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THE CENTRE

The Centre for Research in Digital Education launched in November 2015, bringing together research within the Moray House School of Education that spanned digital pedagogy, computational and data cultures within education and the impact of digital technology on children and childhood. The Centre now brings together this work under three themes: Digital Cultures; Children & Technology; and Data Society. Our work looks at how education is shaping, and is shaped by, technological change.

We have an international reputation and are unusual in the cross-disciplinary approach we take to this research. Academics and students within the Centre come from many backgrounds: sociology, literature, computing science, psychology, media and cultural studies, and philosophy.

We are also committed to our teaching: we run a highly successful distance postgraduate programme in Digital Education, teach across several other programmes in the School of Education and have collectively authored the well-known Manifesto for Teaching Online.

In the first section – ‘In brief’ – we offer a series of visualisations and an overview of our academic staff, with the detail of our research strands, example projects, grants and impact in the ‘In-depth’ section that follows.

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GRANTS
Digital Education has benefited from £960,561 in external grant funding during the period 2016–2018.

PROJECTS
19 funded projects since 2016.

SEMINARS
Since 2016 we have arranged 39 seminars. To date, we have had over 1100 enrolments on our seminar programme.

STUDENTS
Current taught MSc students by country of residence
172 Students in total
32 Countries

From left to right
MEXICO 1
U.S.A. 9
CANADA 8
URUGUAY 1
SOUTHERN IRELAND 7
NORTHERN IRELAND 2
UK SCOTLAND 37
WALES 1
UK ENGLAND 53
PORTUGAL 1
MALTA 1
FRANCE 3
BELGIUM 2
NETHERLANDS 3
DENMARK 2
SWITZERLAND 2
GERMANY 5
AUSTRIA 1
POLAND 1
NIGERIA 1
SOUTH AFRICA 4
RWANDA 1
CYPRUS 1
BAHRAIN 2
ISRAEL 1
PAKISTAN 2
INDIA 2
HONG KONG 1
SINGAPORE 1
TAWAN 2
AUSTRALIA 13
NEW ZEALAND 2
The Centre for Research in Digital Education is made up of a core team of academic staff along with a group of international associates whom support our work in a variety of ways; as advisors; as visiting scholars; as seminar speakers; to promote research and knowledge exchange.

Since 2016 there have been a number of core staff arrivals and departures:

- Dr Philippa Sheail joined us as a Lecturer in Digital Education. Professor Jeff Haywood and Professor Sir Tim O’Shea joined us as Professors Emeritus.
- Dr Zayba Ghazali-Mohammed, Dr Michael Gallagher, Niklas Berliner, Dr Yi-Shan Tsai, Dr Yuchen Wang and Dr Anna Wood joined us as Research Associates.
- Dr Claire Sowton joined us as Project and Communications Manager.
- Dr Peter Evans is co-organiser for ‘Digital education in global context’ and leads co-tutors on ‘An introduction to digital environments for learning’. His interests include online identity and its implications for academics, the effect of university and government IT policies on academic practice, e-learning and intellectual property, and e-learning in developing countries.
- Professor Dragan Gažević, left the Centre to join Monash University in Melbourne, Australia, but maintains strong links as one of our Associates.
- Dr Hamish McLeod retired in 2017, but continues to teach with us.

We have also been joined by some excellent visiting scholars: Professor Nicole Durisch Gauthier from La Haute école pédagogique in Lausanne, Dr Yeqin Kang from Guangdong University of Foreign Studies, Professor Peter Rich from Brigham Young University in Utah, Dr Rafael Morales Gamboa from the University of Guadalajara in Mexico, Bjarke Lindse Anderson (PhD student) from Aarhus University in Denmark, Professor Petar Jandric from the University of Zagreb in Croatia, and Dr Sergi Roura Planas from Rovira Virgili University in Spain.

We have also been joined by some excellent visiting scholars: Professor Nicole Durisch Gauthier from La Haute école pédagogique in Lausanne, Dr Yeqin Kang from Guangdong University of Foreign Studies, Professor Peter Rich from Brigham Young University in Utah, Dr Rafael Morales Gamboa from the University of Guadalajara in Mexico, Bjarke Lindse Anderson (PhD student) from Aarhus University in Denmark, Professor Petar Jandric from the University of Zagreb in Croatia, and Dr Sergi Roura Planas from Rovira Virgili University in Spain.

IN BRIEF
Lydia Plowman is a Senior Lecturer in Learning Sciences and Centre co-director (Children and Technology). She now leads the UK side of Move2Learn, a $2.4 million Science Learning+ project with the US. She researches the role of interaction in how we think and learn, and the implications for early learning technologies. She marries his academic world with industry as CEO of an early learning technology company, Pling Ltd. 

