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**Blended Memory:  
Distributed Remembering and Forgetting through Digital Photography**

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PhD Education  
The University of Edinburgh  
2016



## **Declaration**

I declare that this thesis has been composed by me and that it is my own work. The work has not been submitted for any other degree or professional qualification. Publications derived from this research have been included at the end with the publishers' permission. These publications are my own work, except where indicated. Signed:

Tim Fawns



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## **Abstract**

This thesis explores practices and experiences of using photography to support remembering. While the increasing use of photography is well documented, we have limited theoretical understanding of how we approach the taking, organising, and sharing of personal images in relation to memory, and of the opportunities and risks that are created through technological change. Two studies were conducted in which a total of 21 participants were interviewed in front of a sample of their photographs. Study 1 explored photography and remembering around a single, specific event: a wedding. Study 2 explored longer-term patterns of photographic and remembering activity across a range of contexts and events. The analysis showed that the ways that participants engaged with other people and technologies were significant in determining the kinds of photographs that were produced, and the engagement with those photos. Photographic practices were also heavily influenced by the situations in which they were performed and the beliefs and preferences of individuals.

The existence of photographs could lead to thinking about particular aspects of the past, but the taking of photographs also altered the experience of what was being photographed. This could be seen as disruptive, depending on the participant's beliefs about whether photography was a legitimate part of experience. When taking photos, participants pursued a mix of aesthetics, objectivity, and personal meaning, and perceptions of these qualities could influence the way that photographs were used in cueing recall. However, while most participants had produced large collections of photographs, there had been limited engagement with these and taking or having photographs could be more important than looking at them. The thesis concludes that there is value in redefining memory as a kind of activity that emerges through the performance of remembering and that is dependent on the tools used to support it and the situations in which it is performed. From this perspective, photography and autobiographical remembering are parts of the same wider activity, an inseparable blend of internal and external processes. As such, attempts to support our memories should consider both the features of technology and the experience of using it, as well as the ways that we work with tools and people when remembering.



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# 1 Introduction

## 1.1 Background

Some time ago, while travelling, I noticed a change between how I felt before and after taking a photograph. It was as though it was at once easier to relax, believing that the scene would not be forgotten, but more difficult to pay close attention to my surroundings. I supposed that some of my attention was taken up with thinking about the photograph I had taken and whether I should take another. I also worried that the photograph might become the foundation of my memory of the scene. Of course, I did pay a kind of attention to my surroundings by deciding what aspect of the scene to capture, but this seemed to be an indirect sort of engagement that involved seeing the world as a potential photograph.

I had recently bought my first digital camera and I felt a temptation to take photographs of everything I saw: people, architecture, scenery. Digital memory (I will return to this term in Chapter 7) was still relatively expensive and, sometimes, I was forced to decide between buying more space and deleting photos. This was an economic trade-off between money, the value of my photographs, and the time and effort needed to sort through them. I was also mindful that there were photographs I had not taken. Sometimes, I would forget my camera, or the battery would run flat. There were also situations in which taking photographs felt inappropriate. I wondered if, as a consequence, elements of experience would fade from my awareness and be forgotten. This issue took on extra significance because I was travelling by myself most of the time and did not have anyone to share my stories.

The factors leading to the emphasis on, or neglect of, an occasion or detail within my photographic record seemed somewhat arbitrary, yet powerful. This sparked an interest that has not faded and that permeates this thesis: how do photographs and memory work together? How are those workings influenced by technology and culture? During my research, I have spoken to people with diverse perspectives on these issues. I have noticed that everyone, regardless of who they are or what their

interest in technology is, has had something to say on this topic, often with a very specific focus that interests them. Examples include cognitive overload, dementia, the different numbers of photographs of each of their children, the inability to maintain an organised photograph collection, and the uncertainty of who can and does look at photos on social networking sites. All of these possible avenues are fascinating to me. Ultimately, I have chosen to investigate how people go about photographing, what they do with those photographs, and how this relates to the way they remember the important events of their lives. Further, I have explored how developments in technology might change the possibilities and the reality of what we do with photographs. By understanding more about the ways we use photography to remember, we may learn how to make good use of available technology, how to design technology that we find helpful, and how to avoid the risks that might accompany any change to that most fundamental of abilities: remembering.

### **1.1.1 *The focus of this thesis***

In their book *Total Recall*, Bell and Gemmell (2009) implied that technologically-enhanced memory is both desirable and inevitable. Bell's MyLifeBits lifelogging project is an attempt to realise this potential by recording, reviewing, and analysing huge quantities of data about his life. Others, such as Carr (2010), have argued, equally inevitably, that increased engagement with ubiquitous, networked technologies is leading to a degradation of both memory and the capacity for reflective and meaningful thought. Bell and Gemmell positioned technology as enhancing or extending human abilities, whereas Carr positioned it as usurping and conflicting with our capacity for certain kinds of thinking. For Bell and Gemmell, memory is located in the combination of brains and tools; for Carr, it is located inside our heads.

To some extent, these positions mirror the dominant perspectives of cognitive psychology (Carr) and distributed cognition (Bell and Gemmell). Cognitive psychology has tended to view memory as something that is located inside our heads. Natural ways of remembering may be interfered with, or affected by, external

sources, but such influence has been difficult to identify and measure because of the inaccessibility of internal memory. Distributed cognition has tended to consider the output of systems that are composed of the combination of internal and external resources (i.e. brains, bodies, tools, and environments), without paying much attention to qualitative differences between components or to the experience of engaging in such systems. This thesis addresses what I perceive to be a gap in our understanding of how autobiographical memory works in relation to the technologies we use to support it. I take an interdisciplinary approach that draws on literature from psychology, distributed cognition, human computer interaction, and media studies to inform the analysis of two studies in which I interviewed people about their photography practices and how these related to issues of memory.

Remembering can be examined in relation to a range of different media, including video, diaries, history books, or souvenirs. I have chosen photography because of its ubiquity, its historical relationship with notions of truth, its embedded position in cultures of remembering, and its profound evolution in relation to technological and cultural developments. Since the emergence of digital photography, there has been an explosion of image culture. In lifelogging, for example, there is a focus on the visual, suggesting the importance of photography and video in recording and reviewing experience. New forms of online communication such as social networking have also become dominated by imagery and trends of self-portraiture (“selfies”), Instagram filters, likes and comments form an intriguing contrast with traditional photographic presentations of the self. Photography is also interesting with respect to its long and complex relationship with notions of objectivity and truth, in which its twin capacities to directly reflect, and subjectively portray, past material reality seem to co-exist. The sustained relationship between photography and reminiscence positions it well for considering long-term changes in practice and understanding, yet certain fundamental properties of photography have been brought into question by the emergence of digital formats, as have the ways in which people take photographs, organise, share, and view them.

The primary contribution of this thesis is a theory of memory as the inseparable, integrated blend of internal and external processes in which both behaviour and subjective experience are important in determining what and how we remember. This theory reconsiders memory in terms of remembering activity that is distributed, situated, and emergent. I have used this view to examine long-term patterns of photographic practices, considering issues of authenticity, disruption, coherence, and control around remembering and experiencing, before exploring the extent to which people are able to change and learn ways of distributed remembering.

## **1.2 Thesis roadmap**

In Chapter 2, I present a review of the literature that informed my thinking about the evolving state of photography and the ways in which it has been practised. I also consider what has motivated and influenced these practices and how photography has been perceived in relation to its capacity to reflect past reality. Chapter 3 contains a review of memory from both cognitive psychology and distributed cognition literatures. I consider established views concerning the content and subjective experience of memory before discussing the functions that are served by remembering and forgetting. In doing so, I consider notions of accuracy and false memory. I then review how the relationship between photography and memory has been researched, including a discussion of moves toward studying everyday memory in “real world” or ecologically-valid settings (Neisser, 1978). From here, I give a brief introduction to notions of distributed cognition and how they might be reconciled with important elements from cognitive psychology. Chapters 2 and 3 involve examining the literature across disciplines, including psychology, philosophy, sociology, cultural and media studies, and human computer interaction. The challenge of combining these diverse works into a coherent basis for my research is discussed in Chapter 9. At the end of Chapter 3, I consider gaps in our understanding with a particular focus on the relationship between memory and our use of technology.

In Chapter 4, after stating my research questions, I explain the methodological position that has informed this research, paying particular attention to aspects in which the area of enquiry overlaps with epistemological concerns. I then consider general issues of studying memory before coming to the particular approach taken in my studies. In explaining my approach, I discuss what I see as the key issues for this research in conducting interviews and analysing the resulting transcripts. I discuss the population and sample and consider the potential risks and ethical implications of involving these people in my research. Finally, I describe my overall analytic approach and provide details of how I conducted the analysis.

Chapters 5 and 6 begin with details of the specific methods of each study, followed by a presentation of important characteristics of the participants. I then present the results of each study. These chapters are structured according to the frameworks developed through the analysis and are constrained by what I learned from analysing the interviews. In Chapters 7 and 8, I move beyond the contexts of my participants to make sense of my analysis in relation to the wider literature. In Chapter 7, I draw on the results presented in Chapters 5 and 6 to argue for a theory in which memory is understood as the distributed activity of remembering, rather than the content or the makeup of the memory system. I then consider how remembering is structured, prospectively and retrospectively, through photography practices before examining some challenges of such structural activity. Chapter 8 uses the theory developed in Chapter 7 to consider issues of technological determinism and the relationship between technology and the authenticity, autonomy, coherence, and disruption of memory.

