in sentence case (format: heading 1; Calibri 20)

Empowering creative resistance through critical theory

Author(s) name(s) and organization(s) or institution(s)

> **EXAMPLE AUTHORS:**
> Dr. Denielle Emans, Roger Williams University
> Kelly M. Murdoch-Kitt, University of Michigan

Select 5 keywords: Please choose five keywords or terms that relate to your piece (please do not choose any variations of the words "**creative**," "**resilience**" or "**COVID**"!). From your list of five words, choose your favorite word related to ideas that you will highlight, expand upon, or draw out within your piece.

> **EXAMPLE KEYWORDS:**
> Flexibility, preparedness, lateral thinking, reflection, critical theory

Define: Write a concise, **one-sentence definition of Creative Resilience** incorporating your selected keywords (not included in total word count). This one sentence will likely appear typeset in a particular format at the beginning of each piece and possibly in the table of contents. Therefore, please **place your one-sentence definition at the start of your document. Yes, this sentence can include the words "creative" and "resilience" (but not COVID).**

> **EXAMPLE DEFINITION SENTENCE:**
> Exposing power structures through **critical theory** is a form of **Creative Resilience** because it empowers us to push against social constraints to make positive changes.

Contextualize: written in the **third** person (300 words max, included in total word count).
We would like all of our authors to **concisely contextualize their perspective or personal narrative** in a brief opening. Your contextualization paragraph(s) could be written in the form of a traditional biography, including geographic location, role, and other general information. It could also include information about your particular positionality to help situate the reader and aid them in fully appreciating the perspective you put forth in your piece. You could think of it as an expanded bio that introduces you in relation to the theme of your piece. **In either case, the one to three paragraphs (300**

words max) should be written in the third person (although the body of your piece should be written in the first person).

EXAMPLE CONTEXTUALIZATION PARAGRAPHS:

Kelly M. Murdoch-Kitt believes in integrating visual communication, interaction design, and service design with global and social responsibility. Murdoch-Kitt is an Associate Professor at the University of Michigan's Stamps School of Art and Design. She holds a Master's degree in Graphic Design from North Carolina State University's School of Design; and a Bachelor of Arts from Wake Forest University.

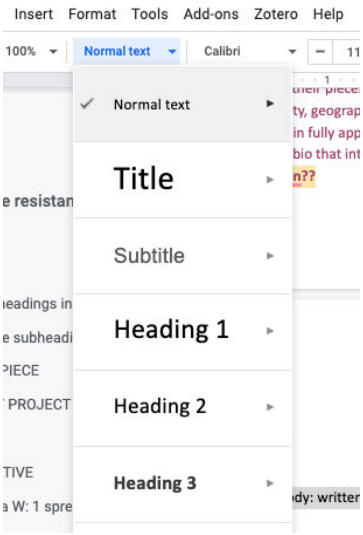
Kelly grew up in the southeastern United States, a region still coming to terms with its history of social inequities. Perhaps this contributed to her parents' philosophy that everyone would be welcomed in their home, which enabled Kelly and her siblings to learn firsthand from diverse experiences ranging from local community gatherings to hosting exchange students. Kelly became an exchange student herself at the age of 13, which further inspired her passion for intercultural learning. Down the road, an illness kept her from attending high school, and she completed courses at home—but Kelly found a silver lining in a different kind of intercultural learning. In those early days of public internet access, she built a community of friends around the world. "It's like you're going to school with the UN," her mother quipped. Since then, Kelly has channeled her passion for intercultural learning into various online and in-person experiences, traveling, collaborating, and teaching.

Kelly's current research, in partnership with Dr. Denielle Emans, promotes effective intercultural collaboration, and how related tangible activities increase trust and commitment in digital interactions. Murdoch-Kitt and Emans recently co-authored and published the book *Intercultural Collaboration by Design: Drawing from differences, distances, and disciplines through visual thinking* (Routledge, 2020). In addition to presenting their work at numerous international conferences, they have co-authored chapters in *The Routledge Handbook of Sustainable Design*, *Springer Handbook of Sustainability and Social Science Research*, and *Collaboration in Design Education.*

Key takeaways: written in **first** or **third** person, whichever feels most appropriate to your argument. Following your contextualization paragraph, please focus your writing on the larger takeaways or concrete **transferable points** about resilience for the body of the piece. In other words, while you could mention it in the introduction, please ensure that your piece does not extensively discuss the COVID-19 era. We do not want the material or context to come across as repetitive for readers. The impetus for the book and its development during the COVID-19 era will be discussed in the introduction so that individual submissions can focus on exploring and detailing the **more durable lessons** in their pieces.

While facing challenges is a part of everyday creative practice, this case study examines how the capacity of creative individuals to cope with adversity is transferable to daily life…

Use document styles: While you may compose your piece in whatever software you wish, you will submit your full-length draft to us in the form of a Google Document. As such, please use the following document styles, which you can find in the toolbar above (see screenshot below). Again, please remember to remove ALL instructions and helper text from your document before submitting your full-length draft! You can create a copy of this document within your author folder if you need to refer back to these points after deleting them.



Descriptive section headings in sentence case (Heading 2, Calibri 16)

Use sentence-case subheadings where needed (Heading 3, Calibri 14)

Body text: the majority of your submission document (Normal text, Calibri 11)

Use hard returns (instead of indents) to separate paragraphs.

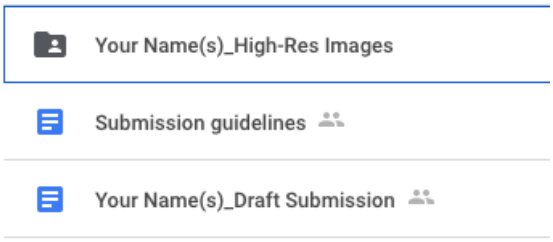
The examples in this document are gray but your text should be black.

Note that while the examples in this document are indented, your piece should not be unless you are utilizing direct quotes of 5 lines or more:

> Quotes: Per CMOS 17, prose quotation of five or more lines should be "blocked." So if this explanation was longer (at least 5 lines), and was actually a quote, it would be treated thus: block quotations are single-spaced and take no quotation marks. But you should leave an extra line space immediately before and after. Indent the entire quotation .5"

Image captions (Heading 4, Calibri 10, Italic)

Visualize: If possible, please incorporate **at least one image.** Multiple images are encouraged, if possible! Images might include related documentation, project outcomes, diagrams or visuals you create to explain an idea in your piece, etc). (There is no limit on the number of images at this stage.) In addition to embedding images in your Google Document, please also include high-res versions in your provided author folder



References: Your references list is **not** included in the total maximum word count.

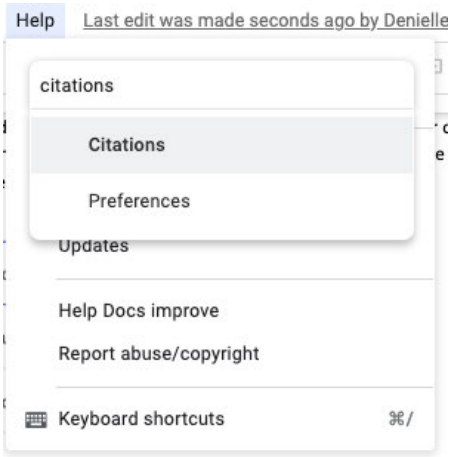
While we encourage you to write in a way that is accessible to students and a general audience, your work should reference some secondary resources to help ground your statements or provide examples.

Please use the Chicago Manual of Style (CMOS) 17th Edition, Author-Date System (this does not include footnotes, only in-text citations, and references that are **directly mentioned or cited** in the body of your text).

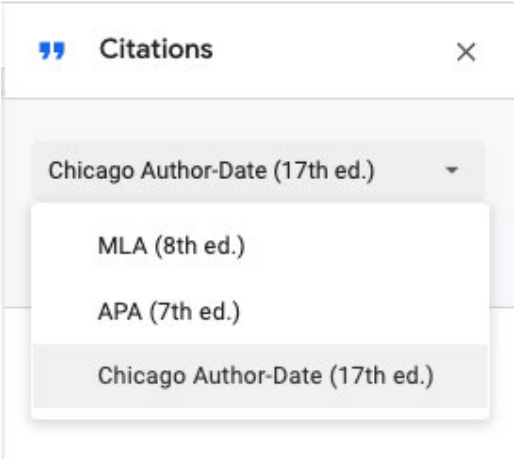
→ **You can see a sample paper implementing this CMOS system here.** (Purdue OWL / external link)

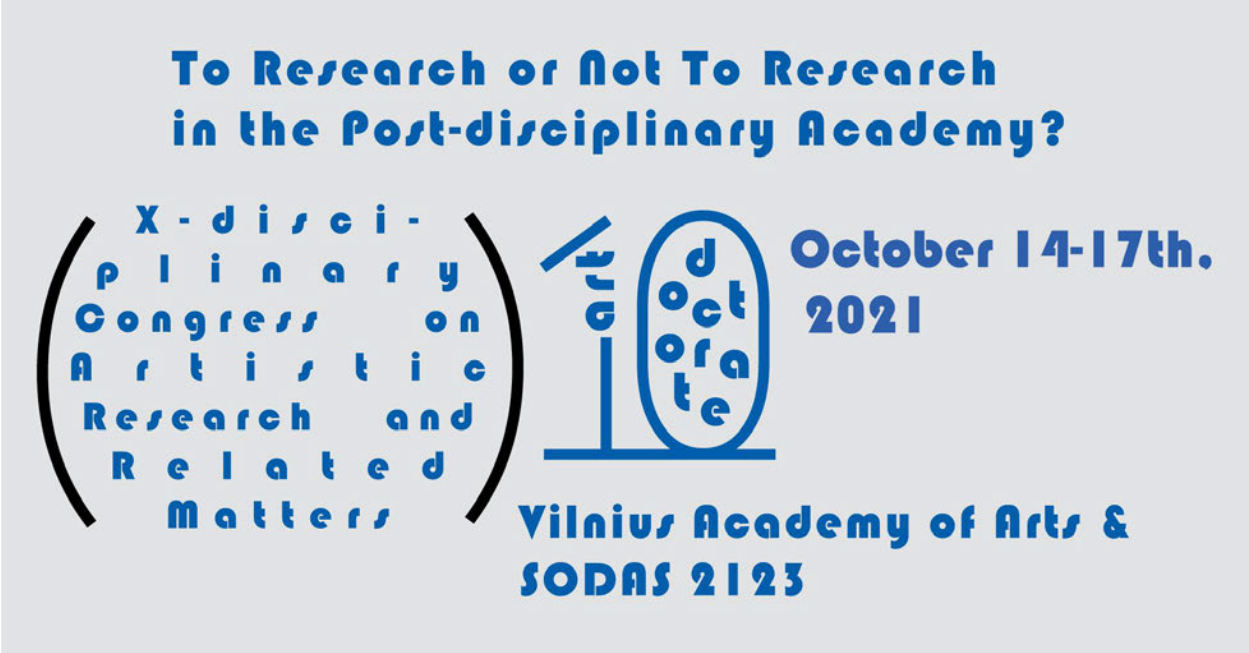
Note: You can use Google Doc's built-in citations function if you choose to compose your submission directly in your provided document.

Search for "citations"



Choose Chicago Author-Date (17th ed.)





PROGRAMME WITH ABSTRACTS

To Research or Not To Research in the Post-disciplinary Academy?
X-disciplinary Congress on Artistic Research and Related Matters,
Vilnius Academy of Arts & SODAS 2123 October 14-17th, 2021"

THURSDAY Oct 14th

Vilnius time EEST / UTC+3

09:30-10:30
REGISTRATION & WELCOME COFFEE AND SWEETs

10:30-10:50
WELCOME SPEECH BY RECTORS' OFFICE, CURATOR AND MODERATOR-CHAIR. Which X-disciplinary are you and/or your artistic research? (Vytautas Michelkevičius, Akvilė Anglickaitė and the team)

10:50-11:20
MAPPING THE SESSIONS AND ISSUES IN ARTISTIC RESEARCH BY MODERATORS
Augustinas/Dovydėnas/Narušytė/Balevičiūtė/Gedutis/Michelkevičius/Mickūnaitė/Smith/Urbonas

outcome? What artistic and academic conventions AR has the ability to challenge and what others it creates? What key references (both literature and foreign practices) do we look at? Does any of the contemporary Hungarian AR occurrences follow the legacy of the underground artistic labs and communes of the state socialist era (e.g. Miklós Erdély's Motion Planning and Execution Actions, https://www.artpool.hu/Erdely/kreativitas/exercises.html)?

I aim to answer these questions, alongside a reflection on how I became at the same time a 1st year doctoral student at Mozarteum and a 5th year candidate at FreeSZFE after occupying and quitting the University of the Theatre and Film Arts Budapest (SZFE). The blockade itself and the work since then could be regarded as a form of mass artistic research with the quest to find modalities of autonomy."

17:45-18:10

Launch of (EX)POSITIONS by doctoral candidates at Vilnius Academy of Arts

Robertas Narkus, Valentinas Klimašauskas, Karolina Jašinskaitė, Simona Žemaitytė, Ieva Baltrėnaitė, Marta Frėjute, Jan Georg Glöckner, Martyna Bikulčiūtė, Marija Puipaitė, Austėja Platukytė, Jelena Škulis, Liucija Kvašytė

18:10-19:00

A tour around academy finishing at doctoral department, visiting doctoral candidate Ieva Baltrėnaitė studio and the Research Bar

Vytautas Michelkevičius & Ieva Baltrėnaitė

19:00-21:00

WELCOME 10YDA GALA: SNACKS WITH REFRESHMENTS

For registered conference participants and invited guests only

FRIDAY Oct 15th

Vilnius time EEST / UTC+3

09:30-10:00

Coffee and buns

10:00-10.40

Milestone lecture (moderator Aldis Gedutis)

Art practice as a symptom of an unanswered research question.

John Hillman

Birmingham City University, UK

"What is the distinction between “pure practice” and research-focused practice? It is quite usual to undertake some background research in order to produce most forms of creative practice. This kind of research activity may involve finding out how to use a particular medium, how to refine a technique, or simply a review of what similar work already exists. Many creative practitioners would claim to undertake research in this way, and they would recognise it as an intrinsic part of their

process of making work. The creative practice that comes from this cannot be described as research, rather it is an output of reasoned research activity. But how can research as described here be distinguished from research that comes from the practice itself? When practice is generally informed by research, as it often is in a creative context, research is understood as one discrete activity and the making of creative practice is seen as another. This paper will consider what defines practice as research? Its basic claim is that practice can only reveal new knowledge when it is understood as a symptom of research.
Historically, the process of reconciling practice within a research context results in choosing between “practice-led” or “practice-based” approaches. Using practice as a tool within research is now, relatively, commonplace. Different representational practices make work that expresses something that cannot be articulated in another way. However, the key to addressing how practice can be defined as research is in how both practice and theory are brought into relation with one another. Thus, practice that does not address a question cannot contribute to what we generally understand as the research process. In a research context, practice alone is not enough. For practice to be research it must contain a knowledge-building capacity. Such a capacity can be unlocked only when we explore, not the hidden or obscured meanings behind practice, but the question as to why practice takes the form that it does. Practice is then presented as a symptom of research. Our focus should, therefore, be on the way research takes shape within creative practice. The consequence is how practice, when it is understood as research, is also acting against its own interests as practice. Thus, whenever practice is understood as research, it will paradoxically create a position that undermines its own genus. This paper will examine these ideas and attempt to bring about a homology between research and practice through the notion of the symptom. "

10:40-12:10

SESSION 3. What are aliens doing in the Humanities, Social Sciences and Natural Sciences (STEM), moderator Aldis Gedutis)

How Ornithology Helps to Understand (Epistemology of) Artistic Research better
Aldis Gedutis & Vytautas Michelkevičius

Cutting up, short-circuiting and accelerating economic discourse; towards a x-disciplinary economics
Panos Kompatsiaris and Georgios Papadopoulos
Athens School of Fine Arts

The aim of our contribution is to perform a series of experiments that I developed on the intersection between economics, critical theory and philosophy of science over the last ten year or so. Artistic research is used here both as a mirror where the reflections of each of the disciplines was projected onto the others, as well as a hammer to destroy the incommensurabilities of signs, liberating the meanings from their fixed position on the signifying chain of neoliberal ideology. After re-enacting some of these experiments with the audience and describing other, we would like to open up a discussion on the effect that artistic involvement can potentially have on mainstream economic discourse and the epistemic status of its findings drawing also from work of other artists-researchers in the field.