Dr Andrew Manches
Senior Lecturer
Dr Andrew Manches is a Senior Lecturer in Learning Sciences and Centre co-director (Children and Technology). He now leads the UK side of Move2Learn, a $2.4 million Science Learning+ project with the US. He researches the role of interaction in how we think and learn, and the implications for early learning technologies. He marries his academic world with industry as CEO of an early learning technology company, Pling Ltd.

Clara O’Shea
Associate Lecturer
Clara is an Associate Lecturer teaching on the MSc in Digital Education and working towards a PhD on ‘Kinds of learning and kinds of play: an exploration of identity development in formal and informal digital environments.’

Professor Emeritus
Professor Sir Tim O’Shea
Professor Sir Tim O’Shea BSc (Glasgow), PhD (Dundee), DUniv (Heriot-Watt), DUniv (Stirling), LL.D (McGill), Dhc (St. Petersburg (HSS), FAcSS, FRSE, was Principal and Vice-Chancellor of the University of Edinburgh from October 2002 – February 2018. Tim’s academic output, produced mainly in collaboration with others and on topics relating to computer based learning, artificial intelligence, and mathematics education, includes 10 books, 22 BBC television programmes and over 100 journal articles.

Professor Lydia Plowman
Chair in Education and Technology
Lydia Plowman is Chair in Education and Technology in the Moray House School of Education, University of Edinburgh. She has gathered more than twenty years’ experience of conducting research with children and digital media, including several projects funded by the ESRC. She is interested in young children’s learning in a range of formal and informal settings, particularly in the ways in which technology is integrated into family life and used for leisure, work and educational purposes in the home.

Dr Judy Robertson
Chair in Digital Learning
Professor Judy Robertson is Chair in Digital Learning at the Moray House School of Education. She has been developing educational technology in collaboration with children and teachers since 1997. She is interested in computer science education and serious games for children, particularly game authoring. Her work focuses on how technology can help to solve thorny real world problems.

Professor Yi-Shan Tsai
Research Associate
Yi-Shan Tsai is a co-investigator of a cross-European project – SHEILA (Supporting Higher Education to Integrate Learning Analytics) and a member of the Learning Analytics Policy Task Group at the University of Edinburgh. Her current research focuses on policy and strategy formation for learning analytics in higher education. Her other research interests include reader responsiveness, popular cultural reading, visual texts and media, learning and teaching support, and educational research methods.

Dr Yuchen Wang
Research Associate
Yuchen Wang is a Research Associate on Lecture Recording forInclusive Education led by Dr Jeremy Knox. Her research has focused on inclusive education development and the implications of student voice. She completed her PhD research into ‘Imagining Inclusive Schooling’ at the University of Edinburgh, which examined disabled children’s learning and participation in mainstream schools in Shanghai through an ethnographic approach.

Dr Anna Wood
Research Associate
Anna Wood is the Research Associate on the 'Asking the Right Question' Project, led by Dr Jeremy Knox. Her research interests focus on the use of technology in flipped, active learning lectures, and on how dialogues which take place in these lectures, both between students and between teacher and student, and the way in which these dialogues may support learning. She blogs at 'The Science of Scientific Learning.'
“Work in the Digital Cultures strand sheds new light and offers critical perspectives on some of the most pressing issues in digital education today, including openness, surveillance, anonymity, feedback and dialogue in higher education, new forms of engagement and learning in galleries, libraries and museums, and digital futures for work, informal learning, and education.”

Dr Jen Ross

PROJECT EXAMPLE

ARTCASTING

Working together with the National Galleries of Scotland, Tate, and the ARTIST ROOMS Research Partnership, the project team developed a new digital and mobile form of evaluation of arts-based engagement, in the context of ARTIST ROOMS On Tour. The project involved the design, development, piloting and analysis of an Artcasting methodology and a digital output in the form of a mobile app. The mobile app invited visitors to select an artwork and create an ‘artcast’ by choosing and describing a new location and time for the artwork; visitors could then encounter or re-encounter artcasts in those locations at a later date. The Artcasting approach generated and measured links and relationships between objects, places and people – simultaneously creating connections and evaluating the intensity of engagement with artworks and exhibitions.

In total, the team took part in 23 events and engagement activities throughout the course of the project, including conferences, drop-in sessions, twitter chats, workshops, invited seminar presentations, and demonstrations.

Principal Investigator: Jen Ross
Team: Chris Speed, Jeremy Knox, Claire Sowton, Chris Barker
Funder: AHRC
Award: £149,542 (total grant value £173,394)
Website: www.artcastingproject.net

The Digital Cultures research theme engages with the cultural contexts of digital education in the broadest sense including digital higher education, open education and digital cultural heritage.