Chapter 9 explains the key findings of the research and how it has answered the questions set in Chapter 4. I suggest some implications of these answers and how they might inform approaches to researching memory and productive avenues for further study. I also reflect on how my understanding and perspective has developed through conducting this research. As such, I have included the most useful examples and explanations of the challenges I faced and the lessons I learned through the production of this thesis.



## 2 Technologies and practices of photography

In this chapter, I describe the changing technological and cultural landscape in which we have engaged with photography since its inception. It is complicated to summarise photographic development because, as Sarvas and Frohlich (2011) noted, photography involves a range of different activities and, in recent times, the infrastructures around it have changed and overlapped with that of other digital technologies. Thus, although photography is generally described as the process of taking photographs, it is broadened within this thesis to include other important practices of organising, sharing, and viewing in which the technologies of photography are not only those of production but also of distribution and consumption. Both photography and the fields in which it has been studied have evolved considerably over time, necessitating an examination across disciplines to construct a comprehensive picture. As such, I have drawn on accounts from sociology, media studies, and Human Computer Interaction (HCI).

People have engaged with photography in diverse and idiosyncratic ways and the review begins with a historical summary of what I consider to be the most popular or significant trends across different photographic practices. Next, I consider a range of motivations of, and influences upon, photographic behaviour. I then discuss how the perceived relationship between photography and reality has changed in relation to digital technology. I finish the chapter with some conclusions about the importance of examining the use of photography and the ways in which this use is influenced by technological possibilities and contextual factors.

Note that, while photography has always been tied up in some sense with memory (Barthes, 1981; Batchen, 2006; van Dijck, 2008a), the focus of this chapter is on the practices of photography—whether they are related to memory or not—and the intentions, motivations, and external influences that surround these practices. My intention is to use this review as a way of grounding the following chapter's examination of memory. That review takes a primarily psychological perspective which, though very informative about the cognitive processes of memory, is

somewhat lacking in terms of the richness of everyday situated activity. My hope is that the reader will take from this chapter a sense of the complexity and diversity of photographic practices that will contrast with the general approach of cognitive psychological research into photography and memory. I will argue that this contrast highlights a need for memory research that takes a more complex perspective on photography as a diverse range of connected, day-to-day activities.

## **2.1 A history of photography**

To understand how photography is currently used, it is useful to look back at how it has been used in the past. A key conclusion of Keightley and Pickering's (2014) recent, large-scale study into photography practices was that, despite significant and diverse technological and cultural changes in photography practice, there are important patterns of use that continue across long periods of time. Both continuity and change are, those authors suggested, important in considering how technology and culture play a role in what we can do and, more importantly, what we actually do, in relation to photography.

Keightley and Pickering (2014) summarised the most prominent developments that have arisen with digital technology as "greater frequency of camera use, larger volume of photographs, higher level of discards and cheaper cost of production" (p. 581). However, as we will see, there are many less obvious, but nevertheless important, changes that have taken place as part of the fast-paced evolution of digital technology. Further, the history of photography contains a large number of significant advances in pre-digital technology along with important changes to the ways analogue photography has been practised and used in the service of memory.

It is not straightforward to pinpoint the invention of photography. As Prøitz (2011) wrote, "photography has never been a single technology, but rather part of nearly two centuries of competing technologies and innovations" (p. 195). Jeffrey (1981) suggested that photography might not be considered an invention at all but a discovery around which inventions, such as Niepce's heliograph in 1826, Daguerre's

Daguerreotype (1837), and Fox Talbot's Talbotype (1840), were based. Each of these inventors discussed virtues, such as detail, speed of production, or the permanence or durability of the resulting image, to justify their creation as the true breakthrough (though none called this "photography"). Perhaps, though, if photography is a discovery, then it should be placed around 1802 with the publication of Wedgwood and Davy's account of the photographic action of light (Trachtenberg, 1980).

So far, however, what I have described is really the invention of the photograph; the actualisation of a photographic image as a stable, material object (Batchen, 1997). As Batchen suggested, a form of the camera had already been invented many centuries before. The camera obscura, used before photographers by artists and scholars, caused light to resolve onto a surface in a way that produced an image similar to that seen by the eye. The simplicity of this device was perhaps the key to its association with capturing reality or truth, though as Batchen has pointed out, it was also a way of converting the physical reality of a scene into pictorial form. In any case, discussions of the origins of photography tend to centre around the origins of what might be considered a photograph, rather than the process of producing photographic images (e.g. Batchen, 2006; Bate, 2010; Jeffrey, 1981).

It was not until the early 1850s, with the *carte de visite* (a small paper photograph mounted on card, see Figure 1) and then the cabinet card (similar to the *carte de visite* but in a larger format, see Figure 2), that family portraits were popularised (Burge & Marzolf, 2013). This popularisation, however, was largely restricted to the emerging middle class (Prøitz, 2011) and it was not until later that the general public had access to the luxury of family photography. In the 1880s, George Eastman brought out the portable Kodak box camera, which used a 100-exposure film-roll. Once the roll was finished, the camera was sent to Eastman's factory where the photographs would be developed, the camera reloaded with film, and everything would be sent back to the owner (Jeffrey, 1981). The process became faster with the development of new paper material and automatic printing machines, with the related development of paper-based albums superseding cards (Burge & Marzolf, 2013).

During this period, cameras also became smaller and less cumbersome (Jeffrey, 1981). Such changes opened up photography to a large population of amateur photographers who needed little training or expertise (Munir & Phillips, 2005; Sarvas & Frohlich, 2011). Yet photography generally remained a middle or upper class pursuit. These developments did, however, represent a significant step towards the later democratisation of photography as manufacturing processes improved and costs began to decrease (Jeffrey, 1981).



**Figure 1 (left): Carte de visite of Napoleon III by Disdéri (1859).**



**Figure 2 (right): Cabinet card photograph of a wedding party (c. 1880).**

The technologies and infrastructures of photography have affected the kinds of photographs that have been taken. Very early photographs (heliographs, Daguerrotypes, Talbotypes, etc.) required exposure to light over several hours, which greatly restricted what could be reasonably captured. In 1851, Frederick Scott Archer's wet collodion process allowed 1-3 second exposures and a shift began from motionless architecture, landscapes, still life, and static portraiture, to scenes in which ideas of movement were possible (Jeffrey, 1981). While earlier portraits had generally contained formal and stable poses, by the 1860s, photography was “sufficiently responsive to catch quickness of expression in a glance or a frown”

(Jeffrey, 1981, p. 42). Other changes have gradually widened the scope of what can be photographed. For example, although some photographers had success with magnesium flash powder at the end of the 19th century, the commercial manufacture of single-use flashbulbs in 1929 significantly aided photography in low-light settings (Wightman, 1955). Flash technology gradually improved, allowing faster shutter speeds, multiple uses, red-eye reduction, and a number of other features that improved the capacity for photographing dark or dimly lit scenes. Colour film became widely available after the end of World War II (Jeffrey, 1981).

This post-war period saw other sorts of photographs being taken, including less formal elements of everyday life (Prøitz, 2011). More than ever, travel and tourism acted as a driver of photographic culture and technology. Destinations were promoted through photographs that allowed people to see places they had never been, enticing them to witness those sights first hand and to take their own photographs (Jeffrey, 1981). To Beloff (1985), this stemmed from the photograph provoking a curiosity it could not itself satisfy, compelling people “to have the real experience, to travel and see it for ourselves, and to make our own reproduction” (p. 202). Similarly, when choosing a destination, Slater (1995) suggested that tourists might take into account the sort of photographs that they themselves could produce, echoing Sontag’s (1977) concern that “travel becomes a strategy for accumulating photographs” (p. 9). Sontag worried about what she saw as a tendency to commodify the world through photography, arguing that “technology made possible an ever increasing spread of that mentality which looks at the world as a set of potential photographs” (p. 7).

For Sontag (1977), photography’s influence was not neutral and acted in two directions. Photographs were taken of our more profitable relationships, activities, and environments. At the same time, potential photographic value influenced our choices as, in part, we sought activities and destinations that generated good photographs. Slater (1995) found that both tourist and family photographs tended to emphasise action, happiness, and popularity and to exclude unhappy, risqué, or mundane activity. Like Sontag, he suggested that this worked both ways, that we also

sought photo-worthy activities in our leisure time, concluding that “we construct ourselves *for* the image and *through* images” (1995, p. 134, original emphasis).

Meanwhile, Chalfen (1979) suggested that while some tourist photographers may have sought to re-create pictures they had already seen, others wanted authenticity and novelty. For him, people’s photographic practices and motivations were diverse and many of our generalisations about the motivations of tourists were, at least at that time, unfounded. Nonetheless, Chalfen (1984) acknowledged that photography was governed by complex rules, rituals, and etiquette. In an analysis of 55 letters to a newspaper columnist, asking for advice about photographic etiquette, Chalfen gave examples of complex questions such as: who should be included in family photographs where both previous and current spouses are present, whether it is appropriate to photograph deceased people during an open-casket viewing at a funeral,<sup>1</sup> and whether it is acceptable to refuse to be photographed at social events. Thus, people’s construction of themselves through images (Slater, 1995) is mediated by complex conventions of photography etiquette, or what Beloff (1985) called the “rules of the ritual” (p. 206).