Our engagement with artistic research was a reaction to the financial meltdown of 2009. Realizing the limitations of both scientific and epistemological critiques of economic discourse we proposed a multitude of apparatuses comprised of both linguistic and non-linguistic elements

(gestures, graphemes, illustrations, movements, sounds) as an act of decoding economics by actualizing and materializing its symbols; be it letters, words, numbers, mathematical equations or diagrams. Decoding was often followed by a re-coding of economic narratives through performance, poetry, fiction and visual art. Our method combines artistic research and artistic critique, trying to develop an alternative to the economic orthodoxy from within the very discourse of 'scientific' economics. So far artists have addressed the market ideology by pointing to the apparent contradictions of economic reasoning. We prefer a literal(ly) analysis with the aim to short circuit, accelerate and cut-up the circulation of meaning in the economy, and consequently the circulation of value, through epistemic apparatuses and experimental systems.

Artistic thinking in scientific research

Magda Stanova
Academy of Fine Arts in Prague

"Doctoral programs in fine arts, instead of coming up with their own ways of doing things, tend to adopt standards from humanities, which themselves tend to adopt standards from science. Studying in a doctoral program in art feels like starting a second career—one that isn't building upon what we were cultivating in bachelor and master programs: coming up with quirky topics, unlearning stereotypes, training aesthetic sensibility, playing with ambiguities, testing various forms and nuances of expression, breaking rules in interesting ways, welcoming risk, searching for the unexpected. This kind of abilities is sometimes summarized in the expressions like art thinking, artistic mode of thinking, or artistic competence.

But this way of thinking is not limited to artists. We can find it in science as well. In this talk, I will show examples of artistic thinking in the work of various scientists: a non-fiction book that uses fiction (Douglas Hofstadter's book Gödel, Escher, Bach, which includes dialogues that mimic various musical genres), a linguistic analysis that culminates in a story (Livia Polanyi's book Telling the American Story), scientific lectures with unusual formal aspects (Roger Penrose's “VJing” of multiple layers of foils through an overhead projector; David Deutsch's Lectures on Quantum Computation, where, as the subject of the lectures gets more and more counterintuitive, the light in the room gets, intentionally, more and more weird), a collective hiding behind a fictional mathematician (Nicolas Bourbaki), an implicit way of sharing knowledge (Hejný method of teaching mathematics), or use of non-verbal thinking (sculptures which represent solutions to mathematical problems)."

Interdisciplinary Research in Extended Reality Spaces

Adnan Hadzi
University of Malta

"This paper analyses the use of Immersive Experiences (IX) within artistic research, as an interdisciplinary environment between artistic, practice based research, visual pedagogies, social and cognitive sciences. This paper discusses IX in the context of social shared spaces. It presents the Immersion Lab University of Malta (ILUM) interdisciplinary research project. ILUM has a dedicated, specific room, located at the Department of Digital Arts, Faculty of Media & Knowledge Sciences, at University of Malta, appropriately set-up with life size surround projection and surround sound so as to provide a number of viewers (located within the set-up) with an IX virtual reality environment. The set-up is scalable, portable and provide easy to use navigation and allow the user to move around within the virtual environment. The paper discusses how ILUM combines and integrates three research strands that are part of a major, sustained artistic or

scientific focus of the partnering academic institutions, namely the Visual Narratives Laboratory (VNLAB at the Centre for Interdisciplinary Research, Filmschool Lodz), the Instytut Kultury at Jagiellonian University, Krakow, Poland, and the Spatial Media Research Group (SMRG) at the National and Kapodistrian University of Athens, Greece. In those labs researchers, artists, film-makers investigate and create different kinds of IX. ILUM provides the opportunity to situate artistic research in the context of scientific. The thematic backgrounds of these research strands and the infrastructure of ILUM serve as starting points from which the partners collaboratively create new communication content, exhibition settings and research as well as teaching materials.

The paper discusses how ILUM combines and integrates three research strands that are part of a major, sustained artistic or scientific focus of the partnering academic institutions, namely the Visual Narratives Laboratory (VNLAB at the Centre for Interdisciplinary Research, Filmschool Lodz), the Instytut Kultury at Jagiellonian University, Krakow, Poland, and the Spatial Media Research Group (SMRG) at the National and Kapodistrian University of Athens, Greece. In those labs researchers, artists, film-makers investigate and create different kinds of IX. ILUM provides the opportunity to situate artistic research in the context of scientific. The thematic backgrounds of these research strands and the infrastructure of ILUM serve as starting points from which the partners collaboratively create new communication content, exhibition settings and teaching materials. Addressing the needs of the three target groups the paper will discuss:

1) The original development of the ILUM as being oriented towards practice-based research in Media Arts: Interdisciplinary Immersive Experiences within Media Arts. Through a multi-year development process with the VNLAB at the Centre for Interdisciplinary Research, Filmschool Lodz, the research group has acquired considerable expertise in IX Interactive Media, with a particular focus on surround sound (ambisonics/multichannel surround sound diffusion) and interactivity. This is applied to researching of generative, algorithmic, and media arts processes and the results will be shown to a general audience in public exhibitions.

2) The second scenario and field of expertise is established through collaborative work with the Department of Cognitive Science, University of Malta, on Interdisciplinary Immersive Experiences within Cognitive Sciences. For the researchers, the key element is that the subjective experience can be challenged using new technologies and IX media that induce perceptual bodily illusions. Such illusions are interesting to study for cognitive neuro-scientific research of self-consciousness and provide an excellent way for communicating and explaining our scientific questions. Work in ILUM implements the experimental conditions for visitors to experience these bodily illusions and provides the public with a better understanding of the fundamental mechanisms of self-consciousness. The partner institutions have established contacts with cognitive scientists in their respective environment, so that this type of application provides an essential guide for further close collaboration across disciplines.

3) The third scenario is the application of techniques, tools, and processes of ILUM in Interdisciplinary Immersive Experiences within Social Sciences, such as Heritage Dissemination activities and finally an outlook on envisaged IX productions within migration studies. This enables immediate accessibility and provides direct experiences for general audiences that range from school-age children to adults. The ILUM researchers have the opportunity to retrace the process with a possible adaptation to the Maltese context. Crucial is that by bringing together images, sounds, and movement through interaction, an embodied relationship arises from reconstructed shapes of palaeolithic art and their synthesised movements. Critical points of development are the translation of heritage content into digital interaction modules, providing uninhibited access via animated media scenarios."

Imaginism and other experimental art research practices

Federica Martini
EDHEA - Valais School of Art

In 1951, a leaflet signed by the artist Asger Jorn announced the foundation of the Imaginist Bauhaus, affirming a desire for artistic research to complement that of the humanities. This combination of subjective and objective research, to use the terms employed by Jorn, recurs in various research organisations imagined by artists in the 1950s that were independent institutes, but in search of institutional (funds, residencies) and artistic (museums, universities, art schools) recognition, of scientific or technological know-how (experimental dimension), the latter to be found as much in universities as in industry. Building on these first conscious approaches to artistic research, this paper analyses independent and institutional trajectories of artistic research and its crossings with University culture focusing on contemporary para-institutions and artists' independent research institutes in post-Bologna reform art schools.

12:10-12:25
COFFEE & COOKIES

12:25-13:05
Milestone lecture (moderator Jodi Rose & Vytautas Michelkevičius)
Art of Experience: Alchemy, Passions, Embodied/Practical Knowledge and Transformation
Rachel Armstrong & Rolf Hughes
Katholieke Universiteit Leuven

"Alchemy was not something that people believed in; it was something that they did (Moran, 2006, p10)

In scientific research, the skill of the practitioner is said to be independent from the method. This implies using a particular approach that always creates the same outcome whether the practitioner is naïve or experienced. A very different state of affairs characterised alchemy where lifelong learning and discovery meant that an apprentice was not expected to produce the same quality of outcomes as the adept. While the objectivity of the scientific method frees the personality of the scientist from corrupting (objective) rational knowledge, the alchemist's wisdom is embodied and incorporated into practical experience which forms the adept's ongoing journey who must find ways of navigating and synthesising its complexities.

This paper considers the practice of Alchemy as a model for critiquing artistic research with respect to contemporary research frameworks, which position all disciplines, including artistic research as "science." Privileging rational, objective, and reproducible forms of knowledge, such perspectives deeply misrepresent, misunderstand, and even obstruct (with respect to awarding research funding) artistic research practices that operate through embodied practices (making, handling and transforming things), incorporate the senses and employ approaches that are not universally reproducible but propose, values and attitudes that underpin new knowledge. Using the figure of the Alchemist as a counterpoint, we offer a more inclusive, complex story of knowledge synthesis that cannot be reduced, or distilled, into rational scientific frameworks, inviting more complex approaches for evaluating artistic research.

Drawing on a specific case study, "Temptations of the Nonlinear Ladder," we will outline the specifics of its practice and the event as typical of an alchemical endeavour such as its grounding in physical processes, exploration through practical experiences and in the very act of making of

something using personal agency. Generating a region of transformation, such artistic research methods comprise an alchemical space for the admission of new possibilities where interpretations of experience, skill, emotion, and the attempt to produce something, converge in the messy act of generating knowledge—that is refined through iteration and experience.

Our paper does not privilege obfuscation over clarity but instead spotlights the animated muddle of belief, dissolution and reinterpretation that is all part of re-negotiating what we know about the irreducibly complex structure of the world and how best to advance our understanding without reducing our embodied knowledge of it into mere soundbites."

13:05-14:05
Lunch

14:05-15:15
SESSION 4. Language & Writing / Gains, risks, and losses of arts put in words (moderator prof. dr. Giedrė Mickūnaitė, VDA)

Guava - A dissertation as part of an platform for Art-Actions
Thalia Hoffman
Artist, Researcher, University of Haifa

"Living in a conflicted landscape filled with racism, violence, injustice, anger and fear is terribly unsettling. It is especially concerning when the conflict emerges as part of a nation that claims and fights to be in charge of the surroundings I live in. For me, as an artist, this disturbance increases because of two contradicting notions I find in practicing art: art feels powerless against the suffering and pain, or it feels absurd and even offensive to spend time with while people are dying on your behalf; at the same time art is the most playful and flexible field I know to explore my concerns with the people and landscape around me, allowing the clearest or most precise recording of these concerns to appear. The conceptual framework of the Guava Platform aims to unfold the tension of this contradiction in an ongoing process. It does not try to solve or find solutions for the continuing harming frictions occurring in this landscape.

The Guava Platform therefore is a conceptual framework for conducting this search through art practice and writing. In other words this research and thesis are part of the platform, meaning the platform was not initiated to be part of this thesis. The research is conducted through my art practices and my writings and it is demonstrated on this thesis/website. In it, the practice and the writings are equally part of the platform. The platform therefore is a scheme, a plain on which all the elements participate. One is invited to look into a single particle on the platform, but in order to grasp the whole of it, visitors to the website need to explore the connections and interrelations between the different elements.

Each of the art-actions on the platform re-searches different structures of time-based-art forms and studies the artistic and socio-political possibilities of it, the making process and realization of the actions. All of the four chapters in the thesis/website are correlated to one of the art-actions on the platform in content and form. Every chapter explores a different art-action and brings together the context, motivations and structure the action proposes, and the theoretical concepts and ideas that took part in manifesting it. Each of the chapters are written in a different writing format that has developed in correlation with the structure and tactics of the art-action and the content they address.

Both the theory and artistic developments of each art-action work together to identify which components of the conflicted landscape it can address and how. They interact in what philosophers Brian Massumi and Erin Manning call a mutual process, where both academic research and artistic creation are "…experimental, emergent effects of an ongoing process." This thesis/website offers a technique of re-search, a continuing inquiry that converges both theoretical ideas and time-based-art-action."

The Monstrous Femme Legal Storyteller

Amalia Calderón
Artistic Researcher / Poet

"The Monstruous Femme [Legal] Archive is an archival mythopoetic intervention of ephemeral composition. In the course of three days, an archive is created and disassembled. This archive is a collection of ghostly, watery voices swimming across hundreds of pages revolving around femme monstrosity: trial transcripts, hxstoric public statements, mythological trials, chimeric tales, witchcraft judgements, and archival-poetic interventions on those texts. The law in this archive is a body of power which holds the capacity to mutate stories into what is then perceived as a "truth": legal stories have the capacity to become hxstory and hegemonic systems of storytelling (Sarawmafir: 2016), but also divergent methods for knowledge transmission. When the femme is forcibly transformed into the monstrous, what are the material consequences and the practical methodologies of being one?

At the intersection of legal/archival/poetic activism, and through the gaze of being the daughters/offspring of witches they couldn´t burn, we labour: the day-to-day, domestic life praxis; inherent forms of (epistemic) violence; the potentialities of monstrosity. The witch/siren/femme is a storyteller whose agency they enact and embody themselves, whose tales speak for themselves- entangled like roots under the Earth in a positional (Haraway: 2016), intergenerational and relational meta-archival act. These texts breathe, perform, sing, chant, compost- they thread themselves together disregarding all hxstoric linearity and mapping themselves as constellations of collective deviant knowledge."

Based on my latest performance The Monstrous Femme [Legal] Archive, this poetic presentation will dive into legal storytelling as a potentiality for divergent epistemologies.Through an interdisciplinary encounter of rewritten feminist jurisprudence and poetry as a claim to political agency (Lorde: 1987), artistic research will be seen through the lens of new forms of storyteller that can subvert hxstorical voices into non-linear plurivocal archives. What happens when the monstrous femme claims her trial transcripts, her judgements? She generates situated knowledge in the form of irrational and cosmological methodologies: the poet becomes, through her monstrous shapeshifting, the legislator (Shelley: 1821). But the violence inherent to transitional justice (Viebach: 2016) follows the story too. How can the interdisciplinary practice of poetic-legal research enact emancipatory ways of storytelling the world?

I. Lorde, A. (1984). *Zami : a new spelling of my name* ([New ed.]). Sheba Feminist Publishers.
II. Kerrigan, D. (2018). Donna Haraway: Story Telling for Earthly Survival Fabrizio Terranova, dir. 81 min. English. Brooklyn, NY: Icarus Films, 2017. *American Anthropologist*, *120*(4), 848–849.
III. Saramifar, Y. (2016) The bodies who tell stories: tracing Deleuzian becoming in the auto/biographies Iranian female refugees, Prose Studies, 38:3, 205-219.
IV. Viebach, J. (2021). Transitional archives: towards a conceptualisation of archives in transitional justice. *The International Journal of Human Rights*, *25*(3), 403–439.
V. Shelley, P., & Cook, A. (1891). A defense of poetry. Ginn & Co.