Drawing on critical perspectives on education, society and technology, we are actively researching high impact areas including museum education, massive open online courses (MOOCs), teacher automation, internationalisation and the ‘data turn’.

Dr Jen Ross
Co-Director for Digital Cultures
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© Peak15 (Sigrid Schmeisser)

Top: Artcasting in the National Galleries of Scotland (ARTIST ROOMS: Roy Lichtenstein) | Bottom: Artcasting app example screens

© Peak15 (Sigrid Schmeisser)
This is a strategic project to co-design the future of digital education at Edinburgh with students and staff. How should teaching at The University of Edinburgh unfold over the coming decades, as technology, social trends, patterns of mobility, new methods and new media continue to shift what it means to be at university? The Near Future Teaching project, running over the 2017/18 academic year, is about working together to co-design the future of digital education at Edinburgh.

The project team are gauging views from students and staff through a series of workshops, talks, think-tanks, interviews, one off events, and via social media. To date, virtual reality, digital and material design, filmmaking and creative writing have been used to challenge, inspire and reimagine teaching for the future.

This reimagining of the future of teaching at the University of Edinburgh is now being extended into design workshops to try to make sure that the ways in which we teach and learn are based on a set of values and visions we can ascribe to as an academic community.

“We should cease trying to reproduce the conventional classroom and pedagogy in digital space, and think more radically about what teaching can be. Starting from scratch, let’s ask how future teaching can be magical, instead of a ‘digital equivalent’ of work on the physical campus.”

Near Future Teaching Community Padlet

Themes emerging from the collected data from the Near Future Teaching project include critical takes on values, lectures, automation and AI, creativity, distance, and the concept of too much technology, all of which have the capacity to inform future teaching strategy for the University of Edinburgh.

Project lead: Sian Bayne, Project RA: Michael Sean Gallagher
Project manager: Jennifer Williams (IAD)
Project dates: Sept 2017 – Aug 2018
Website: www.nearfutureteaching.ed.ac.uk
“Digital technology increasingly shapes the way young people live and learn. We believe that a better understanding of how children interact with technology not only helps us understand its influence, but also helps inform our role, in both supporting children’s interaction and informing the design of new technologies.”

Dr Andrew Manches

We explore the role of technology in the everyday lives of young children. Whether it’s at home with their families and other caregivers, in educational settings such as preschools and schools, or in and around their neighbourhood we think it’s important to know more about living and learning with technology.

We want the outcomes of our research to:

+ contribute to discussions about the place of technology in young children’s lives
+ create richer learning experiences for children and others by informing the design process
+ provide insights that are valuable for parents and teachers
+ engage decision-makers in understanding more about the ways in which technology can support learning

Dr Andrew Manches
Co-Director for Children & Technology
a.manches@ed.ac.uk

**PROJECT EXAMPLE**

**EMBODIED LEARNING FOR PRE-SCHOOL SCIENTISTS (MOVE2LEARN)**

Move2Learn will be carried out over 36 months (May 2017-Apr 2020) and examine how interactive museum exhibits designed to encourage meaningful actions can help young children express, communicate and develop their scientific thinking.

The project is a collaboration between the US, funded by National Science Foundation and led by Dr Judy Brown, Phillip and Patricia Frost Museum of Science. The UK is funded by the Wellcome Trust and led by CRDE member, Andrew Manches. The Co-PIs in the UK are Professor Sara Price, UCL and Dr Sharon Macnab, Glasgow Science Centre.

Principal investigator (UK): Andrew Manches
Team: Zayba-Ghazali-Mohammed, Claire Sowton, Alexia Revueltas Roux
Funder: Wellcome Trust
Award: £374,411 (total grant value £701,656)
Project dates: May 2017—May 2020
Website: [www.de.ed.ac.uk/project/move2learn](http://www.de.ed.ac.uk/project/move2learn)
In the Digital Education Research Centre, we want all children and young people across the Edinburgh and South East Scotland City Region to learn about data to benefit their personal lives and open up new possibilities for interesting and well-paid careers. We propose an ambitious and inclusive programme of Data Education for All in City Region schools, in which children have the opportunity to excel in data education, regardless of their gender, location or financial circumstances.

To support this, Judy Robertson and Sian Bayne are working on a business case to be presented to the University Data Driven Innovation Board and the DDI Skills Gateway in late Spring 2018.