An example can be seen in the photographing of children, which has been an important aspect of being seen to recognise and celebrate their value (Sontag, 1977). Sontag portrayed family photography as a perceived moral imperative, in which “not to take pictures of one’s children, particularly when they are small, is a sign of parental indifference” (p. 8). Family photography was, to an extent, politically-motivated, and while photographic constructions of personal and family life can be taken as clear evidence of past activity, they are selective and biased towards a particular view or identity (Chalfen, 2002). As Hirsch (1997) suggested, “photographs locate themselves precisely in the space of contradiction between the myth of the ideal family and the lived reality of family life” (p. 8).

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<sup>1</sup> Chalfen’s newspaper columnist claimed that it is common practice to take such photographs of the deceased. According to Chalfen, this indicates that some photography practices are common but seldom spoken about.

Such attempts to produce a sanitised or appropriate picture of personal history are influenced by a range of factors, both within and outside of the photographer's control. For example, Musello (1979) showed that parents took fewer photographs as their children got older, and fewer of each successive child, presumably due to a reduction in both available time and in the novelty of photographing children. Slater (1995) found that, for many families, taking photographs was a much greater part of everyday life than looking at them or organising them. Despite almost half of his participants rating their family photos as their most treasured possessions, people had difficulty finding the time to do anything with them. Most photographs remained in the envelopes they were placed in by a developer and were not looked at more than once per year. He concluded that people's engagement with their photographs was generally sporadic and unstructured, or non-existent. There are, however, clear examples of people spending significant time and effort creatively constructing pictorial personal and family histories, such as the trend of scrapbooking which became popular in the late 1980s (Burge & Marzolf, 2013).

In the early 1990s, Kodak introduced the first commercially available digital single lens reflex (DSLR) camera. Once again, costs began to swiftly decrease and access widened to non-specialist audiences (Sarvas & Frohlich, 2011). This brought with it a rapid increase in the number of photographs taken and the extent to which events could be recorded. Analogue photography involved expense, limitations on the number of photos that could be taken, and waiting—both for film rolls to be used up and for development processes (Sarvas & Frohlich, 2011). The necessity in analogue photography of an intervening process of development meant that specialist skills and equipment were required (with the notable exception of the polaroid; see Buse [2010] for an informative comparison of polaroid and digital photography). Between Eastman's Kodak development service and the introduction of digital photography, this generally meant waiting between capturing and viewing and even longer before sharing. The quality of photos could not be judged until well after they were taken, and practice, experimentation, and visual feedback, in the form of the resulting image, were extended processes (Buse, 2010). Digital photography made it easier for people to experiment and refine their practice, as well as to take multiple

photographs of the same thing in an attempt to create a visually-appealing image. The release of the popular photo-editing software Photoshop in 1990 opened up more opportunities for enhancing the creative and aesthetic aspects of photography by enabling complex manipulation of digital images (Sarvas & Frohlich, 2011).

In the late 1990s, people started using camera phones (Miller & Edwards, 2007). This was one of the drivers of a shift toward photographing more ordinary objects (Lindley et al., 2009; van House et al., 2005) in part because mobile phones are more portable and tend to be carried anyway, and in part because the phone's connectivity lends itself to communicating through photographs (Gye, 2007; Sarvas & Frohlich, 2011). Rather than replacing photographs of special occasions and holidays, pictures of mundane or playful aspects of life came to coexist with traditional themes, the main difference being the larger volume of photographs and the capturing of everyday activity with a more candid approach (Keightley & Pickering, 2014). The phone camera was also significant for the curation of personal photograph collections because, while printed photos are generally considered family (i.e. shared) property (Keightley & Pickering, 2014), mobile phones are typically owned and used by a single individual who controls access to its photographs (Durrant et al., 2009; Gye, 2007). According to Durrant et al. (2009), this is one of a number of ways in which digital technology is facilitating a shift away from a traditional role of the mother in curating family photograph collections.

The location in which photographs are displayed and consumed is important to the experience of sharing and the ways in which memory narratives are constructed (Swan & Taylor, 2008). In 2004, van House et al. argued that traditional arrangements of photographic images were designed to facilitate oral production of narrative and storytelling. In pre-digital times, photographs would traditionally be shared in comfortable social spaces (Sarvas & Frohlich, 2011) in the form of albums and prints in ad hoc displays (van House, 2009). However, the locations in which photos are viewed have changed along with technology. Early digital photographs were often viewed around a desktop computer in an office or working space. This did not always make for comfortable sharing (Lindley & Monk, 2006; van House,

2009). The increasing popularity of portable laptops (van House, 2009) and mobile devices (Sarvas & Frohlich, 2011) has allowed us to share digital photographs in more comfortable settings similar to those in which we used to share analogue ones.

Around 2005, photo sharing websites such as Flickr emerged and with them new practices of sharing (Miller & Edwards, 2007), including both remote and co-located sharing (van House, 2009). These tools provide access to large photo libraries whenever we are connected to the Internet and, with phones and other mobile devices, we can easily and spontaneously share photographs of a wide range of significant events in cafes, restaurants, public spaces, and other people's homes (Stelmaszewska et al., 2008). As Sarvas and Frohlich (2011) have argued, the combination of access, communication, and higher-quality screens has allowed photo sharing to return to comfortable social settings. Further, whereas analogue photographs on display in homes and offices have served as reminders of family members, using digital versions as screensavers and backgrounds for mobile devices and computers now means that we can have constant reminders in all locations (Keightley & Pickering, 2014).

Different media appear to have different functions in the sharing of photographs. For example, van House (2009) found that photos on phones were used to punctuate and illustrate conversation, while home computers were used to view larger collections. While traditional prints and albums were still valued, van House wrote of participants who valued screen quality over camera quality on mobile phones because co-located sharing was, on these devices, more important than printing or remote sharing. Indeed, the initial expense of printing digital photographs may have led to an increase of on-screen sharing (Sarvas & Frohlich, 2011). Recently, however, it has become relatively simple to produce aesthetically-pleasing, digitally-designed, physical photo books (van House, 2009). Easier-to-use hardware, software, and 3rd-party services have encouraged the display of printed photographs on coffee tables, walls, and desks in homes and offices, co-existing with older forms of printed display (Burge & Marzolf, 2013; Keightley & Pickering, 2014). Van House (2009)

has suggested that because digital photographs can be viewed on screen, only particularly important digital images are likely to be printed.

Printing also seems to have a function in the preservation of photographs and the prevention of loss. Van House (2011) highlighted a perception among her participants that printed photographs are more stable and durable than digital ones that can be lost through transferring between storage devices, user error, or other technical failures. Fear of losing digital photos results in practices of backing up; duplicating photographs in different places so that if one set is deleted, other copies remain. As such, printing is more than an alternative method of display, it is a method of backing up or securing photographs (Keightley & Pickering, 2014).

Though backing up seems relatively common, other organisational practices appear to be limited for many people, an issue associated with the digital expansion of photography. For example, in 2009, van House found that participants seldom labelled or organised digital photos and were “quickly overwhelmed by the size of their collections and the opacity of computer-based storage, with indecipherable filenames” (p. 1078). Whittaker et al. (2010) found that most personal photographs remained on the camera or were downloaded to a hard drive and then forgotten. In 2013, Sas and Whittaker found that families simply allowed photos to “passively accumulate on personal hard drives or in social media applications” (p. 1823). Sarvas and Frohlich (2011), while commenting that people seem to expend minimal effort in filing and annotating, reminded us that such problems are not exclusive to the digital domain, claiming that “parallel archives of print and digital photographs were kept by families in roughly the same state of disarray” (p. 107).

A study of 12 participants by Kirk, Sellen, Rother, and Wood (2006) suggested that large collections may be less of a problem than is often supposed because searching and browsing tended to be done within single subsets, such as particular events, that are created through rudimentary structuring and labelling conventions. Whittaker et al. (2010), on the other hand, found that their 18 participants could not find over a third of the images they looked for because their photos were too numerous, poorly

organised, and distributed across folders, computers, hard drives, and storage media. While Kirk et al.'s participants mostly reviewed photographs in preparation for sharing and to delete poor images, Whittaker et al. (2012) found that when their participants did take the time to organise photographs, it was difficult to delete them, even if they were "near duplicates of others in their collection" (p.42). This finding adds credence to Mayer-Schönberger's (2009) claim that, through digital technology, it has become easier to take a photograph than to delete one. However, this may not be fundamentally different from analogue practices in that it can also be difficult to get rid of printed photographs and other physical mementoes (see, for example, Petrelli & Whittaker, 2010).