VI.Te Awa Tupua (Whanganui River Claims Settlement) Act 2017 .

A Black Box Dissertation

Lisa Naas
Edinburgh College of Art, University of Edinburgh

This talk will present The Black Box Dissertation, my creative, non-traditional doctoral thesis submitted to the University of Edinburgh in July 2020 and successfully defended in my Viva as ‘post-studio glass’, a work of glass in the ‘expanded field’ (Harrington 2012). The non-standard thesis form—a physical artist’s book of glass—reflects its thesis subject of glass creativity, and in doing so, uses a concept of glass in its overall design. I created my dissertation by turning the doctoral ‘writing-up’ process into an artistic process, producing a dissertation that is itself, an artwork. My embrace of ‘scholartistry’ and lyric philosophy means that ‘how’ I say/write/present my work is very important to its meaning (Knowles, Promislow, and Cole 2008, Zwicky 2014).

Doctoral students traditionally have used analytical or propositional language in formally-written, bound manuscripts to describe their research and original contributions to knowledge. A small minority of doctoral students, however, have broken with tradition over the past two decades by challenging the academic writing form of the thesis and/or its book format to produce and submit creative, non-traditional dissertations which have been awarded doctoral degrees (Naas 2020). My Black Box Dissertation follows in this vein, where the research resulted in creative visual, aural, or interactive outputs/artefacts fused with the scholarship/writing. During my doctoral research, I designed a new word association technique, focused on the word ‘glass’ and theories of creativity, to help students develop starting points for new project ideas using glass material as a creative medium. My thesis presents the new technique and results of its study, and because my subject is creative glass ideation, I developed a new idea to present my research to the reader using my new technique. So as much as it is an academic report, my thesis is also an experimental, creative work, coming from my intersecting art, design, and writing practice.

I will present The Black Box Dissertation using an interactive, digital thesis version I created in response to pandemic restrictions. I use small creative writing pieces about glass and juxtapose them with the formal, focused academic writing to associate together and tell another story. The two types of writing together tell the story of my research and help me demonstrate to the reader how I develop new ideas. With its subject of glass creativity and ideation, concepts of glass permeate the text, which uses both academic and lyric writing with images. Its research is staged in glass workshops and incorporates even glass material within its 'Spectacles'. 'Spectacles' is the optical tool I designed to aid readers in navigating this experimental doctoral thesis. It fits inside the cover of The Black Box Dissertation, immediately alerting readers that my thesis is not traditional. It is a new way of writing a thesis that I hope might inspire more creative ideas for new thesis forms. As an artist’s book of glass, my thesis also challenges traditions and expectations around what a doctoral thesis can be.

Harrington, J. (2012) Glass in the Expanded Field [online] available from <https://www.jeromeharrington.net/glass-in-the-expanded-field> [22 July 2020]

Knowles, J., Promislow, S., and Cole, A., eds. (2008) Creating Scholartistry: Imagining the Arts-informed Thesis or Dissertation. Halifax, Nova Scotia: Backalong Books

Naas, L. (2020) Association in Creative Idea Generation : A Black Box Dissertation Staged in Lyric Inquiry and Glass Concepts. Unpublished PhD Thesis. Edinburgh: University of

Edinburgh
Zwicky, J. (2014) Lyric Philosophy. 2nd edn. Edmonton & Calgary: Brush Education

Language-Based Artistic Research & Citational Genealogies

Andrew Hauner
Brooklyn Public Library

The type of meta-disciplinarity I am interested in circumscribes the capacity of language-based research to critically address, aesthetically leverage and even intellectually disrupt well-trodden citational genealogies as well as the academic concept of citation per se. My proposal to sketch a comprehensive overview of the current state of critical examinations of citationality, including but not limited to activity from the sector of artistic research, stems from my own experience with such meta-creative work. In my language-based artistic research my departure point has been what I call the non-distinction between reading and quoting academic language—or to use the analogy of a readerly, writerly or producerly text, a framing of the academic text as “quoterly.” How can artistic, especially illiterate, visual treatment of academic citation support anti-oppressive research into knowledge elitism? As opposed to creating an unremarked window to a source text—or ultimately an ur-code—and perpetuating authoritativeness in the realm and marketplace of ideas, quotation in both my own artistic research and the language-based work I plan to trace here is a process of uprooting, appropriation and re-materialization. As the meta-intellectual work I plan to instantiate spans, for example, feminist theory (Sara Ahmed), decolonizing methodologies (Eve Tuck) and youth-led participatory action research (Michelle Fine), my presentation takes on both inter- and transdisciplinary contours. The problematics of this select heterogeneous corpus is the paradox, even aporia of academic-language-about-the-problem-with-academic-language, which Jacques Rancière, amongst others, speaks to in his conception of “indisciplinarity.” Then, to begin with, I propose to scour the domain of the philosophy of art for preimages like what has been called semiotician Jan Mukařovský’s meta-aesthetic function (a hybrid of the poetic and metalinguistic functions) and what was later elaborated by Umberto Eco in the form of his so-called serial thought (as opposed to structural thought). Can an academic citation be a query into its own code and still remain legible in terms of referentiality? Or, what role does citationality play in artistic research’s seemingly irresolvable problem with institutional assessability? Artistic research(ers), I posit, can expand on more disciplinary—or less postdisciplinary—work by making good on its theorizing calls to collaborate with those outside of academia, whether they are outside because of their marginalized status or by their own volition and design. Ultimately, I propose to open a discussion on how language-based artistic research focused on alternative citational genealogies via methods like youth participation potentially intersects with contemporary versions of the post-artistic and the ways in which its agents are concerned and grapple with the art academy’s dogged monoculturality.

15:15-15:55

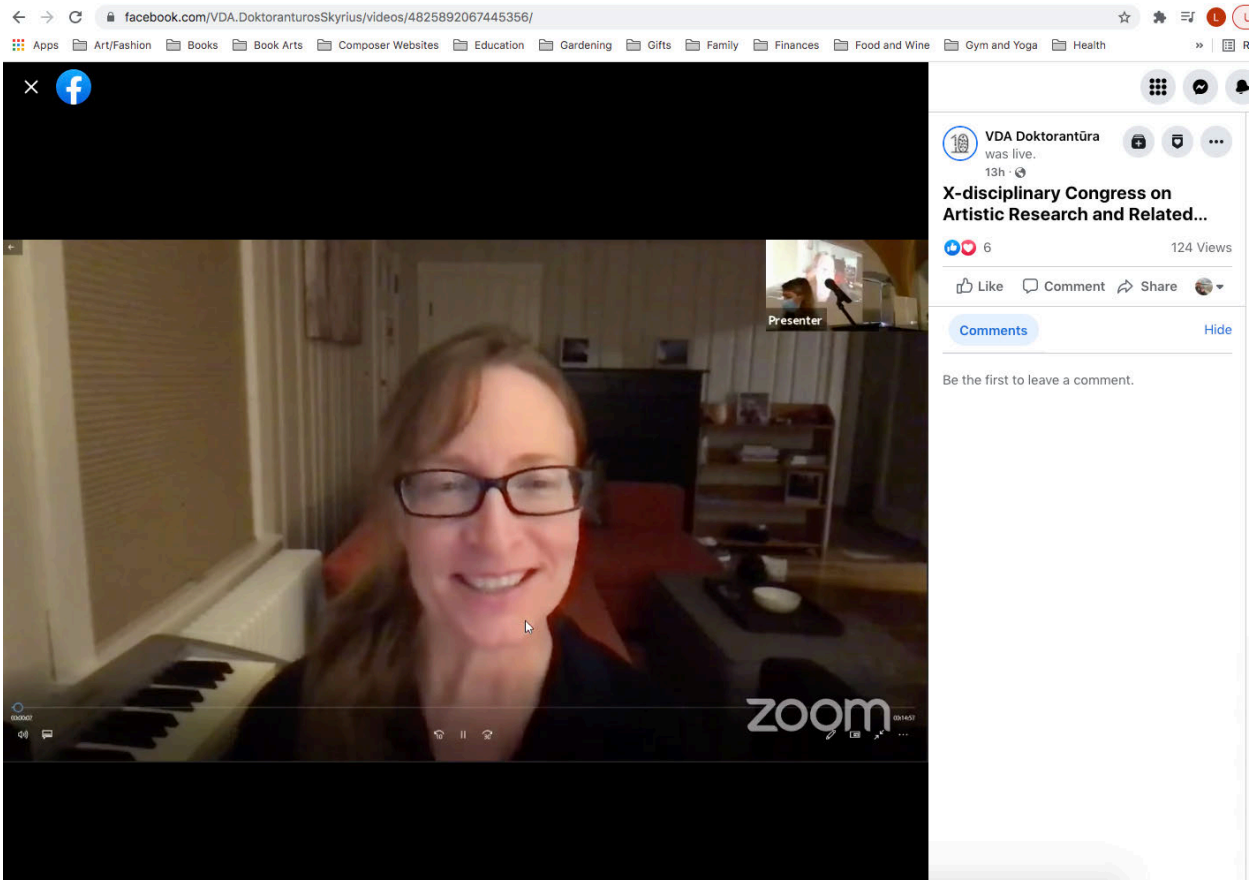
BLite & whACK: interactive reading/ workshop

Elina Mikkilä
Free practice-based literary researcher

"My workshop aims to hybridize practice-based literary research by the means of synchronous translation. The interactive presentation begins with the reading of an experimental narrative describing an early symposium on artistic research. The dichotomous logic still characteristic of arts-based research is pluralized as the German text is subtitled in real-time in the different target languages of the

X-disciplinary Congress on Artistic Research and Related Matters
Vilnius Academy of Arts, Lithuania

Screenshot of My Recorded Presentation to the Conference, Aired on Facebook Live
15 October 2021



ONE MUSEUM WAY CORNING, NY 14830-2253 WWW.CMOG.ORG

March 6, 2020

Lisa Naas

[redacted]

Dear Lisa:

Thank you very much for submitting your work to *New Glass Review 41*.

CORNING MUSEUM OF GLASS

This year, we were impressed by the overall quality of the submissions—it seems that 2019 was a very good year for glass—and it was especially difficult to choose just 100 from the 2,599 images submitted by 978 artists and companies in 54 countries. Unfortunately, your work was not selected for this publication.

Reviewing the work of artists, designers, and thinkers from around the world is one of the true honors of my job. It delights me to see the range of approaches and expansive undertakings of those involved in glass. I am very thankful to you for sharing your work with me, the panel, and the Museum. The images you submitted will be added to the Museum's public archives, the single largest collection of images of contemporary glass from the last 41 years anywhere in the world. I am glad to have your work represented.

Be on the lookout for your copy of the *Review*, which will be sent to you directly from the publisher in September. If you do not receive your copy of the *Review*, please contact Violet Wilson at newglass@cmog.org.

This year's selectors were:

- Francesca Giubilei, Curator, Venice Art Factory, Venice, Italy
- David Schnuckel, Professor of Glass, Rochester Institute of Technology, Rochester, New York
- Susie J. Silbert, Curator of Postwar and Contemporary Glass, Corning Museum of Glass, Corning, New York
- Christine Wong Yap, Artist, Queens, New York

Thank you again and please consider submitting to the publication in the future. And above all: please keep making!!

All my very best,

[redacted]

Susie J. Silbert
Curator of Postwar and Contemporary Glass

Naas, Lisa

02104356365



Corning Museum of Glass

New Glass Review 41

Lisa Naas

[redacted]

Submitted: January 14, 2020

Paid: $25.00 on January 14, 2020

Forms

New Glass Review: Personal Information

* indicates a required field

1. Are you submitting as an individual artist or on behalf of a company?

Individual

1.1. Preferred name

This is how you would like your name to appear in New Glass Review.

Lisa L Naas

1.2. Country of citizenship/permanent residence

E.g., USA, France, China.

United States

1.3. Second country citizenship/permanent residence

Note a second country here if you are a dual citizen or permanent resident of more than one country. E.g., USA, France, China

1.4. Year of birth

Use the full four-digit year (XXXX).

[redacted]

New Glass Review: Contact information

* indicates a required field

1. Email

[redacted]

2. Do you want your email address listed in New Glass Review?

Yes

3. Website

https://www.inconcertwithglass.com/



4. Do you want your website listed in New Glass Review?

Yes

5. Phone

[redacted]

New Glass Review: Collaborators

* indicates a required field

These should be full collaborators, not assistants. Check the box to add collaborators.

1. I want to add collaborators

No

New Glass Review: Work Statement

* indicates a required field

Please help us understand the work you are submitting. What are we looking at? What should we know about your work? Paste your statement about your work in the text area below.

1. Statement about the work you are submitting

2,500 character limit (approximately 500 words)

"Spectacles for A Black Box Dissertation Staged in Lyric Inquiry and Glass Concepts" is an optical tool I designed to aid the reader in navigating my doctoral thesis, which explores creative ideation in glass art and design, using both academic and lyric writing. The optical tool, coupled with my writing, creates an artist's book out of my thesis submission and facilitates the stories of creativity with glass, which I tell throughout it. My practice-based dissertation at Edinburgh College of Art attempts to turn the whole PhD research process into a creative process, including the moment when the reader meets and engages with the written thesis. This optical piece will fit inside the cover of my thesis book, alerting the reader on opening, that my dissertation is not a traditional one. Instead, the optical tool might suggest to readers, that they can expect a performance of some sort from my words and thesis; and that the tool might offer a fan of seeing and reading options. It references and combines aspects of traditional opera glasses, Swiss Army knives, mapmaking lenses, and reading glasses to create a new "re-framing" tool or perspectives tool. It has three sets of different lenses that fold into a handle and the reader can pull out each lens set separately or together for varying purposes. Each lens set has practical and conceptual uses within the space of my thesis pages. The clear lens magnifies small type and images that are scattered through the book, while also signifying to the reader that focus and detail work are required while reading my thesis. The mirrored lens pays homage to Leonardo da Vinci who used mirrored writing to keep his ideas and inventions secret. It will enable the reader to decipher the mirrored writing that I use on some of the pages, but it also physically reflects the readers to the themselves, reminding them that time for reflection must be part of the reading process. The rose-colored lens is tinted as such to help block the wavelengths of light that can exacerbate headaches and migraines that come from long hours of screen or book work. It also references the idiom of "seeing the world through rose-colored glasses" which has several meanings for the reader in relation to the content of my thesis. Ultimately with the piece connected to my thesis, I am suggesting that there are many perspectives and ways of reading my untraditional work, but that like the PhD process itself, focus, reflection, filters, and maybe a sense of humor, are all necessary to get through it.

Technical assistance and artisan craftwork from the Cubitts Bespoke Team (at the King's Cross workshop in London) helped me realize the piece during 2019.

New Glass Review: Terms & Conditions

* indicates a required field

1. By checking "I Agree," I agree to the following conditions:

- I certify that this work is my own and I have included the names of any collaborators, if applicable.
- I certify that I designed and/or made the submitted work(s) between June 2018 and January 2020.
- I certify that the work submitted contains glass or was made using the material of glass.
- I understand that my entry cannot be considered if it is submitted past the deadline for submissions.
- I am aware that the U.S. Copyright Act, effective January 1, 1978, requires that I agree to license The Corning Museum of Glass to reproduce and publish in any form images of my objects submitted for ***New Glass Review***, to provide and use those images in any form without compensation to me, and to transfer the images to any media or digital platform. The license is binding on my heirs, executors, successors, and assigns. This permission is granted on a nonexclusive basis to protect the artist's right of use. I understand that all of the images submitted become the property of The Corning Museum of Glass.
- I agree to receive emails with news and announcements about ***New Glass Review*** from The Corning Museum of Glass.