The programme is based on the principles that to be effective and inclusive, data education for all requires:

1. a well-designed and coherent curriculum which progresses from nursery to the end of secondary school accompanied by high quality teaching materials linked to the curriculum which inspire and excite children;

2. teachers who are confident and competent in data education;

3. productive collaborations between the University staff and students, City Region schools and local employers and charities;

4. internationally leading research and knowledge-sharing to deepen our understanding of how data impacts society, how we can best teach about data, and to robustly evaluate the programme and make recommendations to policy makers.

Project Lead (Schools) on City Deal Data Driven Innovation Skills Gateway: Judy Robertson
Website: www.ed.ac.uk/local/city-region-deal
DATA SOCIETY

“Data Society responds to the increasingly important issues raised by the collection and processing of digital data in education, and will develop a critical research agenda around analytics, ‘big data’, algorithms, machine learning, and other ‘data intensive’ practices.”

Dr Jeremy Knox

Emerging research approaches from outside of education – such as software studies, critical data studies, critical algorithm studies, and surveillance studies – have surfaced crucial insights and challenges related to the increasing entanglement of data in social life. The ‘Data Society’ research theme will allow the Centre to establish and support education-specific projects related to this vital contemporary area of study.

The ‘Data Society’ research theme was launched in February 2018, marked by the seminar series ‘Data Citizenship and Education’, in partnership with the Edinburgh Futures Institute.

Dr Jeremy Knox
Co-Director for Data Society
jeremy.knox@ed.ac.uk

PROJECT EXAMPLE
DATA BODIES IN THE LIBRARY

Many university students and researchers make extensive use of one or more research library spaces and services. These library users are often physically visible, as bodies at desks, but they also leave data traces through interactions with digital services and resources. These data traces include data on searching, borrowing and downloading a range of digital and physical materials. Library users also leave digital traces of entrances and exits through security gates, and interact with library buildings through connections to Wi-Fi hotspots, book check-out machines, automated book returns, and digital questionnaire points, as well as moving through buildings which respond to such movement – or lack of it – through triggered lighting systems and automatic door openers. The building audibly responds to inappropriate movement with alarm sounders, as tagged and unchecked material inadvertently leaves its approved boundaries.

The project focuses on two key research libraries as field sites: the University of Edinburgh Library and the National Library of Scotland.

Considering ‘what makes a library?’, the research will work with theories of ‘Code/Space’ (Kitchin and Dodge 2011), exploring the relationships between software, data, physical space, and the library user. The research addresses issues of making ‘good’ use of library data and considers the wider implications of the code/space for the cultural industries.

The research will address critical questions, of significance to universities, libraries, and the wider cultural sector, about the practical and problematic issues that might be associated with making ‘good’ use of user data while addressing concerns around the increase in user ‘datafication’.

Principal Investigator: Philippa Sheail
Team: Niklas Berliner
Funder: Challenge Investment Fund (University of Edinburgh)
Award: £11,427
Project dates: Aug 2017 – Jul 2018
Website: www.de.ed.ac.uk/project/data-bodies-library

Author Catalogue

Internet of (Campus) Things Event (Festival of Creative Learning)
SUPPORTING HIGHER EDUCATION TO INTEGRATE LEARNING ANALYTICS (SHEILA)

To assist European universities to become more mature users and custodians of digital data about their students as they learn online, the SHEILA project will build a policy development framework that promotes formative assessment and personalized learning, by taking advantage of direct engagement of stakeholders in the development process.

By merging technical methods for data mining with current educational theory, research and practice, Learning Analytics has provided novel and real-time approaches to assessing critical issues such as student progression and retention, establishment of indicators of 21st century skills acquisition, as well as personalised and adaptive learning.

The project will use participatory action research and the Rapid Outcome Mapping Approach (ROMA), specifically designed for policy making derived from scientific evidence. The outputs will be validated through case studies, using the policy framework to guide the development, implementation, and evaluation of LA policy and strategy in four HEIs in different regions of Europe. The project will use innovative strategies to disseminate and translate the outputs, and to set up a long term learning analytics policy agenda and community among HEIs across Europe.

Principal investigator: Dragan Gašević
Team: Jeff Haywood, Sian Bayne, Pete Evans, Yi-Shan Tsai, Jeremy Knox
Funder: European Commission
Award: £136,857 (total grant value €460,612)
Project dates: Jun 2015 – Jun 2018
Website: www.sheilaproject.eu
DOCTORAL RESEARCH

Four doctoral students have graduated from the Centre since 2016 and our community currently includes 25 more.