Practices of capturing, organising, sharing, and viewing are not always performed independently. For example, Rodden and Wood (2003) found that organising practices tended to be motivated by intentions to share photographs with others. Sarvas and Frohlich (2011) suggested that photography in general is no longer done in isolation but in relation to infrastructures that also do other things, such as communication, and interact with a range of other media. By connecting to the Internet, camera phones and mobile devices allow photos to be shared across the world immediately, and photo-sharing websites combine storage and sharing functions. While pre-digital photography involved discrete processes of production, distribution, and consumption (photographs were taken, then developed, and then shared or organised), digital developments have integrated and compressed the traditional practices of capturing, organising, sharing, and viewing (Buse, 2010; Fawns, 2014). For example, the possibility of reviewing photos on a camera allows consumption to happen immediately after production, facilitating immediate sharing as well as experimentation and re-taking (van House, 2009). This immediacy has also disrupted more traditional practices and rituals around anticipation and sharing. Slater (1995) has pointed out that while taking analogue photos was a legitimate part of a leisure event, looking at them constituted or required its own event. Now, both taking and looking can be part of the event being photographed.

As a consequence of such integration of practices, issues of ownership, control, and privacy have become much more complicated (Durrant et al., 2009). For example, digital image sharing creates a tension between the ephemeral and the perpetual, where images created for communication in the present proliferate across networks to be found in various places in the future (Prøitz, 2011). Further, as Sarvas and Frohlich (2011) pointed out, new ways of distributing personal photographs involve a mixing of public and private images, leading to increasing concerns about privacy (Stelmaszewska et al., 2008). Online sharing practices include sharing with strangers, sometimes in the form of dynamically generated collections of photographs based not on personal, subjective associations but on nominal aspects of content (tags, textual descriptions and annotations, etc.) (Miller & Edwards, 2007).

Since the earliest times, photographs have been accompanied by metadata in the form of captions or annotations that have helped to contextualise them (van House, 2011). As Chalfen (2002) explained, through such annotations viewers gain access to “the accepted and verbalized interpretation of what is seen” (p. 144). However, other metadata such as tags are increasingly used by search filters and algorithmic processes of selection that may obscure the original context of the picture (Mayer-Schönberger, 2009). By placing a photograph alongside others with an artificial, rather than a personal, association, such processes can threaten traditional ways of memory construction (van House et al., 2004) while simultaneously opening up new ones (Falci, 2013). Thus, through some digital practices, the ownership and personal value of images may be weakened. However, this might apply to individual images rather than to collections as a whole, since, like analogue images, digital photographs are often cited as people’s most valuable possessions and the first thing that would be saved in the event of a house fire (Keightley & Pickering, 2014).

Practices are further complicated by the emergence of sophisticated tools for automatically recording, organising, and sharing photograph collections. For instance, automatic cameras, in combination with automatic syncing with cloud-based services, are accelerating a trend towards lifelogging (Chalfen, 2014) or the attempt to “digitally capture everything we do and see” (Sellen & Whittaker, 2010, p.

70). An extreme example is Gordon Bell and his project MyLifeBits in which he attempts to record and organise every aspect of his working and family life in order to correct the flaws in human memory (Bell & Gemmell, 2009). Along with capturing huge amounts of information, Bell's system allows for algorithmic analysis that, he claims, can assist in maintaining health, social relationships, and much more. Deb Roy's HouseFly technology provides another example of the algorithmic analysis of personal data. Roy recorded over 90,000 hours of home video over three years to create rich data visualisations of his family's behavioural patterns (DeCamp et al., 2010). Among other things, this technology allowed him to observe the way that particular locations within his home supported his son's learning of different words (Roy, 2011).

For people such as Bell and Roy, extensive recording does not just provide the ability to look back at recorded footage but to perform computational analysis on it. Beyond memory, lifelogging allows people to learn about their patterns of behaviour, appearance, relationships, etc., that they would not otherwise know. Yet some authors have criticised approaches to lifelogging. Dib (2013), for example, cautioned against neglecting the critical role that biological memory plays in making meaningful sense of lifelog data. In retrieving a collection of images or other documents that are related via commonalities in metadata rather than subjective meaning (as is the case with algorithmic analysis and search filters), there is a risk that individual artefacts are stripped of context (Mayer-Schönberger, 2009). According to Sellen and Whittaker (2010), lifelogging seeks to be effortless and unselective, capturing everything without preference or decision-making. This, they suggest, does not reflect or complement the constructive nature of human memory and ignores the potential importance of forgetting aspects of experience.

## **2.2 Drivers of photographic behaviour**

In covering some of the history of photographic practice in the previous section, I have touched on some of the factors that have influenced behaviour and culture.

Here, I take a more detailed look at the internal and external drivers that are part of our complex and ever-shifting relationship with photography.

Drawing on works such as Chalfen (1987) and Musello (1979), both van Dijck (2008a) and Sarvas and Frohlich (2011) have argued that the main values or purposes of photography relate to memory, communication, and identity. These different functions continue to run alongside each other in the current digital age but to different extents. Sarvas and Frohlich (2011) also mentioned creative expression as a motivation but put this under the umbrella of identity functions in relation to self-expression and representation. Indeed, the selfie, as Suler (2015) noted, is a clear example of the relationship between identity and creative expression. Sarvas and Frohlich (2011) noted that there are other, secondary purposes of photography too, such as the practising of photographic technique or functional purposes (e.g. documenting a home for insurance purposes or as a replacement for written note taking of Powerpoint slides in a lecture). Photographs are sometimes taken for a closer investigation of something. A famous example of this is Muybridge's (1957) 'Horse in Motion', in which he showed with sequential frames that all four hooves of a galloping horse can be in the air at any one time.

The motivation to use photography to support memory derives from a historical focus on the documentation or preservation of elements of experience for subsequent reflection and reminiscence (Batchen, 2006). This can be seen in the construction of family albums that portray key events and occasions of positivity (Slater, 1995). As Munir (2005) suggested, traditional practices of recording family images became a moral imperative, in part through marketing strategies of companies, such as Kodak. For Chalfen (2002), this was also driven by a desire to produce and accumulate evidence of our visual past. Sontag (1977) extended this beyond the family archive, claiming that photographs "tell one what there is; they make an inventory" (p. 22).

This traditional dominance of the memorial function of photography seems to be shifting with the emergence of communicative cultures. Van Dijck (2008a) suggested that photo-sharing websites and camera phones have increased the extent

to which photographs are taken to communicate, rather than preserve, the present. Much image-based communication is now via services, such as Twitter, Instagram, and Snapchat, in which images are ephemeral and self-esteem and self-presentation are affected by comments or the number of likes received (Barry et al., 2015). Sarvas and Frohlich (2011) claimed that social media are used by younger people, in particular, to portray “changing identities and affiliations” (p. 133). This appears to be closely linked with an increase in self-portraiture (Suler, 2015) and, in particular, the “selfie” which has emerged as part of the shift from documentation to communication (van Dijck, 2008a). Online, asynchronous sharing practices have been criticised as an impoverished version of traditional sharing practices (e.g. van House, 2009) and Gye (2007) has questioned how much online photo sharing, given its apparent lack of dialogue, is truly communicative. However, Keightley and Pickering (2014) pointed out that the presence of one type of sharing does not exclude others. New practices, they argued, sit alongside and support traditional ones by facilitating face-to-face conversation and reminiscence. There is clear overlap between memorial and communicative photography, and identity construction seems to be done through both. In addition to the construction of collections of images for future recollections, functions of self-expression and self-presentation are tied up in photographic acts of communication (van House et al., 2005).

### **2.3 Photographs and reality**

Photography’s relationship with memory, or the way that photographs are used to evoke, reconstruct, represent, or stand in for the past relates to the perceived relationship between photographs and reality. Beloff (1985) wrote that a photograph “is a representation that cannot possibly be made, or have been made, without the presence of the matter represented” (p. 2). This reliance of the photograph on the matter being photographed was based on the mechanical process of generating an impression of a scene through the activation of chemicals in response to the light that reflected off the objects within it. As Barthes (1981) wrote, “the photograph is literally an emanation of the referent. From a real body, which was there, proceed radiations which ultimately touch me, who am here” (p. 80).

Barthes and others have conceived of the photograph as indexical, indicating a direct physical link between referent (what is photographed) and image. For Barthes (1981) the photograph shows that “that-has-been” (p. 77) or, in other words, that those things in the photograph existed at the time it was taken. The contrast between this mechanical process and the artistic process of painting has been used by some as an argument that photography results in an objective portrayal of past reality (Bazin & Gray, 1960; Benjamin, 2008). As Fineman (2012) explained, a common belief has been that the automatic duplication of a scene imbued photographs with objectivity and “a special evidentiary authority” (p. 23). A number of scholars, however, have pointed out the influence of the photographer in what and how something is photographed, and that photographs show a contrived representation of reality. A clear example can be seen in one of the first photographs shown in Fox Talbot’s book of photographs *The Pencil of Nature*. Bate (2009) pointed out that, in his photograph entitled *The Library*, Fox Talbot actually placed a row of books outside of the library to better catch the light. Bate (2009) claimed that all photography is staged and subjective: “The idea that one picture is more objective than another only really means that one has hidden its ideology within a rhetoric of neutrality and description, while the other flaunts its codes of subjective investment” (pp. 53-54).