I agree

Naas, Lisa

02104356365

PORTFOLIO



Spectacles for "A Black Box Dissertation Staged in Lyric Inquiry and Glass Concepts"

Technique/media: acetate, glass, CR-39 (plastic), metal

Place made: United Kingdom

Photo credit: Christine Serchia of Cubitts Bespoke

Dimensions (HxWxD cm): 25cm high x 3cm deep (width varies)

This optical tool has three sets of lenses which can fold open on either side of the handle. They can fold together or separately as well, into a cut-away portion of the handle. From left to right in this image, the lenses are: mirrored, magnifying, and rose-colored/rose-tinted. The piece is designed to be held from the lower part of the handle and can be brought up to the eyes as glasses or placed on the reading material in the position above for various viewpoints.



Detail of the Three Lens Sets Folded into Spectacles for "A Black Box Dissertation"

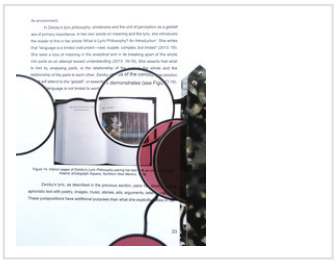
Technique/media: acetate, glass, CR-39 (plastic), metal

Place made: United Kingdom

Photo credit: Lisa Naas

Dimensions (HxWxD cm): 25cm high x 3cm deep (width varies)

This image shows how the lens sets fold and nest together in the hollow portion of the handle. The sets are hinged to the piece at the pointed tip. From left to right in this image, the lens sets are: rose-colored, mirrored, and magnifying.



Using the Spectacles to Read "A Black Box Dissertation"

Technique/media: acetate, glass, CR-39 (plastic), metal

Place made: United Kingdom

Photo credit: Lisa Naas

Dimensions (HxWxD cm): 25cm high x 3cm deep (width varies)

This image shows the magnifying lens set in use for reading a page from "A Black Box Dissertation". The rose-colored and mirrored lens sets are folded into the handle.

NGC Glass Prize
A European Glass Prize delivered by National Glass Centre, Sunderland, England

National Glass Centre is proud to announce its first glass prize exhibition which will open on Saturday 16 October 2021 and will run until Sunday 13 March 2022.

We would like to take this opportunity to invite artists to apply for inclusion in the exhibition and to provide further information:

Artist Selection

The selection panel will include Sandra Blach, Exhibition Officer at Glasmuseet Ebeltoft, Denmark, Reino Liefkes, Senior Curator and Head of Ceramics and Glass at the Victoria and Albert Museum, London, England and Julia Stephenson, Head of Arts at National Glass Centre, Sunderland, England.

We will aim to select work by approximately 40 artists whose work reflects the finest contemporary practice in European glass.

We hope to attract applications from a sufficiently diverse range of artists to allow us to present an exhibition which:

- Achieves a gender balance through the artists represented
- Includes work by artists at all career stages
- Represents artists working across Europe

Criteria

In order to be eligible for selection:

- Work must be made in or have a direct relationship to the medium of glass
- Work submitted for consideration must have been made after 1 January 2018.
- Artists must be working in a European country (as listed under 'Europe' by the United Nations https://unstats.un.org/unsd/methodology/m49/) at the time of submitting an application and it must be possible to collect work from and return work to this country.
- It must be possible to deliver selected works to National Glass Centre by a date to be confirmed in September 2021.
- Selected work must be available for inclusion in the exhibition until it closes in Spring 2022.
- The artist must complete all points included in the attached application form.
- Artists must submit one piece, or one group of works, taking into account that all artists must be equally represented within the exhibition.
- National Glass Centre has limited capacity for suspending work and in certain circumstances we may be limited in our ability to display work when we are unable to accommodate factors including size, weight and potential health and safety challenges.

Packaging and Transport

Each artist selected for inclusion in the exhibition will receive a payment of £250 to support the costs of two-way packaging and transport which, along with insurance while in transport, will be the responsibility of the artist.

Publication

National Glass Centre will produce a publication representing every artist taking part in the exhibition. Each artist will receive two complimentary copies of the publication.

Prizes

In line with decisions made by the selection panel three prizes will be offered as follows:

1st Prize £3,000
2nd Prize £1,500
3rd Prize £1,000

To apply for inclusion in the NGC Glass Prize please complete the following form and return it to julia.stephenson@sunderland.ac.uk using WeTransfer by 5pm on Friday 4 June 2021

Application

Name	**Lisa Naas**
Email	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
Website	**https://www.inconcertwithglass.com/**

Artist Statement

The Black Box Dissertation is my creative, non-traditional doctoral thesis submitted to the University of Edinburgh in July 2020. I successfully defended the work in my Viva as 'post-studio glass', a work of glass in the 'expanded field'. I present *The Black Box Dissertation* as a work of glass from my practice: an artist's book-thesis of glass. With its subject of glass creativity and ideation, concepts of glass permeate the text, which uses both academic and lyric writing with images. Its research is staged in glass workshops and incorporates 'glassy thinking' and even glass material within its *Spectacles*. *Spectacles* is the optical tool I designed to aid readers in navigating this experimental doctoral thesis. It fits inside the cover of *The Black Box Dissertation*, immediately alerting readers that my thesis is not traditional. The optical tool offers an array of seeing and reading options. *Spectacles* references and combines aspects of traditional opera glasses, Swiss Army knives, mapmaking lenses, and reading glasses to create a new 're-framing' tool. Each moveable lens set (magnifying, rose-tinted, and mirrored) has practical and conceptual uses within my thesis pages. With *Spectacles* connected to my thesis, I suggest that there are many perspectives and ways of reading my untraditional work, but like my PhD process, glass concepts are necessary to undertake it. *Spectacles* can be exhibited on its own, as it is my research translated into an object or *The Black Box Dissertation* can be shown with all its contents. For details, visit:
https://www.inconcertwithglass.com/black-box-dissertation-in-glass-con
https://www.inconcertwithglass.com/navigating-the-black-box
https://www.inconcertwithglass.com/spectacles

submitted artwork		
title	***The Black Box Dissertation with Spectacles***	
year of production	2019–2021 (*Spectacles* completed in 2019; box, small books, main thesis body completed 2020; text revisions completed 2021)	
height (cm)	Box: 10.5	*Spectacles*: 25
width (cm)	Box closed: 26 *Spectacles* closed: 4.75	Box open: 61 *Spectacles* open: size varies
depth (cm)	Box: 35.8	*Spectacles*: 3
diameter (cm)		
insurance value	£2500.00	

Description

Spectacles: **acetate, glass, CR-39 (plastic), metal**
This optical tool is a unique piece, produced with assistance from the Cubitts Bespoke Team at the London King's Cross workshop. It has three sets of lenses which can fold open on either side of the handle. They can fold together or separately as well, into a cut-away portion of the handle. The sets are hinged to the piece at the pointed tip. The lenses are: mirrored, magnifying, and rose-coloured/rose tinted. The piece is designed to be held from the lower part of the handle and can be brought up to the eyes as glasses or placed on the reading material for various viewpoints. *Spectacles* has my initials 'LN' at the bottom of the handle.

Box/books: book board, paper, ink, thread, adhesive, silk, metal
The box is a modified clamshell box, handmade from archival materials. Fitted to the inside left cover are *Spectacles* and two small, A6 sized books. The small book (on top in the image) contains colour printed, folded cardstock pages held together with a metal clip. The small book of poetry on the bottom is handbound with a French and kettle stitch. The main thesis text with its 516 double-sided, colour pages on 120gram paper, is situated on the right side of the open box. A black placard with a poem in white text is in the middle.

Attachments

An up to date CV **Attached (3 pages)**

An image of the artwork you are submitting with a minimum resolution of 300 dpi which can be printed at a maximum size of 18cm x 25cm with the name of photographer to be credited

3 images attached due to the nature of the work: *The Black Box Dissertation* can be shown as a whole with all of its contents (Clamshell box with *Spectacles*, small books, main thesis text pages, placard) or *Spectacles* can be exhibited as an object on its own. The images are as follows:

Naas_Black Box Dissertation_Open_With Spectacles.jpeg
Photographer: Lisa Naas

Naas_Spectacles_Open_Full Piece.jpeg
Photographer: Christine Serchia

Naas_Spectacles_Three Lens Sets.jpeg
Photographer: Lisa Naas

A portrait image of yourself with a minimum resolution of 300 dpi which can be printed at a maximum size of 9cm x 12.5cm with the name of photographer to be credited

Naas_Studio_Portrait.jpeg
Photographer: David Faleris

LEVERHULME TRUST

APPLICATION FORM - Early Career Fellowship

Applicant: Ms Lisa Naas	ID/Ref: ECF-2021-050
Project Title: Non-traditional doctoral dissertations: exploring 25 years of thesis creativity	
Submission Date: 22 February 2021	

Applicant Details

Title	Ms	**Address**	74 Lauriston Place Edinburgh United Kingdom (Scotland) EH3 9DF
Forename(s)	Lisa		
Surname	Naas		
Honours			
Institution	University of Edinburgh		
Department	School of Design/Edinburgh College of Art/College of Arts, Humanities and Social Sciences		
Telephone No.	[redacted]	**Email Address**	[redacted]

Host Institution	University of Edinburgh

Career Details

Employment

From	To	Position	Organisation
04/2018	05/2018	Design Consultant/Instructor, Global Edinburgh: Mastercard Foundation Scholars Program 'Design Day'	University of Edinburgh
10/2017	04/2018	Tutor, Design & Screen Cultures for 4th Year Dissertation Honours Students, Edinburgh College of Art	University of Edinburgh
01/2008	06/2014	Director, Operations & Student Life for the Boston University Tanglewood Institute	Boston University
12/2001	12/2007	Development & Special Events Manager	Archaeological Institute of America
10/2001	06/2006	Head Coach, NCAA Women's Varsity Fastpitch Softball	Massachusetts Institute of Technology
03/2000	12/2001	Development Coordinator	Archaeological Institute of America
07/1999	03/2000	Media Relations/Publications Assistant, Sports Information	Boston College
08/1998	05/1999	Graduate Fellow: Athletic Academic Advisor	Xavier University
09/1997	06/1998	Graduate Fellow: Production Coordinator for Main-Stage Theatre & Dance	American University

Education Details

Degrees

From	To	Degree	Subject	Class	Institution
09/1992	06/1996	BA	Double Major: Art History & Studio Art	'Cum Laude' graduation honours	Carleton College
09/1998	05/2000	MEd	Sport Administration with credits transferred from MA: Arts Management Program at American University, Washington D.C.	High Pass (Grade Point Average=3.926/4.0)	Xavier University
09/2013	05/2015	MFA	Glass: concentration in research and exhibition in glass with combinations of performance and digital media	'With Distinction'	University of Edinburgh

Doctoral Degrees

From	To	Degree	Title of Thesis	Supervisor	Institution
September 2015	October 2021	PhD	Association in Creative Idea Generation : A Black Box Dissertation Staged in Lyric Inquiry and Glass Concepts	Dr. Sophia Lycouris	University of Edinburgh

Further Applicant Details

Has your doctoral thesis been submitted? Yes

Submission date of doctoral thesis: 31/07/2020

Have you been or are you currently a Principal Investigator on a 3-year post-doctoral research project, or have you held or do you currently hold a comparable 3-year post-doctoral position to pursue your own research?

No

Date current position/funding ends:

Proposed start date for Fellowship: 10/01/2022

Any other matters you wish to bring to the attention of the Committee

Employment Gaps

(2014–2017) Focus on full-time study/unpaid, academic leadership roles:

- Project Developer/Tutor, 'after the storm' project: exhibition collaboration between Edinburgh College of Art & Royal Botanic Garden Edinburgh, 2016–2017
- Initiator/Developer/Leader, 'Play with Fire: Glass Concepts' Workshops: *Innovative Learning Week*, University of Edinburgh, February 2016
- Initiator/Developer/Leader/Designer, 'Glass Whispers: Makers Marks Project': International Art/Design/Engineering Collaboration, Edinburgh College of Art, 2015–2016
- Recipient, Ingenious Grant: 'Glass Whispers Project', Royal Academy of Engineering, 2015–2016
- Recipient, Principal's Career Development PhD Scholarship, University of Edinburgh, 2015–2018

(2018–2020) Focus on PhD thesis and recovery from 2018 cancer surgery/complications

Overlapping CV dates: positions held in conjunction with other employment/study

Research and Publications

Title of research proposal: Non-traditional doctoral dissertations: exploring 25 years of thesis creativity

Fields of study: Design, Education

Abstract

This project will identify, document, and investigate techniques, attributes, motivations, and obstacles behind non-traditional, doctoral dissertations which challenge the thesis manuscript form. Study will focus on creative dissertations where research outputs/artefacts are fused with the scholarship, resulting in multi-media thesis forms that present access issues (degrees targeted: those awarded 1998–2022 in the United Kingdom, United States, Canada, and Australia). This project will create a searchable, online database and an exhibition: educational resources to enable unprecedented access to/study of creative, non-traditional dissertations. The intention is to create new, broader understanding about formation, shape/form, and conveyance of knowledge at the doctoral level.

Details of current and past research

Current Research

2015–Present (PhD)

Presented as a creative, non-traditional dissertation, my PhD research explores word and concept association in creative idea generation to facilitate ideation for university art/design students. Outputs include a new technique for generating ideas, a written theory of creative idea generation, books of lyric writing and creative practice starting points, and art/design objects. To demonstrate the new ideation technique and reflect key research concepts, I designed my thesis as an interactive, physical artist's book-thesis integrating writing, images, and objects. These elements are interconnected by academic and lyric text woven throughout the thesis, which leads the reader through a unique dialogue between practice and theory.

Due to pandemic restrictions, I created a digital version for my online October 2020 viva, presenting it two ways:

1. as a digital image with clickable, explorable aspects

   (https://www.inconcertwithglass.com/black-box-dissertation-in-glass-con) and

2. through video tour

   (https://www.inconcertwithglass.com/navigating-the-black-box).

Currently, I am making final revisions to physical and digital versions.

Past Research

2015–2016 (**'Glass Whispers: Makers Marks Project')**

Supported by my Ingenious Grant (Royal Academy of Engineering), I recruited/led a diverse, international team (glass artists, sound designers, composers, engineers) in researching/developing interactive artworks to engage the public with engineering. Outputs included a glass/sound interactive installation, interactive objects, audio libraries, music compositions, and two films. I led the Collaborative in generating concepts, executing studio projects, reporting to the funder, and disseminating research through publications, a networking event, and two exhibitions, which I curated, organised, and installed.

(https://www.inconcertwithglass.com/makers-marks)

2013–2015 (MFA)

Practice-based research: Glass with combinations of performance/digital media

(https://www.inconcertwithglass.com/sorrows)

Detailed statement of proposed research

Summary Line This project will examine techniques, attributes, motivations, and challenges behind creative, non-traditional doctoral dissertations (those fusing research outputs/artefacts with scholarship as multi-media thesis forms) to develop a new, searchable database of creative research within the United Kingdom, United States, Canada, and Australia 1998–2022.