Nora’ayu Ahmad Uzir
Learning Analytics, Information Visualization and Self-Regulated Learning.
Supervisors: Dr Christine Sinclair and Professor Abastardo Pardo (University of South Australia)

Athary Almuhanna
The effects of the flipped classroom model on the learning environment.
Supervisors: Dr Christine Sinclair and Professor Jeff Haywood

Nada Alyaseghy
The Cultural Implications of Arabic Massive Open Online Courses in the Middle East.
Supervisors: Dr Jen Ross and Dr Jeremy Knox

Valentia Andries
Promoting play in a children’s environment.
Supervisors: Dr Jen Ross and Dr Jeremy Knox

Sharon Boyd
Student-community engagement activities at distance – digital narrative methods to capture a sense of “place” in research.
Supervisors: Dr Beth Christie and Dr Brian Cross

Murray Craig
Technology-related attitudes, beliefs and practices of secondary school physical education teachers in Scotland.
Supervisors: Dr Christine Nash and Dr Jen Ross

Noreen Dunnett
An exploration of disengagement from learning as a product of the socio-material assemblage of the learning environment – classroom, or the game environment, rather than a characteristic of the individual human subject (student).
Supervisors: Professor Sian Bayne and Dr Hamish Macleod

Maureen Finn
Experience edited: mobile pupils and the material environment of the school.
Supervisors: Professor Lydia Plowman and Dr Jen Ross

Stuart Gray
Investigating the effectiveness of an active smart-phone game as a tool for improving executive function in children.
Supervisors: Professor Judy Robertson and Dr Hamish Macleod

Chris Hambley
Socio-material reading of learning spaces, specifically how people negotiate power in the context of transforming an ICT learning centre, and how users experience this space because of its design patterns.
Supervisors: Professor Sian Bayne and Dr Christine Sinclair

Nicola Kiernan
Use of technology in STEM Education and learning progressions (Chemistry).
Supervisors: Dr Andrew Manches and Dr Michael Seery (School of Chemistry)

James Lamb
How teaching, learning and assessment are affected by the pedagogic and societal shift to the digital. Funded by ESRC.
Supervisors: Professor Sian Bayne and Dr Jen Ross

Xin Luo
Parents’ voices on WeChat: exploring the modernisation of early years education in China.
Supervisors: Professor Lydia Plowman and Dr Shari Sabeti

Wannisa Matcha
Beyond data presentation: learning analytics to uncover learning strategies and the influences of feedback.
Supervisors: Professor Dragan Gašević

John Morrison
Understanding the real and perceived barriers for participation in higher education among care experienced individuals. Exploring what value digital tools can bring to Jean Rouch’s ‘Shared Anthropology’ approach.
Supervisors: Professor Chris Speed (Design Informatics) and Dr Jen Ross

Clara O’Shea
Kinds of learning and kinds of play: an exploration of identity development in formal and informal digital environments.
Supervisors: Professor Sian Bayne and Dr Hamish Macleod

Eder Paula
The Impact of Educational Robotics in Primary and Secondary School Students – a Longitudinal Case Study Approach.
Supervisors: Dr Judy Robertson and Dr Jeremy Knox

Alexia Revueltas Roux
Exploring the cognitive neurocorrelates that could influence embodied science learning and how scientific thinking develops in early childhood through interactive exhibits at science centres/museums. Funded through Wellcome Trust and Mexico’s National Council of Science and Technology (CONACYT).
Supervisors: Dr Andrew Manches, Professor Judy Robertson, Dr Jose Booth

Sabina Savadova
Supervisors: Professor Lydia Plowman and Dr Holly Linklater

Debbie Schachter
Understanding the awareness and development of critical information literacy frameworks for higher education library instruction.
Supervisors: Dr Pauline Sangster and Dr Jen Ross

Arabella Sinclair
Language complexity discourse-based language learning.
Supervisors: Professor Dragan Gašević and Dr Maria Wolters (Informatics)

Sarah Treloar
How online social network sites are being used for informal language learning.
Supervisors: Dr Jen Ross and Dr Maria Wolters

Paul Udoha
Designing, developing and implementing an effective e-learning model for senior secondary school mathematics in Nigeria.
Supervisors: Dr Christine Sinclair and Dr Rory Ewins
EXTERNAL FUNDING

Digital Education has benefited from £960,561 in external grant funding during the period 2016–2018.