Further, Szarkowski (1980) claimed that the omission of everything outside of the edges of a photograph and the two-dimensional representation of objects (preventing the viewer from seeing what is behind anything) highlights a fundamental departure from reality, since each photograph captures only the space between two moments, only the view from the angle of the lens, and only the quality of colours and shapes produced by the camera’s mechanics. As Fineman (2012) suggested, whether or not they have been manipulated by a photographer, cameras and lenses create distortions in perspective, tonal values, colours, and so on. Batchen (1997) proclaimed considerations of lighting and chemical development as evidence of subjective intervention. Indeed, early developments of photography are revealing about how photographs capture reality. Fox Talbot’s iterative manipulation of chemicals and

papers to produce different likenesses, for example, highlights a trial and error process of subjectively producing the most objective-looking image.

In digital cameras, light reflecting off objects, instead of directly inscribing its image on a photographic medium, is reacting with silicon-based sensors that artificially divide it into pixels. These are, generally, algorithmically compressed into a standardised format, such as JPEG (see Jackson [2009] for more detail). Further, digital images are both independent of the medium through which they are viewed and dependent on such media for temporary realisation. In one sense, they are made up of the ones and zeros of binary code. In another sense, they consist of the material of whichever device calls them up (Jackson, 2009). As Breitbach (2011) has put it, they are “dependent on solid matter, though clearly under accelerating and ‘promiscuous’ conditions” (p. 32).

These extra layers of mediation have led some to claim that the digital photograph has lost the indexical link of its analogue counterpart (e.g. Mitchell, 1994). For Murray (2008), it is not the composition of digital images per se but the potential for manipulation that makes them non-indexical. On the other hand, some authors claim that digital and analogue photos are not fundamentally different in terms of their truth value (e.g. Bate, 2009). Although digitisation processes cannot maintain the full integrity of the original qualities of the light (Buse, 2010), it might be argued that the different materials and chemicals used in analogue photography indicate a related limitation. Further, Fineman (2012) countered the manipulation argument by showing over a century of artifice and untruthfulness produced through analogue photography. An example is the “spirit” photo, produced by combining multiple negatives within a single image. Similarly, to emphasise that photographs were doctored before Photoshop, he cited a photograph of four monks, taken in 1846, the negative of which was later found to contain a fifth monk. However, while van Dijck (2008a) also acknowledged that photographs have been manipulated throughout the history of photography, she argued that it is the increased possibilities for manipulation that are perceived as the significant difference (and, indeed, manipulation seems to be increasingly becoming the norm as mobile apps such as

Instagram make enhancements and filters relatively easy to apply [Hu et al., 2014]). What is perhaps most important to this thesis is that, as Murray (2008) acknowledged, despite the potential for digital photos to be manipulated, people do not appear to regularly question their representation of the truth.

## **2.4 Summary**

This chapter has presented a diversity of practices emerging alongside changing technological, cultural, and economic conditions. These conditions have played a role alongside personal goals in determining people's behaviour. Though there are many differences between digital and analogue photography, the lasting cultural changes and the importance of these remains to be seen. According to Sarvas and Frohlich (2011), photography practice is still in a period of disruption from which "the dust has not yet settled ... There is no obvious dominant design such as the former symbiosis of cameras, film, and photo-finishing, and no homogeneous practice and culture like the snapshot culture of the twentieth century" (p. 140).

The literature points to a few key themes: overload from an increase in the number of photographs and the sorts of things that are photographed; a corresponding decrease in selectivity caused by reduced constraints around the difficulty and cost of producing and distributing photographs; and the fluidity of photographic collections (and related issues of control and privacy) resulting from ephemeral, communicative, and metadata-driven networks. On the other hand, there is also significant continuity in the purposes for which photographs are taken and shared and the underlying motivations to use them in supporting memory. For example, despite changing perceptions of the value of individual digital photographs, perception of the value of overall photograph collections and general perceptions around the relationship between photographs and reality seem to have remained relatively stable.

In this chapter, I have presented some sense of the complexity of present and past photographic practices and the factors behind these behaviours. Chapter 3 reviews what we know about memory from the perspective of psychological research and

then considers the shortcomings of this knowledge base in relation to the complexity and diversity of what has been presented here.



### **3 Autobiographical memory and distributed cognition**

This chapter considers some key concepts involved in autobiographical memory, or memory of one's own previous lived experience (Tulving & Szpunar, 2009). The evidence on which I have based my account comes primarily from cognitive psychology. There are, however, significant gaps in our psychological understanding of how memory works in relation to the environments in which we operate. As Sutton (2010) has argued, a number of productive avenues of recent psychological research are interdisciplinary in nature and so, towards the end of the chapter, I draw from philosophy to consider how theories of distributed cognition might open up ways of reframing memory as not only distributed but situated and emergent.

I start by problematising the notion of memory content and argue that memory is more productively conceived as a functional system that dynamically generates information and experiences relating to the past. I then explain the importance of the subjective experience of remembering by discussing the differences between episodic and semantic remembering. This is followed by an account of memory's function, drawing on adaptive perspectives to explain ideas of forgetting and distortion. At this point, I turn to a consideration of the importance of the environments and situations in which we remember and our use of external resources. Finally, I give a summary of empirical work around the psychology of remembering with photography and present what I consider to be the most important gaps in the literature.

#### **3.1 Memory content**

The term "memory" is used to describe both the system that remembers (e.g. "I have a good memory") and its content or output (e.g. "I have a good memory of a trip to the beach"). As Tulving (1984) noted, this conflation of function and content is unhelpful in that it obscures the distinction between the act of remembering and what is articulated in response to remembering (e.g. a story about an event). Tulving and Szpunar (2009) have suggested that the term "memory" is more appropriately used to

refer to the functional system that remembers, rather than the content of what is remembered. An important aspect of this system is that, rather than preserving and reproducing veridical representations of experience, we dynamically generate memory output at the time of remembering (Bartlett, 1932). Thus, the notion of memory content is problematic, since not only is it constructed in the act of remembering, it is potentially different with each instance of remembering. Further, when we remember something and articulate it to others, it is transformed into a form that suits the language of expression. Referring to accounts of what is remembered as “memories” can hide both the act of construction and the act of interpretation required to express remembered information to others (Tulving, 1984).

Despite this dynamic construction, the apparent continuity of a subjective self suggests that something of internal memory must be stored somewhere. Tulving (1983, 2007) has used the term “engram”, coined by Richard Semon (1921), to refer to the neurological trace, left over from lived experience, that allows subsequent mental re-experience. This idea of a memory trace became the focus of an influential paper by Lashley (1950) in which he described the unsuccessful results of 30 years of attempting to locate it within the human brain. Even now, clear evidence for the biological storage of some form of memory is limited mostly to studies of mice (e.g. Roy et al., 2016) and planarian flatworms (Shomrat & Levin, 2013). The difficulty in locating the engram may be because it does not exist in a stable form or in a single, physical location. As Bartlett (1932) proposed, “though we may still talk of traces, there is no reason in the world for regarding these as made complete at one moment, stored up somewhere, and then re-excited at some much later moment” (pp. 211-212).

In any case, according to Tulving (1984, 2007), engrams are not, themselves, consciously remembered but form a basis for constructive remembering. What we think of as “a memory”—the concoction of imagery and sensory and semantic information that forms the content of what is remembered—does not exist inside the brain. It is dynamically reconstructed via a coming together of encoding and retrieval information in a process Tulving (1983) called “synergistic ecphory.” I return to this

concept later in the chapter when discussing how we use tools, people, and elements of the environment to help us remember.

Tulving (2007) proposed that the engram is “a dynamic, changing, malleable entity ... rather than a ‘fixed, lifeless’ sort of thing” (p. 66). The implication is that memory is not just constructive at the point of remembering but also during the re-encoding of subsequent remembering or consolidation (Michaelian, 2011b; Tulving, 1983). Hence, construction is, to some extent, cumulative in that every time we recall an experience, we introduce further change the nature of the memory (Newman & Lindsay, 2009). Among other things, this cumulative process causes a levelling and sharpening effect as some neglected details fade into the background while others become emphasised through rehearsal (for an excellent account of this principle, see Koriat et al.’s [2000] description of the Gestalt principles of memory distortion). This effect can be linked to identity regulation as negative emotional aspects are reduced in accounts of memory over time relative to positive aspects (Pasupathi, 2001). Presumably, this helps us to move past negative experiences and to feel more positive about ourselves by viewing our past in a more positive light. McLean and Pasupathi (2011) took the position that the details of an event are less important than the way in which the event is connected to the self.

### **3.2 Memory experience**

Alongside what we remember, the experience of remembering is important. The most influential characterisation of different ways that autobiographical remembering is experienced is Tulving’s (1972) distinction between episodic and semantic systems. Episodic memory is concerned with subjective experience, including a feeling of familiarity, without which memory representations are not attributed as having happened to oneself (Jacoby et al., 1989). It requires an awareness of one’s subjective self in time and space—a feeling of being present within the relevant moment as an entity separate from the environment—during both the original experience and at the point of remembering (Conway, 2005; Tulving, 1983). As Wheeler et al. (1997) put it, episodic memory’s essence is located “in the

subjective feeling that, in the present experience, one is re-experiencing something that has happened before in one's life" and the "belief that the self doing the experiencing now is the same self that did it originally" (p. 349).

Episodic recall involves rich contextual information about an experience. For example, it is accompanied by a sense of the personal or subjective time at which an event occurred rather than chronological time (Tulving, 1983). The subjective experience of being placed at an earlier point in time is often referred to as "mental time travel" (Suddendorf & Corballis, 2007), a concept that has recently been extended to account for the projection of oneself into the future, thereby aiding prediction and decision-making (Szpunar & Tulving, 2011).