Background/Context Doctoral students traditionally have used analytical or propositional language in formally-written, bound manuscripts to describe their research and original contributions to knowledge. A small minority of doctoral students, however, have broken with tradition by challenging the academic writing form of the thesis and/or its book format to produce and submit creative, non-traditional dissertations which have been awarded doctoral degrees. While career researchers have pushed boundaries in terms of the shapes their research can take, doctoral students must work not only within constraints of academic tradition and expectation, but also within those of detailed thesis regulations. Challenging the standard puts passing assessment procedures and degree awards at risk. Despite the rules (or perhaps because of them), this minority group of students managed to innovate with the thesis writing and/or book format, successfully submitting and presenting within the assessment process. These students conveyed knowledge and concepts in creative ways that fulfilled the required benchmarks for their degrees and demonstrated that the thesis can take different shapes at the doctoral level. These non-traditional dissertations pushed the boundaries of what a thesis can be to set precedents in doctoral education, raising questions and possibilities about the shape and conveyance of knowledge at the doctoral level. Preliminary research has shown that during the past two decades, non-traditional dissertations have become increasingly more common and appear in clusters in the United Kingdom, United States, Canada, and Australia (Naas 2020: 146–150). Opportunity exists now to examine these as a group for the students' creativity techniques and the educational environments which supported the innovation.

Scope This study will focus on a sub-set of these creative, non-traditional dissertations: those where the research resulted in creative visual, aural, or interactive outputs/artefacts fused with the scholarship/writing and awarded degrees between 1998–2022 (UK, US, Canada, Australia). These dissertations are diverse not only in their writing and formats, but also in their subjects and disciplines; examples include: linked databases as a United Kingdom dissertation on integrating technology into creative practice for Design-Ceramics (Bunnell 1998), writing incorporated into a modified suitcase for a Design research thesis in Australia (Loi 2005, Loi 2004), a pseudo pornography website as a thesis for research about online pornography in Clinical Psychology at Edinburgh (Murray 2017), and an American album-thesis of rap music in Rhetoric and Communication (Carson 2017). My own artist's book-thesis on creative ideation (Design) is a recent addition, pending revisions after a successful viva voce in October 2020 (Naas 2020). Early research indicates that students used reflection or mirroring techniques in the thesis writing and/or formats to convey their respective theories and subject matter (Naas 2020). For instance, Daria Loi's unprecedented suitcase-thesis (the first physical artefact and non-book thesis which cannot be separated from the writing contained in its multiple compartments) enables the type of interaction and multi-sensory experience considered by her research and writing (Yee 2010: 9, 16). Loi writes that she wanted to be consistent in her work and 'mirror' the concepts she promoted: 'I believe that in some instances a traditional PhD thesis format – the bound paper report – does not enable the expression of what one intends to share' (2004: 3). Ruth Vinz, a Columbia University professor and doctoral supervisor, appears to agree with this sentiment in an interview she gave to *InsideHigherEd*, when she said that 'a dissertation should represent the way a particular person makes meaning and wants to spread knowledge with others' (Mulhere 2015). Vinz supervised Nick Sousanis as he created his thesis entirely as a comic book for his doctoral award at Columbia University (Sousanis 2014). Vinz explains that this thesis-comic book 'makes your brain work on two planes, almost bilingually', which reflects Sousanis's research into visual-verbal learning (Mulhere 2015).

Due to their diversity and unique formats, these creative, non-traditional dissertations are often difficult to find and/or access for full review and study. In its accounting of discussions about 'non-text' theses and the British Library's ETHoS repository, the United Kingdom Council on Open Research and Repositories acknowledged that 'these types of theses are still a small minority, but are growing' and that 'storage and accessibility of non-text formats is problematic' because many of these dissertations have multi-media or interactive elements (Manning 2019). This project attends to the problem of accessibility to enable an unprecedented, thorough study of a collection and will gather the dissertations together on two platforms: 1) as a searchable, digital database of multi-media to be a pilot example for access and storage, and 2) as an exhibition augmented with a seminar series.

Aims and Objectives This project has three aims listed below; following each are objectives and research questions:
1)To identify creative, non-traditional dissertations especially those fusing research outputs/artefacts with scholarship as multi-media thesis forms: by establishing identification criteria, searching databases, visiting libraries (national libraries and higher educational institutions), contacting librarians, information systems administrators, Postgraduate Research Directors, and by investigating references cited within non-traditional theses already identified. Research Question: Where are these theses located—are there primary geographic, university, or discipline groupings in these countries?
2)To gather information about the doctoral students' creative processes, challenges, obstacles, and motivations for their non-traditional theses: by reviewing available literature about the theses, by conducting interviews/surveys where possible with these former doctoral students and their supervisors/examiners, and by using the dissertations as primary source material in seeking evidence of creativity techniques (virtually using multi-media documentation and in-person through physical examination). Research Questions: Why did the doctoral students choose to create their non-traditional theses and how did they reconcile creative intentions with traditional thesis constraints/regulations to pass assessment? What kinds of processes, techniques, support structures, and/or environmental factors enabled the new thesis forms?
3)To provide access to the works for cross-disciplinary study**:** by opening the collection to the University and public through a new, searchable, online database and an exhibition augmented by a seminar format. Research Questions: How might researchers approach these works for study and/or respond to them in an exhibition space? How might an exhibition add to/reinforce academic and public understanding of the nature/value of creative, non-traditional theses?

Methodology/Work Plan I will use a qualitative case study design as described by Hyett, Kenny, and Dickson-Swift (2014), informed by the contemporary perspectives of 'scholartistry', which is practice-based research that fuses scholarship and art (Knowles, Promislow, and Cole 2008), and lyric philosophy, which holds that *how* meaning is conveyed is as important as *what* is conveyed (Zwicky 2014). Methods will include a literature/contextual review, surveys/interviews (with former doctoral students/supervisors of creative, non-traditional theses, university librarians, information systems administrators), and multi-media data gathering and research of thesis content with design analysis. Supported by Edinburgh's Digital Innovation Team, I will design and develop a searchable, media-rich database with a user-friendly, web-based interface for accessing and studying the theses. Working with Edinburgh College of Art and Edinburgh Libraries, I will design, install, and launch an exhibition of the theses, with a seminar series to facilitate discussion of questions raised by the works about the shapes and conveyance of knowledge at the doctoral level.
Yr1-2022: Identify theses; conduct literature/contextual review and interviews/surveys; develop database framework and prototype; document dissertations not held digitally and gather media through research trips and author communications
Yr2-2023: Continue interviews and documenting theses; grow database; plan exhibition, catalogue, and seminar series; invite former doctoral students/supervisors to contribute; draft journal articles; request/receive items for exhibition
Yr3-2024: Prep, market, launch database/exhibition/seminar series; publish catalogue; submit articles

Research Outputs with Publication and Dissemination Plans
Searchable, Digitally Published Database of creative, non-traditional doctoral theses with descriptions, media, excerpts, and commentary from former doctoral students/supervisors/examiners maintained/archived by Edinburgh
Journal Article provisionally titled '25 Years of the Non-Traditional Doctoral Thesis' to *British Educational Research Journal* and/or *International Journal for Academic Development*
Journal Article provisionally titled 'Exploring the Creativity of Non-Traditional Doctoral Theses' to *Creativity Research Journal*
Exhibition with a Seminar Series to enable access and study of the collection and discussion across disciplines
Exhibition catalogue (print and digital) to include participant essay contributions and exhibition details

Significance As these dissertations are often not fully accessible due to their unique elements, collecting them together and providing access to them would enable an unprecedented study of them as a collection. Results of the study could have implications for how students might approach doctoral skills development, thesis creativity, or reconciling creative intentions with regulations to pass assessment, as well as for how institutions approach training/support for supervisory practice. The database and exhibition with seminar series will enable research and cross-disciplinary discussion of the formation, shape, and conveyance of knowledge at the thesis level. The project is well-suited and timely for Edinburgh (currently addressing policy regarding thesis form/format as it transitions from physical book to PDF submission) but also for other schools and thesis repositories (ex. British Library) needing to accommodate these dissertations. This project offers a cataloguing/storage solution—a scalable, digital model for creative, non-traditional, multi-media theses.

Experience This project follows directly from my PhD research, in which I attended to my own thesis on creative idea generation by submitting a creative, non-traditional dissertation that challenges thesis conventions—its form reflects the concepts I convey (https://www.inconcertwithglass.com/black-box-dissertation-in-glass-con). For my PhD, I conducted a contextual review to situate my thesis among other non-traditional dissertations, providing starting points to identifying these works and gathering relevant data. I have extensive experience and expertise overseeing large-scale public events and exhibiting works (https://www.inconcertwithglass.com/lisa-naas-portfolio-of-research). For an exhibition list, click here.

References

Bunnell, K. (1998) *The Integration of New Technology into Designer-Maker Ceramic Practice.* Unpublished PhD thesis. Aberdeen: The Robert Gordon University

Carson, A. D. (2017) *Owning my Masters: The Rhetorics of Rhymes and Revolutions.* Unpublished PhD thesis. Clemson: Clemson University

Hyett, N., Kenny, A., and Dickson-Swift, V. (2014) 'Methodology or method? A critical review of qualitative case study reports'. *International Journal of Qualitative Studies on Health and Well-being* 2014, 9: doi.org/10.3402/qhw.v9.23606

Knowles, J., Promislow, S., and Cole, A. (2008) *Creating Scholartistry: Imagining the Arts-Informed Thesis or Dissertation.* Halifax, Nova Scotia: Backalong Books

Loi, D. (2005) *Lavoretti Per Bimbi: Playful triggers as keys to foster collaborative practices and workspaces where people learn, wonder and play.* Unpublished PhD thesis. Melbourne: RMIT University

Loi, D. (2004) 'A suitcase as a PhD? Exploring the potential of travelling containers to articulate the multiple facets of a research thesis'. *Working Papers in Art and Design 3* [online] available from <https://www.herts.ac.uk/__data/assets/pdf_file/0012/12360/WPIAAD_vol3_loi.pdf> [19 January 2021]

Manning, C. (2019) *Theses: ETHoS and non-text formats.* [online] available from <https://www.ukcorr.org/2019/10/16/theses-ethos-and-non-text-formats/> [19 January 2021]

Mulhere, K. (2015) *Seeing in New Dimensions* [online] available from <https://www.insidehighered.com/news/2015/03/17/comic-book-dissertation-demonstrates-capacity-picture-writing> [12 July 2019]

Murray, F. (2017) *The Porn Factory: A feminist counsellor's encounter with the leaky world of online mainstream pornography.* Unpublished PhD Thesis. Edinburgh: University of Edinburgh

Naas, L. (2020) *Association in Creative Idea Generation : A Black Box Dissertation Staged in Lyric Inquiry and Glass Concepts.* Unpublished PhD Thesis. Edinburgh: University of Edinburgh

Sousanis, W. N. (2014) *Unflattening: A visual-verbal inquiry into learning in many dimensions.* Unpublished PhD thesis. New York: Columbia University

Yee, J. S. R. (2010) 'Methodological Innovation in Practice-Based Design Doctorate'. *Journal of Research Practice* 6 (2)

Zwicky, J. (2014) *Lyric Philosophy.* 2nd edn. Edmonton & Calgary: Brush Education

Major publications

PUBLISHED

Website (concept, design, and all content)
Naas, L. (2015–2021) *In Concert With Glass* [online] available from https://www.inconcertwithglass.com/

Refereed publications
Naas, L. and Faleris, D. (2019) 'Makers Marks: Capturing, Preserving, and Sharing the Sounds of Glassmaking'. [online] *Arts* 2019 (8), 1 available from: https://www.mdpi.com/2076-0752/8/1/19. DOI: 10.3390/arts8010019

Naas, L. (2017) 'Makers Marks: Glass in Translation' in: Proceedings of the 3rd Biennial Research Through Design Conference, 22–24 March 2017, Edinburgh, UK, 05, pp. 65–81. DOI: 10.6084/m9.figshare.4746943 https://figshare.com/articles/Makers_Marks_Glass_in_Translation/4746943

Selected artist's bibliography
Contemporary Glass Society (2020) *Glass Network:* 'Portfolio of Inspiration'. Norfolk: Micropress, (77) p. 12

RAFT (2019) *Material Fluidity.* Edinburgh: Edinburgh College of Art, p. 9

Glass Art Society (2019) *Member Spotlight: Lisa Naas.* https://www.glassart.org/lisa-naas-glasgow-scotland/

Edinburgh College of Art Glass Alumni (2018) *Transition Exhibition Catalogue.* Edinburgh: Edinburgh College of Art, pp. 48–49

EGE (2015) *European Glass Experience.* City of Venice and Consorzio Promovetro Murano, pp. 114 & 165

Bullseye Glass, Co. (2014) *emerge 2014: a showcase of rising and evolving talents in kiln-glass.* Portland, Oregon, p. 36

Kunststichting Perspektief vzw (2014) *International Glass Art Biennial Catalogue.* Haacht, Belgium, p. 29

Duration, Timing and Host Institution

Duration of Fellowship: 36

Percentage of time to be spent on the Fellowship: 100

Research relevant to your proposal being carried out in the host department

My new host department will be **Moray House School of Education and Sport** with **Dr. Shari Sabeti** as my primary mentor for creativity analysis and teaching/learning impact. Dr. Sabeti is Director of Postgraduate Research and Reader in Arts and Humanities Education; her creativity research and interests in creativity align well with mine and have led her to supervise one non-traditional PhD thesis and collaborate on projects with Nick Sousanis, whom I reference in my project proposal. The research, contacts, and networks available at Moray House (such as the Centre for Research in Digital Education) will be invaluable to the project.

Additional reasons for selecting your chosen host department and institution

Dr. Sarah Kettley, ECA Professor and Academic Fellow, Edinburgh Futures Institute, has agreed to co-mentor. Her research expertise in design methodologies will enable important guidance for thesis design analysis and exhibition/curation. An ECA co-mentorship will allow me to take advantage of my Edinburgh networks for success.

Importantly, to develop the database structure and host the project on the University's website, I have partnered with Edinburgh's Digital Innovation Team and the database budget and narrative reflect their quote/our plan

together. https://www.ed.ac.uk/arts-humanities-soc-sci/about-us/staff-contacts/college-office-staff-teams/chief-information-officer/web-team Edinburgh has abundant resources for the project: Centre for Creative-Relational Inquiry, Centre for Data, Culture & Society, Edinburgh Futures Institute

If you have not moved institutions in the course of your academic career (ie. between your undergraduate university and proposed host institution), please give reasons as to why you wish to remain at the same institution

I have moved institutions over the course of my academic career, having done my undergraduate work at Carleton College and my MEd at Xavier University, both American schools. With this project, I will be moving from Edinburgh College of Art (ECA) where I have been based for my MFA and PhD studies to Moray House School of Education and Sport. Maintaining ties with ECA through a co-mentorship will facilitate the exhibition/seminar series/catalogue output and research dissemination by allowing me to take full advantage of my network and Dr. Kettley's network, along with the spaces and art/design resources at ECA.

Referees

Referee 1	Dr Sophia Lycouris
Department : Institution	School of Art, Edinburgh College of Art : University of Edinburgh
Position	Programme Director MScR Interdisciplinary Creative Practices
Email	

Referee 2	Professor Stephen Bottomley
Department : Institution	Institute of Jewellery, Fashion and Textiles, Faculty of Art, Design and Media : Birmingham City University
Position	Head of Institute of Jewellery, Fashion and Textiles, Faculty of Art, Design and Media
Email	

Referee 3	Mr Geoffrey Mann
Department : Institution	Manchester School of Art : Manchester Metropolitan University
Position	Senior Lecturer, Three Dimensional Design, Product Design and Craft
Email	

Previous and Current Applications

Previous Leverhulme applications and awards or pending applications to the Trust

None

Other awards received in the last 12 months related to this project

None

Applications you have made or intend to make to other bodies related to this research proposal

None

Where did you hear about this Leverhulme scheme?	University

Research Budget
Give an indication of how you would propose to use the annual research allocation of £6000 for each year of the Fellowship. If the application is successful you will have the opportunity to revise these details. The Trust does not support FEC.