Interaction, Embodiment and Technologies in early learning
PRINCIPAL INVESTIGATOR: Dr Andrew Manches
TIMELINE: 01 Sep 2013 – 30 Sep 2016
FUNDING: ESRC Future Research Leaders
AWARD: £204,045

Supporting Higher Education to Integrate Learning Analytics (SHEILA)
PRINCIPAL INVESTIGATOR: Professor Dragan Gašević
TIMELINE: 01 Jan 2015 – 30 Jun 2018
FUNDING: European Commission
AWARD: £136,857 Total grant value: €460,612

The role of embodied cognition in computing education
PRINCIPAL INVESTIGATOR: Dr Andrew Manches
TIMELINE: 01 Jan 2016 – 30 June 2016
FUNDING: Carnegie Trust for the Universities of Scotland
AWARD: £7,257 Total grant value: £16,977

Artcasting
PRINCIPAL INVESTIGATOR: Dr Jen Ross
FUNDING: Arts and Humanities Research Council
AWARD: £169,542 Total grant value: £173,294

Young Children’s Digital Play
PRINCIPAL INVESTIGATOR: Professor Lydia Plowman
TIMELINE: 07 Nov 2016 – 30 May 2017
FUNDING: ESRC Impact Grant
AWARD: £18,930

Move2Learn: Embodied learning for pre-school scientists
PRINCIPAL INVESTIGATOR: Dr Andrew Manches
TIMELINE: 01 May 2017 – 01 May 2020
FUNDING: Wellcome Trust
AWARD: £374,411 Total grant value: £701,656

 move2learn logo.png

Research for Emergency Aftershock Forecasting (REAR)
CO-INVESTIGATOR: Professor Sian Bayne
TIMELINE: 01 Nov 2016 – 30 Jun 2017
FUNDING: Natural Environment Research Council (Global Challenges Research Fund) with University of Edinburgh School of Geosciences
AWARD: £9,450

Artcasting at the Edinburgh Art Festival
PRINCIPAL INVESTIGATOR: Dr Jen Ross
TIMELINE: 09 May 2016 – 16 Sep 2016
FUNDING: College of Humanities and Social Sciences Knowledge Exchange and Impact Grant
AWARD: £4,400

Academic Networking Fund (UoE)
PRINCIPAL INVESTIGATOR: Dr Jen Ross
TIMELINE: 01 Jan 2016
FUNDING: Digital Cultural Heritage Research Network
AWARD: £3,400

Methodological innovations for assessing learning in digital spaces
PRINCIPAL INVESTIGATOR: Professor Dragan Gašević, Dr Jen Ross
TIMELINE: 01 July 2017 – 30 Apr 2018
FUNDING: University of Edinburgh and University of Sydney Partnership Collaboration Award
AWARD: £10,950

“Alive Pulse”: Yik Yak for understanding teaching, learning and assessment at Edinburgh
PRINCIPAL INVESTIGATOR: Professor Sian Bayne
TIMELINE: 01 Sep 2016 – 31 Aug 2017
FUNDING: Challenge Investment Fund (UoE)
AWARD: £11,427

INTERNAL FUNDING

Digital Education has benefited from £108,107 in funding from The University of Edinburgh.

Digital/Nature: (re)connecting children with nature through Minecraft
PRINCIPAL INVESTIGATOR: Dr Jeremy Knox
DATE: 08 Jan 2018
FUNDING: Principal’s Teaching Award Scheme
AWARD: £14,397

Learning Analytics Report Card
PRINCIPAL INVESTIGATOR: Dr Jeremy Knox
TIMELINE: 01 Sep 2015 – 31 Aug 2016
FUNDING: Principal’s Teaching Award Scheme and 15 Innovations Fund
AWARD: £21,600

Methodological innovations for assessing learning in digital spaces
PRINCIPAL INVESTIGATOR: Dr Philippa Sheail
TIMELINE: 01 Aug 2017 – 31 Jul 2018
FUNDING: Challenge Investment Fund (UoE)
AWARD: £11,427

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CENTRE REPORT 2018
CONSULTANCY WORK

We acknowledge the importance of consultancy work and value industry engagement for the opportunities it presents to contribute social, cultural and economic benefit through collaboration and knowledge exchange.

Since 2016, the centre has generated £67,879 in consultancy funding, working with BBC CBeebies, Historic Environment Scotland, the Phillip and Patricia Frost Museum of Science, the National Library of Scotland, Sage Publishing, and World Bank.

As an example of our consultancy work, the Phillip and Patricia Frost Museum of Science pilot brought together researchers from the University of Illinois and the University of Edinburgh with informal learning practitioners and cognitive scientists from the US and UK. The planning phase culminated in the development of a research plan for investigating how applying the principles of embodied cognition to the design of informal learning environments can support young children’s (ages 2-6) engagement with, and understanding of, science topics and concepts. This initial consultancy work led on to a successful Wellcome Trust funding application in 2012 for the Embodied learning for preschool scientists (Move2Learn) project worth £374,411 (total grant value: £701,656).