Semantic memory pertains to generalised knowledge about the world. Information about one's past can also be recalled using semantic memory, but this differs from episodic memory in that it contains only the details of what happened, not the subjective, personal connection to those details (Conway, 2005; Wheeler et al., 1997). As Wheeler et al. (1997) explained, semantic memory provides knowledge from the perspective of an observer rather than a participant. In contrast, "real" remembering is often positioned, either explicitly or implicitly, as episodic. Indeed, Tulving (1985) proposed that remembering could be classified as episodic or semantic by asking people whether they "remember" or "know" something.

There is an implication that episodic remembering plays an important role in connecting people with their subjective reality. It is considered to be important for maintaining self-esteem (Westerhof et al., 2010), enhancing the ability to connect socially with others (Alea & Bluck, 2003; Newman & Lindsay, 2009), and facilitating decision-making and the development of identity and goal-systems (Conway 2005). The emotional connection present in episodic remembering was thought by Boyer (2008) to be linked to the calibration of impulses and decisions. Indeed, Glannon (2011) raised concerns that the weakening of the emotional connection with memory (e.g. through drugs or neurosurgery) might reduce our capacity for morally-consistent action. Patients with frontal lobe damage associated

with impairments in episodic memory have been shown to lack self-reflection and, in some cases, despite awareness of their cognitive deficits, to also lack concern at their condition (Wheeler et al., 1997). This is consistent with the inability to connect semantic knowledge of their condition with a subjective sense of their situation (Conway, 2005). In contrast, by examining a patient with retrograde amnesia, Rathbone et al. (2009) showed that the self-concept was not lost in the absence of episodic remembering but was maintained through access to stable semantic autobiographical knowledge. Questions remain, however, as to whether this is a different sort of self-concept from someone with a healthy episodic memory, or whether identity-development is impaired.

Even in people with healthy memory systems, semantic memory can be used as a shortcut for episodic memory, increasing efficiency but decreasing emotional connection (Wheeler et al., 1997). For example, it is important to quickly recognise dangerous situations without having to remember the events that led to that knowledge (Lachman & Naus, 1984). Sherman and Bessenoff (1999) have shown that if there are sufficient semantic details available to solve a problem, we are less likely to go to the effort of re-experiencing a memory, particularly in distracting circumstances. Semantic memory can also give the appearance of episodic memory, for example when constructing episodic-like narratives based on semantic autobiographical information (Pauly-Takacs et al., 2011; Wheeler et al., 1997).

Despite a large body of research, there remains debate as to whether the episodic and semantic systems should be considered to be physically distinct entities (albeit ones that may work closely together) or theoretical systems that can be used to aid our thinking about qualitative differences in the subjective experience of remembering (Glenberg, 1997; Szpunar et al., 2014; Tulving, 1984, 1985). It is possible that these two systems do not correspond to physically identifiable locations within the brain. Instead, episodic and semantic memory may be realised as dynamic combinations of functions in which different mental processes are recruited according to the situation (Hassabis & Maguire, 2007). The implication is that there may be no a priori, physical memory system at all. As Tulving (2002) put it, “yes, we can talk about

memory systems and memory processes ... but we have little idea how 'real' these systems and processes are" (p. 323). Brockmeier (2010) went further, claiming that "we only have a vague idea about memory as a whole. We cannot even say if there is such a thing as memory (or a memory, or specific memory systems) at all" (p. 5). Such views imply the possibility that "memory" is just a convenient label for activity that emerges as a coincidence of cognitive processes at the point of remembering.

Whether or not episodic and semantic memory correspond to different physical systems, it can be problematic to isolate them in relation to any particular instance of autobiographical remembering since episodic memory seems to be structured in relation to elements of semantic or conceptual knowledge (Conway, 2009; Tulving, 1983). It seems likely that, as Irish and Piguet (2013) proposed, "semantic memory may underlie most, if not all, forms of episodic memory" (p. 1) through its role in the construction of schemas and knowledge structures involved in autobiographical remembering. Arguing against a clear distinction between the two systems, Lachman and Naus (1984) responded to Tulving's (1983) book *Elements of Episodic Memory* by claiming that "any memory can be located somewhere on a trajectory from highly episodic ... to highly semantic" (p. 245). Similarly, Szpunar et al. (2014) argued that autobiographical memory should be located within an episodic-semantic continuum rather than a divide. Renoult et al. (2012) also suggested that there are "intermediate forms of memory", such as "personal semantics" (p. 550), that indicate idiosyncratic and intimate knowledge of one's past without the subjective sense of re-experience.

The combination of episodic and semantic systems is vital to our capacity to act and think as humans (Tulving, 1983). Both generalised knowledge and subjective experience work together in complex ways as part of the overall functioning of autobiographical memory. For example, it seems that strong episodic connection to past experience is often a temporary phenomenon and progressively remembering the same events over time seems to compromise the highly-detailed and relatively accurate episodic remembering that is often accessible immediately after an experience (Lachman & Naus, 1984). A sense of the time and location of the experience, feelings of familiarity, emotive memory, and sensory information can

seemingly be replaced by semantic knowledge over time. Tulving (1983) posited the explanation that episodic memory is processed into semantic memory via the abandoning of context. Personal reference is slowly disassociated so that generalised knowledge can be used in a variety of contexts (Conway, 2009; Tulving, 1983).

### **3.3 Memory function**

Until the last few decades, the majority of memory researchers (most famously Ebbinghaus, 1885) focused on attempts to measure accuracy and ease of recall. An important exception was Bartlett who, in 1932, undertook an important exploration of the way recall changed on different occasions. In coming to understand the constructive nature of remembering, he concluded that “in a world of constantly changing environment, literal recall is extraordinarily unimportant” (Bartlett, 1932, p. 204). This was an important step in recognising empirically that memory is malleable and developing ideas of what this might mean for the function of memory and, conversely, notions of memory impairment.

Psychologists with adaptive perspectives have suggested that memory must be about guiding action in the present (e.g. Glenberg, 1997; Glenberg et al., 2013). Indeed, a number of memory psychologists are now in broad agreement that episodic recall of the past is probably an incidental part of this (e.g. Conway, 2009; Nairne & Pandeirada, 2008), with the amount of detail or specificity that is remembered varying according to need (Koriat et al., 2000). Conway (2005) suggested that for every experience there is an “optimum level of retention” (p. 596) in relation to fitness for survival and that, in many cases, the gist is sufficient. If remembering is not, itself, a primary goal, then the subjective re-experiencing of the past must have some other function in the service of decision-making or the maintenance of identity or goal systems. Boyer (2008) proposed that, by being able to re-experience the past, we reduce the sense of detachment from it that would otherwise accompany the passing of time. An alternative account that has received recent attention is that subjective re-experiencing of episodic memory may simply be a requirement of a process of simulation referred to as “episodic future thinking” (Atance & O’Neill,

2001; Suddendorf & Corballis, 2007; Szpunar, 2010; Szpunar & Tulving, 2011). A large body of evidence has been produced in the past decade to show that many of the mental processes involved in remembering (and episodic memory in particular) are also involved in imagining the future (e.g. Conway, 2005; Schacter et al., 2007; Suddendorf, 2010; Suddendorf & Corballis, 2007; Szpunar & Tulving, 2011).

Hassabis and Maguire (2007) developed the theory of “scene construction” to explain the link between past and future thinking. They proposed that in episodic memory, just as in our fantasies, our dreams, and our projections of the future, we use creative processes of “mentally generating and maintaining a complex and coherent scene or event” (Hassabis & Maguire, 2007, p. 299). The constructive nature of remembered scenes can be seen in phenomena such as “boundary extension”, in which objects that were outside the field of view are remembered as having been seen (Hubbard et al., 2010; Intraub & Bodamer, 1993), as well as in the shift from field (first person) to observer (third person) perspectives in episodic recall over time (Nigro & Neisser, 1983; Siedlecki, 2015; Sutton, 2014).

Scene construction and other constructive memory processes rely on the simplification and abstraction of information. It is inefficient to store and subsequently process all perceived details of related memories at the moment that we need to respond to a given situation (Hassabis & Maguire, 2007; Schacter et al., 2011); the sheer number and similarity of memories make it impractical to approach each one as a separate entity (Pillemer, 1998). Pillemer (1998) suggested that selectively remembering specific episodes can have a profound effect on our identity and decision-making. On the other hand, a number of researchers have suggested that, rather than necessarily remembering specific, individual episodes in detail, we simplify past experience by merging similar events into a unified representation of that type of event (e.g. Conway, 2009; Neisser, 1981). Neisser (1981) coined the term “reepisodic memory” to describe the amalgamation of different events into a single, representative memory that could be confused for a memory of a single occasion. The term “blended memory”, used with a different meaning in the title of this thesis, has featured in research into eyewitness testimony to describe the

combination of different episodes into a single recalled memory (e.g. Metcalfe, 1990). More recently, Conway (2009) has described the merging of different episodes into representative or “summary” memories. These help the rememberer to quickly form ideas of what related experiences have been like and how they should be approached in future.