Yr1-2022

Research Trips-Libraries/Universities/Interview Sites: United Kingdom (**£650**), Overseas (**£1750**)

Digital Database/web interface development with Edinburgh's Digital Innovation Team (DIT):

- site and web-application will use open source software where possible;
- accessible/inclusive design best practices will be followed;
- hosted/supported by University's Information Services;
- backed-up nightly (monthly cycle);
- video/audio streamed from University's Media Hopper Service;
- a site archive will be created at end of life (currently 2026), but applicant intends to investigate ways to continue growing database.

Planning/research (**£350**), Prototype design/information architecture/content plan development (**£1225**),

Data structure development/site implementation (**£1400**), Hosting/support services 2022 (**£525**)

Survey Tools: Qualtrics, available through University Information Services (**£0**)

Miscellaneous: Ex. print/copy services (**£100**)

TOTAL=£6000

Yr2-2023

Research Trips-Libraries/Universities/Interview Sites: United Kingdom (**£350**), Overseas (**£1750**)

Digital Database development with DIT:

Data structure development/site implementation (**£2800**), Hosting/Support 2023 (**£500**)

Scholarly Publication Expenses: Colour figures, extra pages, etc. (**£500**)

Miscellaneous: Ex. print/copy services (**£100**)

TOTAL=£6000

Yr3-2024

Digital Database Launch with DIT:

Data structure completion/site implementation (**£700**), Hosting/Support 2024 (**£625**),

2-year maintenance plan with hosting/amendments/documentation (**£1050**)

Exhibition/Seminar Organisation:

Logistics (setup/installation/artefact shipping/vehicle hire) (**£1750**),

Venue/equipment hire--available through Edinburgh (**£0**), Catalogue (**£500**),

Promotional materials (**£125**), Opening Night reception (**£250**), Seminar guest speaker honoraria (**£600**),

Seminar guest speaker transportation (**£300**)

Miscellaneous: Ex. print/copy services (**£100)**

TOTAL=£6000

Institutional Approver Details

Important Note: Applicants can view these details to see what information is required from the host institution in order to provide Institutional Approval. Applicants may not complete any of these details themselves but should ensure that their prospective host institution is aware of what details are needed.

Department Head

Institution	University of Edinburgh
Full Name	Professor Richard Andrews
Email Address	richard.andrews@ed.ac.uk

Department

Moray House School of Education and Sport

Why is your department the best place for the applicant to undertake their research project?

In REF 2014 Moray House School of Education was given 100% rating at 4* level for its research environment. It is home to the Higher Education Research Group, as well as the Centre for Research in Digital Education which will provide expertise for the digitisation phase of the project.
https://www.ed.ac.uk/education/rke/our-research/teacher-curriculum-pedagogy/herg
https://www.de.ed.ac.uk/

Furthermore, Ms Naas's proposal, in addressing key educational themes of inclusive student-centred assessment, pedagogical and institutional transformation, and knowledge representation means that the work will also be supported by our thematic research hubs: Teacher, Curriculum and Pedagogy; Social Justice and Inclusion and Language Education.
https://www.ed.ac.uk/education/rke/our-research/teacher-curriculum-pedagogy
https://www.ed.ac.uk/education/rke/our-research/social-justice-inclusion
https://www.ed.ac.uk/education/rke/our-research/language

Why would you like the applicant to be hosted by your department and what are the benefits to your institution by acting as their host?

Ms Naas brings an interdisciplinary approach to the study of education and assessment, enhancing existing research links with the Edinburgh College of Art. Her project also brings the exciting prospect of our institution and libraries hosting a database of non-traditional theses. There is a growing interest in arts-based educational research amongst colleagues and PhD students in our School. The project's focus on interrogating traditional academic knowledge representation and assessment practices in higher education contexts fits well with our strategic research themes, as noted above. We take an innovative approach to education in line with Scottish commitment to creativity.

How will the applicant be mentored by colleagues in your department?

Ms Naas will be mentored by Dr Shari Sabeti, a Reader and currently Director of Postgraduate Research, who is well placed to assist with the intellectual and practical development of this project.
https://www.ed.ac.uk/profile/shari-sabeti. She will meet Ms Naas monthly to review progress, discuss challenges and advise on opportunities for networking and disseminating. Ms Naas will be included in all research seminars and will have opportunities to present her work in the School and beyond. Given the interdisciplinary nature of the research, Ms Naas will benefit from a co-mentor in Professor Sarah Kettley, School of Design, Edinburgh College of Art.
https://www.eca.ed.ac.uk/profile/professor-sarah-kettley

How might the applicant contribute to teaching and the wider intellectual life of the department?

Ms Naas could contribute her insights into arts-based research methodologies to doctoral training seminars, MSc dissertation workshops and the supervision of relevant dissertations. Her experience as a practising artist and educator would enable her to contribute to our Art and Design PGDE Curriculum Studies course, making an impact on the practice of future teachers. She would be part of one or more Thematic Research Hubs, present her work and take part in seminars and reading groups, bringing fresh perspectives to the work of a number of

colleagues interested in the intersection of education with the arts and humanities.

Details of facilities and relevant resources the Fellow will be provided with by the host department

The Fellow will be provided with office space, with a designated desk, as well as full access to our IT and Library resources. The School will provide the academic advice of colleagues in Digital Education for building a database, and use of professional networks for work which needs to be conducted externally. The School will also offer administrative support for the financial aspects of the award, organisation of research travel, and workshop planning. The University through its Institute for Academic Development offers a wide range of training courses for postdoctoral fellows on career management, leadership and communication skills. https://www.ed.ac.uk/institute-academic-development

Starting Salary	33797
Spine / Scale Point	Grade 7, spinal point 30
London allowance	
National Insurance	3541
Superannuation	8009
Total	45,347

Source of matching funding

Match funding for applicant will be contributed by the University of Edinburgh and these funds are not associated with any other grants received by the University.

I confirm on behalf of the host department and the host institution that:

- The candidate named above will be accepted to work in the host department and will be treated in every respect as a full-time member of the department and as a normal employee
- The host institution will accept the Trust's contribution of 100% (up to £50,000) of the Fellow's total salary cost for year one of the award and 50% (up to £25,000 per annum) for years two and three, and undertakes to provide the balance for each year of the award.

Name	Mary
Position	Bailes
Email	

Lisa Naas
Statement and Weblinks In Lieu of an Exhibition with the Viva
24 September 2020

To Examiners, Professor Chris Speed and Professor Clare Twomey:

In lieu of a physical display or exhibition prior to my online Viva, please accept this statement and its two weblinks to my *Black Box Dissertation* as an invitation to explore my artist's book-thesis in an interactive, online format.

Due to pandemic restrictions in July, the University did not permit me to submit or send physical, soft-bound copies of my books to you as is usually required for doctoral submissions (and was certainly expected of me as my deadline approached this year). I had planned for you to review my physical books alongside my electronic files. Instead, you received only my PDF, a format which is not very conducive to the design of my artist's book-thesis. Not only were some of my formatting and design elements lost in the PDF conversion, but more importantly, the flat, compressed nature of the PDF does not convey the whole meaning of my artist's book-thesis—I believe there is a loss of both resonance and dialogue among all its parts. And due to my online Viva, there will be no chance for you to handle and explore this physical *Black Box Dissertation* with its double-sided pages for the main body, its *Spectacles* tool, *Book of Ideas*, and *Book of Lyric*. My embrace of lyric philosophy and scholartistry means that 'how' I say/write/present the work is very important to its meaning. It compels me to complete this project in the spirit in which I have been working.

As a response to the changing circumstances, I have begun developing an online version of my thesis, which I discussed in my concluding pages as one way forward for future research and development. I believe this online version is a closer equivalent to what you would have experienced with my physical books than what you received through the PDF alone. I designed this version for desktop platforms, not for mobile devices or tablets, where it will not work. I confirm that it is my work; I both designed it and created it online:

https://www.inconcertwithglass.com/box-access

It works well on my laptop but readers/users who tested it for me reported different issues. As there are still 'bugs' to fix and more work to be done on it, I created a screen recording/presentation, in which I navigate through the *Black Box Dissertation* on my computer to show you my artist's book-thesis, in case this version is not completely compatible with your computer or settings. You can view this presentation by following the link below (I recommend viewing it on a laptop/desktop with the sound on and clicking the 'full screen' icon button in the bottom right corner of the video player, after you hit the 'play' button):

https://www.inconcertwithglass.com/navigating-the-black-box

While this version does not fully exploit its digital possibilities, I do have ideas for how to push the digital medium for my book. In the presentation, I include a few remarks about these ideas, but I lack the coding skills right now to execute them (as well as others I have) around the digital form. I would need more time to research and partner with someone who could help me realise the ideas.

My online artist's book-thesis is certainly still a work in progress, but I believe it presents my work more dynamically and more in the spirit of how I intended for you to receive it in its physical form.

Thank you in advance for looking at my online version and the screen recording. I look forward to talking with you on 2 October!

Respectfully,

Lisa Naas, PhD Candidate

Appendix Z.
University Emails about
Electronic and Non-Standard Thesis Submission

I200710-0680 - RE: Policy questions: Electronic-only thesis submissions

UoE UniDesk Number I200710-0680 <UniDesk@ed.ac.uk>
Thu 7/16/2020 6:09 PM
To: NAA [redacted]

Dear Lisa,

Thank you for the follow up questions. We are not currently planning on changing the platform (DSpace - https://duraspace.org/dspace/about/), but we may be able to add extra functionality in the future as it is open source.

The DClin Psych doctoral thesis I referred to earlier was written by Fiona Murray who graduated in 2017. An archived version of the School web page is available here:

https://web.archive.org/web/20170913172301/http://www.ed.ac.uk/health/research/ccri/projects/the-porn-factory

Given the subject matter you can probably see why we would have difficulties making this thesis publicly available (!)

Please feel free to use any quotations from our correspondence.

If you have any follow up questions, or if I can be of further assistance, please don't hesitate to get in touch.

Kind regards,

Theo

16-07-2020 10:07 Lisa Naas: Date sent: 16-Jul-2020 10:04
To: UNIDESK Mailbox 0 <unidesk@ed.ac.uk>, HUNTER Susan

Subject: Re: I200710-0680 - RE: Policy questions: Electronic-only thesis submissions

Thank you Theo...I really appreciate all of the information and the details. I do have a couple of questions. You identify that display is not ideal for creative subjects because it was built for text based formats...do you know if there will be a platform change or addition in the future with more attention to media this way?

It's very interesting that the University does have a non-standard thesis submission. Do you know the name of that student and is there a record or abstract that I might be able to reference even if I cannot see the website? Also, may I use your email message and reference or quote it within my thesis?

Thank very much for the assistance,
Best,
Lisa

Lisa Naas
PhD Candidate, Design (2015-2020)
Edinburgh College of Art at the University of Edinburgh
http://www.inconcertwithglass.com/

https://www.eca.ed.ac.uk/profile/lisa-naas

From: UoE UniDesk Number I200710-0680 <UniDesk@ed.ac.uk>
Sent: Monday, July 13, 2020 6:39 PM
To: HUNTER Susan ; NAAS Lisa
[redacted]
Subject: I200710-0680 - RE: Policy questions: Electronic-only thesis submissions

Dear Lisa,

Your query about non-standard thesis submission was passed to me by my colleague to answer. Electronic submission offers an opportunity to redefine the format of a doctoral thesis allowing creative disciplines more freedom to innovate and evolve the traditional thesis. Speaking from a Library perspective we don't seek to impose limits on what a thesis should be and would be guided by thesis authors and supervisors in subject disciplines that want to experiment. The only limits are of a practical nature imposed by the technology, for example:

- Maximum file size. In theory, we don't have a limit but with anything over 1Gb the PhD candidates would have difficulty uploading via a web browser. In cases like this where authors have supplementary files like videos or music we have accepted physical media (DVDs or memory sticks) or used Dropbox like technology and have loaded the files directly.
- Display. The software platform we use was built for text based formats so has difficulties displaying media files natively within the application. Currently we host the files as zip files and allow users to download them. This is not idea for creative subjects where the look and feel of a piece of work is hugely important.
- Accessibility. We follow accessibility legislation and have to bear this in mind when making content available to readers. If video content is submitted then it may not have sub-titles etc. We need to work with authors to make sure they are aware of best practice guidelines. Large file sizes may prevent readers from downloading/accessing the content. Many of our PhD theses are downloaded from countries where a reliable internet connection is not readily available.
- Digital preservation. As a memory institution the Library is required to think about how content will be accessed in the future. For standard electronic formats like PDF we have been providing access for 20+ years and have built systems where we are confident that we can show these files in another 50 years. We have MD theses in our collection from the late 1600s and we would like to be able to say that electronic theses submitted today would be available in 400 years however there are issues around non-standard file formats from obscure software packages.

To date we have only had one doctorate thesis (DClin Psychology) submitted in a non-standard format (it was a website), although we have not been able to make this publicly available partly due to the subject matter.

If you have any follow up questions, or if I can be of further assistance, please don't hesitate to get in touch.

Kind regards,
Theo Andrew

Scholarly Communications Team
Information Services
University of Edinburgh
Floor F East, Argyle House
3 Lady Lawson Street
Edinburgh EH3 9DR

Email: scholcomms@ed.ac.uk
MS Teams link: https://teams.microsoft.com/l/chat/0/0?users=tandrew@ed.ac.uk&topicname=Chat

10-07-2020 11:15 Susan Hunter: Date sent: 10-Jul-2020 11:12
To: NAAS Lisa [redacted]
CC: "scholcomms@ed.ac.uk" <scholcomms@ed.ac.uk>
Subject: RE: Policy questions: Electronic-only thesis submissions

Dear Lisa

Thanks for your reply and I'm glad the information was useful.

The Scholarly Communications Team (copied into this message) will be able to answer your questions regarding non-traditional thesis submission and the amount of data electronic submission will allow much better than I can. Academic Services are not involved in the submission process, so I don't have access to that information. Electronic submission is through PURE, but I don't know what the file size limit would be, so I will leave this for colleagues in the Library to answer.

Best wishes,

Susan

From: NAAS Lisa [redacted]
Sent: 10 July 2020 10:08
To: HUNTER Susan
Subject: Re: Policy questions: Electronic-only thesis submissions

Thank you so much Susan...I really appreciate this.

From the minutes then, it sounds like the Edinburgh Research Archive could still accept a non-traditional thesis for a future doctoral student if their research necessitates a different archival format. Is that correct?

And one final question about the electronic submission format. I understand you don't have those requirements/guidelines ready yet, but do you know if the electronic submission will allow for more than the flat, super compressed, under 20MB PDF?

Thank you again!