Phil Sheail and Jen Ross, with Rob Robinson Heritage Consulting, were appointed as consultants in early 2018 for the National Library of Scotland (NLS):

‘Here is where you are: cultural heritage connections for the 21st century’ study. They developed a first-stage feasibility study to enhance NLS engagement with audiences across Scotland, looking particularly beyond the Central Belt and other large urban centres. Drawing on their experience in digital education and work with cultural heritage organisations, including galleries, libraries, archives and museums, the consultancy team made a series of recommendations for new engagement activities and approaches, framed around the theme of ‘mobilities’.

Through our previous work engaging with the creative industries, cultural heritage, finance, development, telecommunications and pharmaceuticals industries we now have established links across a broad range of sectors ensuring we are well-positioned to continue attracting consultancy funding.

KNOWLEDGE EXCHANGE EVENTS

Through knowledge exchange activities we promote our research and share findings with students, peers, members of the public and practitioners. We do this through workshops, conferences, networking and seminar events.

In 2016, we hosted two major international conferences. Hundreds of digital education researchers came to Edinburgh in April 2016 for Learning at Scale, chaired by Jeff Haywood, covering interdisciplinary research at the intersection of the learning sciences and computer science. Learning Analytics and Knowledge (LAK), was co-chaired by Dragan Gasevic and run in partnership with the Society for Learning Analytics.

Andrew Manches, Judy Robertson, Lydia Plowman and other colleagues and students working in Children and Technology ran a workshop at the Edinburgh International Science Festival in May 2016. They gave children and parents an opportunity to get hands-on with recent technologies designed for young children and to and share thoughts and experiences of technology in children’s lives.

In June of the same year, drawing on findings from the Learning Analytics Report Card project (L.A.R.C.), Jeremy Knox ran a ‘Practical strategies for ... playing with student data’ workshop for students exploring how to make good use of their own data gathered through learning analytics.

In November, Jeremy Knox and James Lamb hosted a workshop titled ‘Wondering about the city: making meaning in Edinburgh’s Old Town’. As participant-researchers they gathered visual, aural and other digital data with a view to investigating how we experience and understand our urban surroundings.

With funding from The University Academic Networking Fund Jen Ross lead the creation of the Digital Cultural Heritage Research Network, bringing together representatives of the cultural heritage sector with
an interdisciplinary group of University of Edinburgh researchers. Workshops were held in January, March and May in order to share research, practice and foster new research relationships. Two further DCHRN events took place in April 2017 (‘Working with the public’) and February 2018 (Professor Melissa Terras, ‘Wandering through OpenGlam!’).

In 2017, the Centre hosted a conference titled ‘Computational thinking in primary schools’, a free one day event to learn about the new computing curriculum for Scottish schools. We participated in the ESRC Festival of Social Science on 11 November with “Help! My Teacher Is a Robot!” Twelve academic staff and masters students, led by Yi-Shan Tsai, held a family event at Ocean Terminal to invite children and parents to join a critical discourse of teaching automation through a series of fun activities (storytelling, mind mapping, drawing, Lego building, AI applications, and vox pops). 140 participants shared their hopes and worries about the future of teaching, with helpful classroom assistants on the one hand and a loss of emotional engagement and interaction on the other. These and other ideas helped the researchers and families engage in conversations about what digital futures we might want for our schools and challenge assumptions about what automation can and should do for us. This event marks a success in engaging the public with issues around the adoption of automation and artificial intelligence in education.

In December, the Children and Technology group organised a successful workshop titled ‘Children & Technology: towards interdisciplinary collaboration’, funded by the Scottish Informatics Computer Science Alliance (SICSA). The event attracted people from the children’s technology industry, academia, museums, and beyond to share their research and develop wider networks.

Since 2016 we have arranged 39 seminars, a full list of which can be found below. To date, we have had over 1100 enrolments on our seminar programme.

### 2016

**JANUARY**

**Problem spaces: interface methods and compositional methodology**
Professor Carla Lucy
University of Warwick

**FEBRUARY**

**Code, methods and the production of educational data**
Dr Cormack O’Keeffe
YESS N’ YDL, Paris

**Creating Living Knowledge: Understanding interdisciplinary and community-engaged research in the arts, humanities and social sciences**
Professor Ian Macfarlane
University of Bristol

**Can Education Scale?**
Professor John C Mitchell
Vice Provost for Teaching and Learning at Stanford University (April 2016)

**MARCH**

**Long-term and actionable prediction of student outcomes using automated detectors of engagement and affect**
Dr Ryan Baker
Columbia University

**Exciting times require exciting actions: Opportunities for learning analytics in higher education**
Professor George Siemens
Professor and Executive Director of the Learning Innovation and Networked Knowledge Research Lab at University of Texas

**The global educational data scientist: Pearson pic and digital methods**
Dr Ben Williamson
University of Strathclyde

**FEBRUARY**

**The difference between human and posthuman learning**
Professor Catherine Haswell
University of Aarhus, Denmark (June 2016)