### **3.4 Forgetting**

Forgetting, defined simply by Tulving (1974) as “the inability to recall something now that could be recalled on an earlier occasion” (p. 74), is often portrayed as a weakness of memory. For example, a fear of dementia and age-related memory deterioration may reinforce associations of forgetting with memory impairment (Cutler & Hodgson, 2001; Schacter, 2001). Yet, like almost every aspect of memory, there are multiple explanations of how and why we forget.

Ebbinghaus’ (1885) influential work focused on the notion of memory decay, suggesting that the memory trace disintegrates over time without rehearsal. However, in his deliberate use of the word “now”, Tulving’s definition (above) does not assume that forgetting is permanent. An alternative explanation to the theory of decay is that forgetting is a question of access rather than availability (Tulving & Pearlstone, 1966). By showing that the presentation of images could help an amnesic patient to remember things that had previously been forgotten, Loveday and Conway (2011) claimed that forgetting is linked to problems in generating appropriate cues for a particular experience. Another possibility is that similar experiences interfere with each other (Tulving, 1974). New experiences can interfere with the remembering of old experiences (retroactive interference), or old experiences can interfere with the remembering of new experiences (proactive interference) (Ebert & Anderson, 2009). This can be the case, for example, when one remembers a previous experience of remembering, since the original experience and the remembered experience are similar. As complicated as it seems, it may be that this process is key to creating distance from experiences that are no longer relevant to our lives (Schacter, 2002). These different accounts of forgetting are not mutually exclusive

and it is possible that they are all involved in forgetting to various degrees. Altmann and Gray (2002), for example, suggested that forgetting is made up of both decay and interference, and that, indeed, some decay is necessary to prevent untenable levels of interference through competing memories (see also Storm [2011] on forgetting as a way of avoiding interference).

Although cases of amnesia clearly show the disastrous impact of excessive forgetting, some forgetting is not only normal but adaptive (Bjork & Bjork, 1988; Nairne & Pandeirada, 2008) and seems to play a role in inference and decision-making (Schooler & Hertwig, 2005). One illustration of this is Goldstein and Gigerenzer's (2002) "recognition heuristic." This idea is based on empirical evidence that, when comparing pairs of American and German cities, recognising too many city names impaired participants' ability to correctly guess which had the larger population. They claimed that partial ignorance (not recognising all items) is helpful to strategies of inference because the knowledge that something is familiar can be a useful differentiator. Remembering everything that we perceived would make it more difficult to distinguish salient elements. Through such selective processes, forgetting allows the privileging of more relevant information (Bjork & Bjork, 1988) and the focusing on current, rather than redundant, goals (Altmann & Gray, 2002; Conway, 2005). This does not necessarily mean that, even in healthy memories, the amount we forget is optimal for any given purpose, since memory involves multiple, potentially-competing functions (Schooler & Hertwig, 2005).

Parker et al. (2006) drew on the case of AJ to show that forgetting acts as a filter, protecting our memories from overload. AJ has "hyperthymesia" or the ability to remember abnormally large amounts of past experience. Her exceptional memory causes her to focus on the past, rather than the future. Michaelian (2011b), describing the same case, suggested that excessive remembering obstructs the performance of other important cognitive activities. Dwelling on negative past experience has also been shown to be associated with depression, anxiety, and stress (e.g. Kinderman et al., 2015). Being able to forget allows us to move on from difficult experiences (Conway 2005) and avoid Schacter's (2002) "sin of persistence", the inability to

forget events. Forgetting, then, may be critical to developing a positive sense of self. As McLean and Pasupathi (2011) explained, “selectively appropriated past events ... are woven together to form a broader story of how one came to be the person one is” (p. 136). In the next section, we will see how not only forgetting events, but changing our memory of them, is important to the development of identity.

### **3.5 Accuracy**

Bartlett’s (1932) controversial conclusion that veridicality is not important to memory functioning has gained support from researchers such as Conway (2009), who suggested that episodic memories are not supposed to function as “literal, veridical, records of experience” (p. 2306) but as representational summaries of them. For Conway, memory needed to be relevant rather than accurate. According to Fiske (1993), we tend to allocate only the minimum effort and cognitive resource necessary to achieve a goal. An adaptive perspective suggests that the accuracy of memory need only be sufficient for a given purpose (e.g. Goldstein & Gigerenzer, 2002; Nairne & Pandeirada, 2008). As Michaelian (2011a) has pointed out, memory construction is adaptive rather than arbitrary. It seems that memory’s malleability is necessary to allow us to reconfigure our understanding of the past to make sense of our current situation from our current perspective. This allows us to make decisions based on how we feel and what we know *now*, rather than at some point in our past. To help us understand this process, Conway (2005) provided a useful recasting of accuracy in terms of coherence and correspondence. Along with reasonable correspondence with what was actually experienced, memory must fit with a coherent set of beliefs about oneself and the world.

Conway (2005) suggested that when the coherence of memory and self is disrupted, we must employ strategies to stabilise it. These involve reconfiguring memory to fit with our concept of our identity or reconfiguring our identity to fit with what we remember. According to Conway, memory is more malleable than identity and it is usually our memory that is altered. In cases where core beliefs are challenged by

events, such as in the case of trauma, we are forced either to re-evaluate ourselves in light of the evidence or engage in confabulation.

Accuracy involves more than correspondence between the content of what is remembered and what actually took place. To make sense of a memory, we engage in source monitoring to judge where a memory came from (e.g. a particular personal experience, imagination, another person's narrative) and its spatial, temporal, and social context (Johnson et al., 1993). As Sherman and Bessenoff (1999) stated, this is important in grounding our memory in our own lived experience, rather than in thoughts or dreams or stories told to us by others. Problems of source monitoring can be relatively innocuous, such as the difficulty of distinguishing whether we are remembering an experience or a previous remembrance of it (Pasupathi, 2001), or very serious. For instance, research has shown a link between poor source monitoring and hallucination through the misattribution of thoughts to external sources (Debbané et al., 2008). Thus, although memory generally does not need to be highly accurate, highly inaccurate memory, though potentially coherent and convincing, can have serious consequences (Conway, 2005).

A number of studies have shown that we can take the idea of an experience that did not happen and weave it into our existing memories and beliefs. For example, Loftus, Garry, and Hayne (2008) discussed how many cases of "recovered memory" of childhood abuse had been falsely implanted by therapists. Further, developments in DNA evidence have led to numerous studies exposing wrongful convictions based on eyewitness testimony (Schacter et al., 2008). Some of these studies highlighted the effects on recall of different elements of questioning, such as leading questions, emotive adjectives, or whether line-up suspects were shown together or separately (Conway, 2005). Of particular relevance to photography is the work of Loftus (1991) that showed that information (e.g. narrative details or photographs) presented after an event is integrated into memory.

A false memory can seem convincing because we construct complementary details to enhance its authenticity (Loftus, 2003). In fact, false memories have been shown to

have clear behavioural consequences. Loftus (2003) found that participants in whom they were able to introduce a false childhood memory of being sick after eating a hard-boiled egg were more likely to avoid hard-boiled eggs in the future. Bernstein and Loftus (2009) also claimed that researchers have started to compare the qualities of “veridical memories” with those of false memories, with few differences emerging. It is, however, worth asking what constitutes a veridical memory and how we might recognise one. Conway and Loveday (2015) have recently proclaimed that all memory is false to a greater or lesser extent and this seemingly bold statement is, in fact, intuitively true if all memory is reconstructive (Bernstein & Loftus, 2009).

### **3.6 Photography and the psychology of memory**

As discussed in Chapter 2, photography has a long tradition of use within remembering and photographs may be particularly powerful memory aids because of the prominence of visual imagery within episodic recall (e.g. Conway, 2009; Greenberg & Knowlton, 2014). The focus of psychological research into photography and memory has been mostly on the effects of using photographs as cues for recall. Examples include Loveday and Conway’s (2011) study showing that the presentation of external cues, such as photos, can aid remembering of previously forgotten experiences and Koutstaal et al.’s (1998) study showing that reviewing photographs and written descriptions can improve recall of recent, everyday events in older adults.

Photographs have been shown to aid recall even in those with severe memory impairment (Berry et al., 2007), although HCI researchers Lee and Dey (2007) added a note of caution that, in their experience, the number of cues that people with episodic memory impairment can meaningfully engage with is limited. Further, as beneficial as memory aids would appear to be, particularly for those with memory impairment, there is very limited research into the types of memory these innovations are supporting. There is a risk that providing an abundance of memory cues reinforces semantic memory but not episodic memory. For example, Pauly-Takacs et al. (2011) claimed that using an automatic camera (the Microsoft

Sensecam) helped a 13-year-old boy with profound memory impairment to construct personal semantic memory but failed to support episodic memory.

Koutstaal et al. (1999) found that, although photographs can increase the accuracy of remembering, they can also shape what is remembered in powerful ways. For example, looking at photographs can reinforce memory for related events at the expense of other events for which photos are not reviewed. Further, the details present in a photograph have been shown to distort memory through the introduction of “misleading postevent information” (Koriat et al., 2000). For example, Deffenbacher et al. (2006) showed that exposure to police photographs reduced the accuracy of witnesses in correctly identifying perpetrators from a line-up (see also Loftus [1991], mentioned earlier). Thus, despite the potential for photographs to support recall, they do not stop the constructive processes of memory.