Lisa

From: HUNTER Susan
Sent: Thursday, July 9, 2020 1:42 PM
To: NAAS Lisa [redacted]
Subject: RE: Policy questions: Electronic-only thesis submissions

Dear Lisa

Thanks for your reply and clarifying your question. Apologies for my misunderstanding. The University will move to electronic only submission of the final thesis from 2020/21 and the Postgraduate Research Assessment Regulations for Research Degrees have been amended to this effect. The decision to move to electronic only submission for the final version of the thesis was taken by Senate Researcher Experience Committee in September 2018, but it has taken the University Library until now to procure the necessary systems to ensure a robust process. This decision was in line with the University's digital transformation strategic development theme and you can find more information in the paper that went to the committee on E-only submission of the final version of the thesis (Paper B) here: https://www.ed.ac.uk/files/atoms/files/20180925agendapapers.pdf

The minutes of the meeting in reference to this paper say:
"E-only submission of the final version of PhD theses
The Committee noted the paper and was invited to provide feedback on the proposal to move to online only submission of final theses in 2020/21.
The Committee noted that students without PURE profiles or those with dual profiles can be accommodated. Information Services (IS) is investigating systems for digital curation, which will be accessible, long-term and include disaster recovery, for example through multi-site storage. A long lead-in is needed to allow bidding for resources and staff to support the new system. The planned developments will reduce costs for students in binding and printing theses and for the University in storage. IS envisage there will be potential for flexibility in retaining analogue thesis copies in exceptional circumstances. The move to digital curation is consistent with sector practice and IS will consult on plans across the University.
The Committee supported the proposal."

The full minutes of the meeting are available here:
https://www.ed.ac.uk/files/atoms/files/20180925minutes.pdf

We are currently updating the guidance on the format of the thesis, although the guidance relating to typeface, spacing, title page etc will remain largely unchanged and this is non-mandatory guidance. The current thesis format and binding guidance is available here: https://www.ed.ac.uk/files/atoms/files/thesisbinding.pdf

I hope this will be helpful but if I can provide any further information please don't hesitate to get in touch.

Best wishes,

Susan

From: NAAS [redacted]

Sent: 09 July 2020 13:08
To: HUNTER Susan
Cc: PGR Exams <cahss.PGRExams@ed.ac.uk>; HUNTER Fiona

Subject: Re: Policy questions: Electronic-only thesis submissions

Hello Susan,

Thank you for your message...I appreciate your quick response, however, I think perhaps I was unclear with my question about policy. I understand the current pandemic-mandated policy and have been in touch with Fiona and the PGR office and will include a line or two about the pandemic and how restrictions have affected me. But part of my research, which I detail in my thesis, is about the actual form of the thesis and format of submissions for practice-based doctoral students. I discuss examples of these practice-based submissions from around the world. And I discuss the University's long-standing tradition of a physical, bound thesis.

I was hoping you could provide more details about the University's decision to go forward with the electronic-only thesis format in this upcoming academic year 2020-2021, a decision that goes beyond the pandemic restrictions as I understand it, and speaks to the larger trend in digital communication, archives, and PhD formats. I am hoping for details of what the new thesis requirements would be. These would not affect me as I am submitting this month, but the details are very relevant to my research. I would like to include the University information as part of my discussion on doctoral thesis formats and practice-based research...I would be capturing very current, relevant information in my thesis with the University's plans.

Thank you again for any assistance and apologies if I was not clear enough in my first message,

Best,

Lisa

Lisa Naas
PhD Candidate, Design (2015-2020)
Edinburgh College of Art at the University of Edinburgh
http://www.inconcertwithglass.com/
https://www.eca.ed.ac.uk/profile/lisa-naas

From: HUNTER Susan
Sent: Thursday, July 9, 2020 12:14 PM
To: NAAS Lisa [redacted]
Cc: PGR Exams <cahss.PGRExams@ed.ac.uk>; HUNTER Fiona <F.Hunter@ed.ac.uk>
Subject: RE: Policy questions: Electronic-only thesis submissions

Dear Lisa

Thank you for your email enquiry about thesis submission. I appreciate that this is a challenging time to be submitting your thesis, particularly in a practice-based discipline.

As the University buildings are currently closed due to the Covid-19 pandemic, and staff are working remotely, the decision was taken that electronic submission for thesis assessment would be the practice during this period. Normal practice for physical submission is to hand in to the College Office, however this is not possible at the moment due to Government restrictions. The College website notes that all theses must be submitted electronically only unless special arrangements are in place. The College website also provides information on how to submit your thesis electronically.

Once staff are able to physically return to College office buildings the expectation is that physical submission will be able to resume. However, as that is unlikely to be before your deadline of 31 July, I suggest you contact your School Postgraduate Team to see if there are special arrangements in place for your PhD programme that might allow physical submission in some form. I appreciate that your submission is likely to be impacted by the current necessity for electronic submission so it would be appropriate to you to include something on how Covid-19 has impacted your work.

I hope this is some help and wish you every success with your submission.

Kind regards,

Susan

Susan Hunter
Academic Services

From: NAAS Lisa <[redacted]
Sent: 09 July 2020 11:19
To: HUNTER Susan
Cc: NAAS Lisa <[redacted]
Subject: Policy questions: Electronic-only thesis submissions

Hello,

I have a question regarding the thesis submission policy and Jennifer Crummie suggested that I contact you for assistance. I understand from Jennifer that the University has brought forward a policy change to eliminate physical thesis submissions altogether. Would you be able to elaborate on the changes, the reasons for them, and explain the new requirements for the upcoming year?

For some context, I am a practice-based, doctoral student preparing to submit my thesis on creative idea generation, which challenges traditional thesis writing in the spirit of my research about creativity. I spend part of a chapter discussing the various forms and restrictions on practice-based, doctoral research. For the past few years, I have been planning my submission as a physical artist's book with the thesis as a component of it (along with the required PDF electronic submission). Those plans have been upended with the pandemic restrictions and I am not permitted to submit physically, but only electronically. An electronic-only submission in a flat, compressed PDF file minimises the experience and impact of my research and work. I am set to submit in this month (my deadline is 31 July), but would like to include a paragraph on these changes as they directly affect my work and are also

very relevant to my thesis research.

Thank you in advance for any information and details you can provide. I appreciate the assistance.

Kind regards,

Lisa

Lisa Naas
PhD Candidate, Design (2015-2020)
Edinburgh College of Art at the University of Edinburgh
http://www.inconcertwithglass.com/
https://www.eca.ed.ac.uk/profile/lisa-naas

--
The University of Edinburgh is a charitable body, registered in
Scotland, with registration number SC005336.

Final Attachment:
Examiners' Report from Viva Voce and
Document of Corrections

Examiner Report Form
Doctoral Thesis Submission Post Viva
(Part II)

THE UNIVERSITY of EDINBURGH

Examiners are requested to complete the form jointly and to return it **without delay (within 5 Working Days of the oral examination)**, as an email attachment to:

cahss.PGRExams@ed.ac.uk

(emailed reports need not be signed but will require email verification from all Examiners)

Alternatively, a signed paper copy may be returned by post to:

The Postgraduate Research Student Office
College of Arts, Humanities and Social Science
University of Edinburgh
55-60 George Square
Edinburgh
EH8 9JU

Please complete the form in typescript or block capitals

Name of student:	Lisa Naas	**UUN**	[redacted]
Title of thesis:	Association in Creative Idea Generation: A Black Box Dissertation Staged in Lyric Inquiry and Glass Concepts		
Degree sought:	PhD		

Date of oral examination	01/10/2020
Name of external examiner (1)	Professor Clare Twomey
Name of internal examiner (1)	Professor Chris Speed

Name of non-examining chair (if applicable)	Bev Hood
Name of observer(s) (if present)	Dr Jessamy Kelly and Dr Sophia Lycouris

Examiners are reminded that Part I and Part II reports can be requested and made available to students and their supervisor(s) after ratification by the College.If examiners have any concerns about this they should contact the College Postgraduate Research Student Office

Examiner Report Form
Doctoral Thesis Submission Post Viva
(Part II)

THE UNIVERSITY of EDINBURGH

Comments made *after* the oral examination

Please indicate your assessment below by placing an "X" or tick in the appropriate box and adding your comments in the spaces provided. (*The space will expand as required in the electronic version. If using paper, please continue your comments on a separate sheet.)*

Report to the College Committee	
Were there any areas of significant disagreement between the examiners in their respective Part I reports?	YES ☐ NO x
If YES, please explain below how these differences were reconciled. If the Examiners are not in agreement (and are therefore completing separate copies of this report), please state below details of the disagreement and, where appropriate, relate them to the preliminary report.	
Click here to enter text.	

Please comment on how criticisms made in the initial reports were resolved or reinforced by the student's performance at the oral examination and any further criticisms that arose during the examiners' discussion or in the course of the oral examination.
The question over the 'critical judgement' of the candidate was resolved through the oral defence in which Lisa demonstrated a confidence and ability to 'exercise of critical judgement with regard to both the student's work and that of other scholars in the same general field'. As a result we are satisfied that she fulfills this criteria.

Examiner Report Form
Doctoral Thesis Submission Post Viva
(Part II)

THE UNIVERSITY of EDINBURGH

Joint recommendation

Please indicate your joint recommendation (refer to Postgraduate Assessment Regulations for Research Degrees). Please place an "x" or tick in the appropriate box.

Available options: a - j

a	**Award PhD/Doctorate.** The thesis satisfies the requirements for the award of the doctoral degree as laid down in the University's Degree Regulations and Programmes of Study (see www.drps.ed.ac.uk/) as appropriate. No further changes can be made to the thesis after examination; or **Student Action:** finalise hard-copy thesis submission for doctorate degree **Re-examination**: None	☐
b	**Minor Corrections Needed.** The thesis satisfies the requirements for the award of the degree except that editorial corrections are required or stated minor weaknesses, as identified by the examiners, must be remedied. In the opinion of the examiners, the student will be able to remedy these without further supervision and without undertaking any further original research. The corrections to the thesis must be completed within three months and are subject to certification by the Internal Examiner(s), and by the External Examiner (where the examiner so requests), before the degree is awarded; or **Student Action:** Make specified corrections within three months and submit to internal examiner **Re-examination**: Corrections to be certified by Internal Examiner(s) and External Examiner (please tick if External Examiner has requested to certify corrections)	☐ ☐
c	**Additional Oral Examination Needed.** The thesis satisfies the requirements for the degree, or satisfies the requirements except for stated minor weaknesses, but the student's oral defence of the thesis has been inadequate in specified respects. The student is required to undergo further assessment, written, oral or practical, and make any corrections to the thesis within a specified period* of not more than four months. The degree is awarded subject to the student achieving a satisfactory standard in the further oral examination and subject to certification of the corrections by the Internal Examiner(s), and by the External Examiner (where the examiner so requests); or **Student Action:** Re-sit viva and undergo further written or practical assessment if required **Re-examination**: Further oral examination of original thesis (please tick if External Examiner has requested to certify corrections)	☐ ☐

Examiner Report Form
Doctoral Thesis Submission Post Viva
(Part II)

THE UNIVERSITY of EDINBURGH

d	**Additional Work on Thesis Needed - No Oral Re-Examination Needed – Resubmission for PhD/Doctorate.** The thesis needs work above and beyond editorial corrections or minor weaknesses in order to meet one or more of the requirements for the degree, and this work may require further supervision. However, the student appears capable of revising the thesis to satisfy the requirements. The revised thesis must be completed within a further specified period* of study, which is set by the examiners, and which must not exceed six months. Exceptionally, this period may be extended to a maximum of 12 months with permission from the College. In these cases College may also re-categorise the recommendation to (e) – see below. The thesis is subject to certification by the Internal Examiner(s), and by the External Examiner(s) (where the examiner so requests), before the degree is awarded; or	x
	Student Action: Complete thesis revision within specified period and submit to internal examiner – no thesis resubmission required **Re-examination**: Revisions to be certified by Internal Examiner(s) and External Examiner (please tick External Examiner has requested to certify corrections)	x
e	**Substantial Work on Thesis and Oral Re-Examination Needed – Resubmission for PhD/Doctorate.** The thesis is substantially inadequate in one or more of the requirements for the degree, but the student appears capable of revising the thesis to satisfy the requirements. The student ought therefore to be invited to resubmit the thesis for oral examination in a substantially revised form as indicated by the examiners within a further specified period* of study, which is set by the examiners, which must not exceed 12 months. Exceptionally, this period may be extended to a maximum of 24 months with permission from the College; or	
	Student Action: Complete substantial revisions and resubmit thesis within specified period **Re-examination**: Oral examination of resubmitted thesis	
f	**Award MPhil.** The thesis is substantially deficient in one or more of the requirements for the doctoral degree and cannot be revised to satisfy these requirements; but the thesis satisfies the requirements for the degree of MPhil; or	
	Student Action: Finalise hard-copy thesis submission for MPhil degree **Re-examination**: None	
g	**Award MPhil following Minor Corrections.** The thesis is substantially deficient in one or more of the requirements for the doctoral degree and cannot be revised to satisfy these requirements. However, the thesis satisfies the requirements for the degree of MPhil except for stated minor corrections in the thesis. The student should be invited to carry out the specified minor corrections as indicated by the examiners. The corrections to the thesis must be completed within three months and are subject to certification by the Internal Examiner(s), and by the External Examiner (where the examiner so requests), before the degree is awarded; or	
	Student Action: Make specified corrections within three months and submit to internal examiner **Re-examination**: Corrections to be certified by Internal Examiner(s) and External Examiner (please tick External Examiner has requested to certify corrections)	

Examiner Report Form
Doctoral Thesis Submission Post Viva
(Part II)

THE UNIVERSITY of EDINBURGH

h	**Substantial Work on Thesis Needed before Resubmission and oral examination for MPhil.** The thesis is substantially inadequate in one or more of the requirements for the doctoral degree and cannot be revised to satisfy these requirements. However, the thesis may satisfy the requirements for the degree of MPhil if stated deficiencies in the thesis are remedied. Accordingly, the student should be invited to resubmit the thesis in a substantially revised form as indicated by the examiners for the degree of MPhil. The revisions should be completed within a further period which must not exceed 12 months; or **Student Action:** Rectify deficiencies and resubmit thesis within 12 months **Re-examination**: Oral examination of resubmitted thesis required	
i	**Award MSc by Research.** The thesis is substantially deficient in respect of all or any of the requirements for the degree and cannot be revised to satisfy these requirements or the requirements of the MPhil. However, the work is of sufficient quality to merit the award of MSc by Research; or **Student Action:** None **Re-examination**: None	
j	**Fail.** The thesis is substantially deficient in respect of all or any of the requirements for the degree and cannot be revised to satisfy these or any other research degree requirements. **Student Action**: None **Re-examination**: None	

* Specific Period recommended for corrections/re-sit viva by examiners (recommendation c, d or e)	12 months

If resubmission is recommended, only one copy of the original thesis should be returned to the student. The other should be retained by the Internal Examiner to facilitate checking of revisions when the thesis is resubmitted.