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**MARCH**

**More than Just Words: Education and research in the age of visual cultures**
Dr Peter Jamieson
University of Edinburgh

**Rhythms of academic mobility**
Dr Judith Enriquez-Gibson
Liverpool John Moores University

**Autonomating Education and Teaching Machines**
Audrey Walters
HES Education

**Nasty Women, Private Servers, and Digital Purity Myths**
Dr Liz Losh
Associate Professor of English and American Studies, Williams and Mary University (May 2017)

**Presented in collaboration with College of Arts, Humanities and Social Sciences Digital Scholarship Office, Digital Education; and Digital Sociology**

**SEPTEMBER**

**Surprises & confirmations in large-scale learning analytics research @Blackboard**
Dr John Whiteman
Analytics and Research Director at Blackboard

**Authority relations behind the scenes of online education – processes of erosion and sedimentation**
Bjørn Lindoer Anderson
Aarhus University

**Standard setting in national examinations: what are exam standards?**
Professor Jo-Anne Baird
Learning Environments

**Heaven: Teaching Machines, Teaching Automata**
Dr. John Whitmer
@Blackboard

**OCTOBER**

**Quantitative Ethnography**
Professor David Williamson Shaffer
University of Wisconsin, Madison

**Designing Play: young children’s play and communication practices in relation to designers’ intentions for their toy**
Dr Dylan Yamada-Rice
Data

**APRIL**

**Appropriation, Affordance and Minecraft: What the methods people use to navigate Minecraft tell us about approaches to technology use**
Dr Tom Findlater
Edinburgh Napier University

**MAY**

**Making Bananas: Design Pedagogy and Social Learning at a Distance**
Derek Jones
Lecturer in Design at The Open University

**JUNE**

**Digitalised Dialogues Across the Curriculum (DiDiAC): Enhancing classroom dialogue by using Talkwall to ‘Think Together’**
Dr Louis Major
University of Cambridge

**FEBRUARY**

**The Labour of Digital Scholarship**
Dr Karen Gregory
University of Edinburgh

**FEBRUARY**

**“It should be necessary to start”: critical digital pedagogy for troubled political times – an American perspective**
Dr Amy Collier
Associate Professor for Digital Learning Middlebury College, Vermont
Towards a radical digital citizenship in digital education
Dr Karen Gregory (Chair)
University of Edinburgh
Dr Akwugo Emejulu
University of Warwick
Dr Callum McGregor
University of Edinburgh
Dr Huw Davies
Oxford Internet Institute and Convener of the BSA’s Digital Sociology study group
Dr Emma Dowling
Friedrich-Schiller-University Jena, Postgrowth Societies Research Group

This seminar was jointly organised by colleagues in Education, Digital Education and Digital Sociology, with funding from the University of Edinburgh’s Global Justice and Global Development Academies’ Innovation Initiative Fund.

Emerging participatory culture: Making sense of social media use for learning in, across and with Higher Education and the cultural heritage sector
Dr Narelle Lemon
Swinburne University of Technology, Australia

Open Education and the Unenlightenment
Professor Martin Weller
Institute of Educational Technology at the Open University

Robots, virtual environments and developmental disorders: technology advancement needs neurodiversity
Dr Thusha Rajendran
Director of the Developmental Psychology in Action Lab based in the Department of Psychology, Heriot-Watt University

2017/18

September
Patterns, approaches and systems to support teachers in designing for technology-enhanced collaborative learning
Seminar with Professor Vassos Dimitriadis, Director of GSCF/EMIC Research Group, University of Warwick, Spain (September 2017)

October

Virtual Internships: From MOOCs to MACROSIMs
Professor David Williamson Shaffer
Wax Distinguished Achievement Professor of Learning Sciences, University of Wisconsin-Madison

What was enhanced?
Three cases of Technology Enhanced Learning research projects and their unexpected outcomes
Dr Mark Gaved
IET, The Open University

Creators and Copyright: Voices from the field
Dr Smita Kheria
School of Law, University of Edinburgh

December

TTM: Using Micro Learning and Learning Analytics to Improve Student Self-Reflection
Dr Christopher Cheong
School of Business IT and Logistics, RMIT University, Melbourne, Australia

Beyond Computing and 21st Century Skills. What’s missing?
Dr Peter Rich
Brigham Young University in Provo, Utah

April

Analytics: The Datafication of Higher Education and Work
Dr Jeremy Skibo
University of Edinburgh

Providing personalized student support in flipped classrooms at scale
Professor Abelardo Pardo
The University of Sydney (December 2017)
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