Signature of external examiner (1)	[redacted] Prof. Clare Twomey
Signature of internal examiner (1)	[redacted] Prof. Chris Speed

Examiner Report Form
Doctoral Thesis Submission Post Viva
(Part II)

THE UNIVERSITY of EDINBURGH

Specific examination critique
to be given to the student by the College Committee
(always to be completed unless no thesis amendments are required)

Please complete the form in typescript or block capitals

Name of student:	**Lisa Naas**	**UUN**	[redacted]
Title of thesis:	Association in Creative Idea Generation: A Black Box Dissertation Staged in Lyric Inquiry and Glass Concepts		
Degree sought:	**PhD**		

- The joint report must include any conclusions reached by the examiners as a result of the oral examination, particularly in any areas of concern identified in the individual reports.
- Where editorial corrections or modifications are required these should be specified in the joint report.
- If resubmission is recommended, only one copy of the original thesis should be returned to the student. The other should be retained by the Internal Examiner to facilitate checking of revision when the thesis is resubmitted.
- If the thesis is considered to be substantially deficient, the report should explain in detail which aspects of the thesis require revision to bring it up to the standard required. If the examiners recommend that no degree should be awarded, the main reasons for rejecting the thesis must be given.
- **If examiners pass information to students about recommendations they must make it clear that these are only provisional, as the final decision rests with the Examinations Committee.**

Critique to the student (*the space will expand as required in the electronic version. If using paper, please continue your comments on a separate sheet.)*

Requirements:

The thesis' Introduction requires a closer focus upon the challenges within the culture of glass production and creation, so as to deliver the contribution of knowledge more directly. This could include highlighting hierarchies and barriers to inclusion, and declare aims for the research to reveal methods that can address these challenges. We recommend remodelling the introduction to be more explicit about these intentions.

We further recommend that the Conclusion requires a demonstration of how the research realised these aims through both the evidence-based reporting and use of theory, more importantly the conclusion should articulate with confidence that the methods and knowledge can make a difference

to the glass community. The examiners are very keen to see the student claim this research and its contribution as an 'anti-hierarchy access model for the industry'.

The examiners further require that the student revisits the entire text with a 'broad brush' edit. The intention would be to highlight essential elements that support the research objectives which will be declared in the revised introduction, and that non-essential reflections are removed or suppressed. The examiners what to bring out the core threads of the research so that it is received with clarity.

An example of where the thesis could benefit from editing is section 3.3 My Glass Concepts. Whilst enjoyable to read, it opens the research project out, and would allow the thesis to be more effective if it returned to the core aims and objectives of the research.

Examiner Report Form
Doctoral Thesis Submission Post Viva
(Part II)

THE UNIVERSITY of EDINBURGH

Signature of external examiner (1)	[redacted] Prof. Clare Twomey
Signature of internal examiner (1)	[redacted] Prof. Chris Speed
Date:	01/10/2020

FOR COLLEGE USE ONLY
Date received:

Document control

K:\AAPS\D-AcademicAdministration\02-CodesOfPractice,Guidelines&Regulations\24-MainReferencesCopiesPolicies\01-Current\Assessment BOE SCC & Feedback\Forms\ThesisExaminerReportPtII	
If you require this document in an alternative format please email Academic.Services@ed.ac.uk or telephone 0131 651 4990.	Date last revised: 25.07.19

PhD Revisions Documented for Examiners

Title Page

Added 'Arts' to 'College of Arts'
Updated submission date

Declaration Page

Updated submission date

Abstract

Updated to include an 'inclusive, accessible approach to glass as a creative medium' and the thesis as 'a work of glass'

Acknowledgements

Added Dr. Keeryong Choi, Professor Stephen Bottomley; corrected spelling of 'Keay'

Overture

p. viii, Added Oxford comma in citation

Prelude

p. x, Last Paragraph: changed 'in writing on creativity' to 'In writing on creative ideation' and second to last line, added 'and idea-making', tightened some grammar

Contents

Updated page numbers throughout to reflect formatting changes due to revisions; Updated Chapter and section titles to reflect changes in text of main thesis body

Figures and Visuals Lists

Updated page numbers and figure numbers throughout to reflect formatting changes due to revisions; Added lyric visual credits and information for the new lyrics added to main body; Changed cover image credit to indicate 'collection of the artist'

Introduction

p. 1, Reworked the entire second half of the page and added new writing to introduce the thesis as using a lyric inquiry to demonstrate a creative process. Introduced glass and concepts of glass (glass concepts) as accessible entry points to working with glass, specifically noting that I am challenging the tradition in glassworking which focuses on the physical. Also introduced this thesis as a 'work of glass'.

p. 2, First paragraph, added a line about my background as it helps put my practice in context; added 'my concepts of it' later in the page; Minor language clarification

p. 4, Reworked a bit of the first paragraph to explain why I chose to work conceptually with glass in this thesis; adding information about being away from the studio but still working with glass reinforces my thread of accessibility of glass through concepts

p. 5, Added a new lyric line because the new writing extended the academic text

p. 6, Rewrote the paragraph to introduce 'reflection' as a key glass concept and design element and to further explain how the academic and lyric lines operate. Also reworked the final paragraph and used the new lyric lines of the section to give more information about how the lyric lines work and to encourage the reader to give the untraditional writing a chance

p. 7, Added a new lyric line to complete the new lyric thought on page 5 and to complete the formatting

p. 8, Minor tightening and clarification of writing

p. 9, Added the new lyric notes that accompany the new lyric lines

Chapter 1

p. 11, Tightened grammar in first paragraph

p. 12, **Research Questions**: Added the word 'doctoral' to make it explicit that my research question centres on the PhD process; changed capitalisation of 'scholartistry' to be consistent with the rest of its use in the thesis; added citations for '"practice-based" approach, revisited through a "scholartistry" angle'

p. 12–13, **Aims and Objectives**: edited all five aims to clarify and emphasise the intention of the research and thesis to enable access to glass, an inclusive approach to glass, and generation of ideas for glass, through lyric use of glass concepts and my model of using the tool/technique coupled with studio workshops. Clarified aims (b) + (c) to explicitly state that the thesis aims to presents two forms of creativity research observation: researching my own creative processes (in creative practice and research) through an introspective accounting and on student processes through methods observing and analysing their processes from an outsider's perspective. Explicitly stated in (c) that I intended to describe how to use the technique/tool

p. 14 & 16, **Outputs and Contributions to Knowledge**: edited this section to emphasise again the contribution to glass with my inclusive approach and the thesis as a work of glass. Clarified the contribution to creativity research. Added information on Chapters for the reader to find more detailed information.

p. 21, **Statement on 'Interlude 1'**: minor language clarifications

Chapter 2

p. 24, Added *Navigating the Unknown*, (book read after submission) and minor language clarification

p. 28, Minor language tightening

p. 30, Added 'glass' to the list of examples that are concepts to introduce this early and in this context and 'glass concepts' as my way to refer to 'concepts of glass'

p. 32, In-text page number updates and replacing 'her' with 'Schellekens'

p. 34, Minor language tightening

p. 42, With revisions, all <u>five</u> of my aims now centre on process

p. 44, Minor language clarification

p. 46, Minor language clarification

p. 50, Minor language tightening

p. 62, Minor content clarification and introduction of metaphor

p. 65, Minor content clarification and language tightening

p. 69, Grammar correction

Chapter 3

p. 71, Minor content clarification as I rewrote 3.3.

p. 72, Added vaccine vials to update the list of everyday uses of glass

p. 78, Minor content clarification

p. 84, Corrected a spelling mistake

p. 92, Minor language clarification; spelling correction

p. 94, Content clarification to emphasise technique focus of Studio Glass

3.3. **Glass Concepts** p. 96–103 Completely reworked this section, moving paragraphs and sentences and moving the text I had written about glass in the expanded field into this section. I changed the title to 'Glass Concepts' and I focused on glass concepts in general and in recent arts activity before discussing my own and offering an example from my practice. Glass concepts and everyone's access to them are the key to my accessible, inclusive approach to glass. Within the discussion of the current shift away from Studio Glass, I updated my thesis by including Haapasaari's work, since hers is related and she was just awarded her PhD. I also suppressed the reflective language so that my description of the example from my practice is less story-telling, more matter-of-fact, and tied to the pages of content of Chapter 3. I included the example because it is very key to understanding how I work and offers the reader a way in to understanding the thesis as a work of glass. Due to the formatting changes that these revisions caused, I needed to add two lyric pages (p. 99, 103) to maintain the pattern and content of the dialogue between the academic text and the lyric.

3.4. p. 104, Added a couple of lines to connect the practice example of glass concepts in 3.3. and ground that in lyric writing in order to aid the transition to the next chapter of Lyric Philosophy.

p. 105, Added two lyric notes corresponding to the two new lyric pages (p. 99, 103)

Chapter 4

p. 109, Updated page number; minor language edit

p. 110, Minor language edit

p. 114, Minor language edit

p. 116, Minor language edit for consistency

p. 118, Minor language clarification and editing for consistency

p. 120, Minor language clarification

p. 124, Minor language clarification; Page number updates

p. 126, Suppressed/reworded the reflective line ‘It reminded me of Frank Lloyd Wright’s design principle that ‘form and function are one’ to connect better to the discussion and my practice. Minor language clarification and updated page numbers.

p. 130, Added a missing date for the citation

p. 132, Language clarification; Added a missing citation

p. 134, Updated page number; Added the line to highlight its inclusivity; Added missing citation

p. 136, Minor grammar edit

p. 138, Deleted the line ‘it is not a way forward for everyone’ and made a positive statement in keeping with the accessible, inclusive model that I am arguing: that lyric philosophy is an accessible, creative way forward for practice-based researchers who want to tie content and form

p. 140, Minor language clarification

p. 142, Minor language clarification

p. 144, Added a line to clarify my part in the debate

p. 150, Added another important example because its form is related to mine and is a academic project publication

p. 152, Minor language clarification

p. 154, Minor content clarification

p. 158, Minor content and language clarification

p. 160, Minor content and language clarification

p. 162, Minor content and language clarification

Chapter 5

p. 169, Minor content and language clarification

p. 170, Minor language clarification

p. 172, Minor content and language clarification

p. 174, Minor content clarification

p. 176, Minor content clarification

p. 178, Minor content and language clarification

p. 180, Minor content and language clarification

p. 184, Minor content and language clarification

p. 186, Minor content and language clarification

p. 188, Section title edit to add the word ‘Meta-creativity’

p. 190, Minor content clarification

p. 195, Minor language and content edits

Chapter 6

p. 197, Minor content clarification

p. 198, Suppressed an unnecessary reflection line; Minor content clarification

p. 204, Minor content clarification

p. 206, Page number updates

p. 210, Minor language clarification; Page number updates

p. 212, Minor content clarification; Page number update

p. 214, Suppressed an unnecessary reflection/memory and edited the section for clarity; Page number update

p. 218, Page number updates; Minor language clarification; Content clarification to introduce an author

p. 220, Page updates; Minor language clarification; Content clarification and sentence tightening due to adjustments made on page 218

p. 224, Minor language clarification

p. 226, Page number update; Minor content clarification

p. 230, Page number updates

p. 232, Page number updates; Minor language clarification

p. 236, Page number update; Minor grammar correction

p. 238, Page number update

p. 240, Page number update

p. 242, Minor language clarification

p. 244, Page number updates

p. 246, Page number updates

p. 248, Minor language clarification

p. 250, Minor language clarification

p. 256, Page number update; Minor language clarification

p. 262, Minor clarification

p. 264, Minor clarification

p. 266, Page number updates; Minor language clarification

p. 268, Minor content clarification; Page number update

Chapter 7

p. 273, Page number updates; Minor content clarification

p. 276, Page number updates

p. 282, Page number updates; Minor language clarification

p. 284, Page number update; Minor content clarification

p. 286, Page number update

p. 288, Minor language and content clarification and tightening

p. 290, Page number updates; Minor grammar correction

p. 292, Page number updates; Naming correction

p. 294, Page number updates; Minor language clarification

p. 296, Grammar correction; Suppressed reverie and tied the reflection to the upcoming section

p. 298, Minor content clarification

p. 300, Page number update; Subtitle spelling correction

p. 302, Page number update; *Spectacles* title correction

p. 304, Page number updates; Minor language clarification

p. 308, Content clarification; Page number updates; title correction

p. 310, Content clarification connecting how I developed the 'Interludes' with how one might revisit the elements of a Word Triangulation map-sketch; Page number updates

p. 312, Minor language and content clarification; Page number updates; *Spectacles* title correction

p. 314, Minor content clarification

p. 316, Updated content and page numbers

p. 318, Updated content and page number; Minor language clarification

p. 320, Content clarification; Updated page number

p. 322, Subtitle Correction; Minor content clarification; Updated page number

p. 324, Updated content information; Updated page numbers; grammar correction

p. 326, Content clarification; Updated page number

p. 328 & p. 330, For section 7.4. Content clarification; Updated page number;
Added an entirely new section 7.5. 'Revising the Thesis after my Viva Voce' to address the influence of the Viva outcome and examiner requirements on the thesis writing. Described the main challenges to respond to the revisions requirements and how I addressed them.

p. 331, Minor language clarification; Page number updates

p. 332, Minor grammar correction

p. 335, Minor language clarification; Page number update

Chapter 8

p. 337, Content clarification and emphasis on contributions to knowledge; Title addition to be consistent across chapters with performance associations; Page number updates

p. 338, Minor content clarification; Page number update

p. 340, Added chapter section breaks with new titles for clarity in reading; Content clarification and emphasis on inclusivity and access; Page number updates

p. 342 Reworked this page to emphasise the 'Word Triangulation' (with glass concepts) contribution to Glass as a model for an inclusive, accessible approach to glass; Added chapter section breaks with new titles for clarity in reading

p. 342, 344 Added a new section to address the viva and examiners' 'anti-hierarchy access model for the industry' as an idea of a contribution developed associatively with my ideas from reading my thesis as a 'Word Triangulation'

p. 346, Added a new section to emphasise the connection between Lyric Philosophy and this outcome of 'Word Triangulation' and loop the output back to framework of the research and to identify this new pathway of research; Added chapter section breaks with new titles for clarity in reading

p. 348, Minor language clarification; Updated page number

p. 349, Added a new lyric image due to page and formatting shifts with new academic text

p. 350, Added chapter section breaks with new titles for clarity in reading; Minor language clarification

p. 352, Updated page numbers; Grammar correction

p. 353, Added a new lyric image due to page and formatting shifts with new academic text

p. 354 & 356, Reworked these pages to emphasise the thesis contribution as a work of glass; Updated page numbers

p. 357, Added a new lyric image due to page and formatting shifts with new academic text

p. 358, Added text to include Leverhulme submission and continued development of the thesis in digital form; Added text to include the digital thesis form that I have been developing; Minor language clarification; Clarified chapter section header

p. 359, Updated page numbers and section number

p. 360, Added lyric notes for each of the three new lyric images added to this chapter

Encore

In case the reader missed the Encore page in the first reading, the lyric on this page (page 365) was an 'Easter Egg' I included in the original 2020 thesis submission. It does not have a line on the Contents pages because encores are not announced prior to a performance. For my revisions, I included a note at the bottom of the Encore page for the new employment position I accepted in August 2021. I was hired in large part to my overall experience working to promote access and inclusion to the arts and I referenced my thesis during the interviews.

Book of Lyric

Resized pages to flow more seamlessly within the PDF

Bibliography

Added new entries for new citations in revised text and new lyric references

Appendix T

Updated the document to include the information on *Viral Glass*, the exhibition where my *Measuring My Days* project was shown alongside Tim Tate (founder of Glass Secessionism) and his work

Appendix Y

Updated the document to include my *Creative Resilience* book contribution, my abstract and screenshot for my presentation of *The Black Box Dissertation* at the X-disciplinary Artistic Research Conference at the Vilnius Academy of Arts, Lithuania; Removed the old conference documentation with an acceptance note for the Manchester conference I could not attend (as I also edited the language in the chapter); Added my submission of *The Black Box Dissertation* as a work of glass for the National Glass Centre's Glass Prize 2021; Added the Leverhulme Trust Early Career Application that I submitted in conjunction with the Moray School of Education at the University of Edinburgh; and Added the document that I submitted in advance of my Viva to explain the online digital version and url addresses that I made for the Examiners