Henkel (2012) claimed that people can come to believe that the objects and actions in a photograph were part of their actual experience. For her, photographs acted as “a subtle form of persuasive suggestion” (Henkel, 2012, p. 774). Specifically, she described the “photograph inflation effect” where “viewing photos of completed actions led people to falsely claim to have performed those actions” (p. 774). Similarly, looking at photographs can, for example, lead people to “recall” being somewhere they have not been (Henkel & Carbuto, 2008).

False memories have been shown to be strengthened by doctored photographs in addition to a false narrative (Lindsay et al., 2004). For example, Wade et al. (2002) found that, by presenting doctored photographs, half of their participants believed that they could remember a false event. The effect of false photographic evidence is particularly strong, at least for 10-year-olds, where participants and their families are present within the photographs (Strange et al., 2008). Sacchi et al. (2007) showed that the content of photographs could induce different emotional connections to an event. Showing different versions—unedited or doctored—of the same events to different groups produced accounts that differed in content, emotional valence, and attitude towards the event.

In a rare study into the effects of taking photographs, Henkel (2014) found that taking photographs of objects in a museum impaired recall for visual details of those objects. If the participants zoomed in on a part of their object, their recall was improved. Henkel concluded that different ways of photographing produce different ways of paying attention to a scene and that this affects the processing of that scene into memory. Her study, though, did not explore the effects of actually using the photographs as cues for recall.

### **3.7 Distributed, situated, and emergent memory**

Glenberg (2006) has argued that to understand remembering (and thinking in general), we must understand the physical and social situations in which it takes place. Developments within psychology to study memory in real world settings have gained ground in recent years. Neisser (1978) was important in recognising memory from an ecological perspective and this work has led to a better understanding within psychology of how we use memory in everyday situations (Alea & Bluck, 2003). However, the general picture provided by cognitive psychology literature of the relationship between photography and memory is largely based on a narrow conception of remembering in decontextualised settings. It is in stark contrast with the rich and diverse picture presented in Chapter 2 of the different ways that people have engaged with photography.

An important feature of memory as a system for informing action and decision-making is that it draws from both current internal perspective and the external environment. Tulving's (1983) influential concept of synergistic ephory explains the convergence between internally encoded information (the engram) and external retrieval information or cues. Tulving (1974) proposed that cues are necessary for remembering, in that "we remember an event if it has left behind a trace *and* if something reminds us of it" (p. 74). He defined a cue as "information present in the individual's cognitive environment at the time retrieval occurs" (Tulving, 1974, p. 74). Cues can be internally generated (e.g. one memory can lead onto another), but

they often take the form of external prompts or stimuli without which we are less likely to actualise the potential to remember a given event (Tulving, 1983). Donald (2010) used the term “exogram” to describe external memory information, analogous to the internal engram, that provides a basis from which we can construct memory. This, he has suggested, is something that we have cultivated since prehistoric times, such as the use of painted or carved objects.

Alongside the material context, it is important to consider the social context in which remembering takes place (Bietti et al., 2014). Theories of social remembering gained some prominence with Wegner’s (1987) notion of “transactive memory” in which people were shown to produce different memories when remembering together or individually. Extending Wegner’s work, Harris et al. (2014) have examined both the contents and the processes of shared remembering in conversation and showed that, for some couples, recall was improved by collaboration, while other couples showed inhibited recall when remembering together. The authors suggested that the particular style of communication and the strategies couples used were key to the effectiveness of collaborative remembering. In other words, it was not just who was involved but how they interacted that shaped the outcomes of remembering.

Sutton and colleagues (2010) considered material elements to be part of the social context. This perspective reflects an interdisciplinary development that has drawn from both psychology and philosophy to explain how the activity of remembering is shared across brain, body, and environment (Clark & Chalmers, 1998; Hutchins, 1995; Sutton, 2009; Sutton et al., 2010). As Singer and Conway (2014) put it, “the locus of memory is no longer the individual but a socially distributed system” (p. 387). The way that external resources are used within distributed systems has important implications. For example, Sparrow et al. (2011) tested students’ recall in relation to whether or not they expected to be able to look up the relevant information on a computer. Their students tended to remember how to find the information rather than recalling the information itself, suggesting that they had efficiently allocated internal resources to make effective use of expected external resources. Indeed, this finding may relate to those of Henkel (2014), mentioned

earlier, in that Henkel's participants' knowledge that they would be able to refer to photographs of museum objects might have reduced their motivation to pay attention to the details of the scene.

According to Donald (2010), there are important differences between internal and external resources. For example, exograms can be directly shared between people and across time, thus facilitating the social and temporal distribution of remembering in ways that would not be possible when relying only on internal memory processes. However, Donald has been accused of not giving enough attention to how internal and external resources are differently used (Sutton, 2010). Here, Sutton's perspective provides a useful contrast to that of Clark and Chalmers' (1998) extended mind hypothesis in which they proposed that an artefact, such as a notebook, could be used to remember in the same way as biological memory. Sutton (2010) argued that internal cognitive resources are importantly different from external artefacts, and that these differences allow them to work together in complementary ways. In contrast to Donald (2010), Sutton positioned these differences as not fundamental or fixed properties of being internal or external. Indeed, for Sutton, the distinction between internal and external was not always clear. For example, external resources can be internalised such that they contribute to our thinking even when they are not physically present. Internal thoughts can also be externalised and other people's memory narratives can serve as our own exograms (Sutton, 2010). A critical element of Sutton's position is that external resources are recruited in ways that complement what is already present within a distributed system.

Importantly, the presence of external cues or resources is not necessarily sufficient for remembering. Tulving's (1983) theory of encoding specificity suggests that the likelihood of successful remembering is increased if the context of remembering is similar to that of the experience to be remembered. Highly-familiar environments, such as homes or offices, become extremely rich components of distributed memory systems (Singer & Conway, 2014). The ways in which people actively construct environments to support these patterns of remembering has become an interesting area of research (e.g. Dahlbäck et al., 2013).

### **3.8 Summary and knowledge gap**

An important conclusion of this review is that external information should not be considered “memory.” It is made meaningful through interaction with internal processes. Equally, while memory may be enabled by different parts of the brain working together, and while traces of lived experience seem to be stored in the brain, memory is not something that resides inside our heads. Memory is a situated, distributed, and emergent system that recruits and integrates internal and external resources. The primary function of this system is to facilitate present action and future planning, not to accurately recall the past. We remember not veridically but subjectively in ways that take into account intervening experiences, current priorities, and the present situation. Adaptive explanations of forgetting and distortion allow the possibility that what are generally considered to be memory problems or weaknesses may be adaptive features, and that there may be varying optimal levels of forgetting and distortion for different purposes. As Pillemer (1998) wrote, “accuracy is only one part of a functional explanation of personal event memories, and in some circumstances it plays a relatively small part” (p. 17).

Autobiographical memory research within psychology has mostly focused on individual, internal cognitive processes, such as episodic or semantic recall (Tulving, 1972). These concepts are useful in helping us understand some of the underlying processes of memory and their relationship to identity, goals and decisions, social functioning, and mental wellbeing. Psychology has also provided valuable insights into some of the ways that photographs and, to a lesser extent, photographic behaviour can influence remembering. However, this research has focused on a narrow understanding of photography (mostly cued recall in laboratory settings) and a narrow understanding of remembering (linking single instances of recall with single instances of looking at photographs). By considering remembering as individual and internal, and by considering photographic practices in isolation rather than as part of wider, interconnected activity, this body of research has not yet adequately explained the different ways that people use objects, other people, and the

environment in remembering. It has not sufficiently examined photography and remembering from an ecological perspective where activity is situated in complex physical and social environments.

Chapter 2 showed that photography can be used in many different ways to support memory. When viewed in relation to the literature cited in this chapter, it becomes clear that psychological research has not adequately covered the range of behaviours and situations in which photography and memory interact. There is evidence that distributed views of memory are gaining traction within psychology, such as Singer and Conway's (2014) introduction to a special issue of *Memory Studies* on "remembering in context" in which they acknowledge that "memory extends to the body, the couple, the group, the community, and the larger culture" (p. 391). In the context of digital technologies, however, these authors positioned distributed remembering as significantly different and potentially troublesome: "more unsettling is our awareness that memory is beginning to merge with technology in ways that leave the boundaries of human and non-human increasingly unclear" (Singer & Conway, 2014, p. 391). Their choice of the word "beginning" is interesting here. As Donald (2010), Clark and Chalmers (1998), and others have suggested, we began to merge with technologies thousands of years ago in the sense that our processes of thinking have intimately intertwined with our uses of tools. Remembering is often, if not always, distributed. The obfuscation of boundaries between memory and technology that appears to be a result of advances in digital technology is not new at all. Nonetheless, digital technologies open up new possibilities for practice that may have important implications for remembering and it is important to understand how and why we take up, or do not take up, these possibilities.

While there has been some recent empirical research into processes of distributed remembering (e.g. Sutton et al., 2010), there remains a need for closer examination of how different kinds of external information are used within these processes. Rather than considering remembering as a unified process in which one sort of remembering is equivalent to another, we need to take account of different kinds of remembering and the different situations in which remembering happens. In a recent

paper, Harris et al. (2015) gave a nod in this direction: “the concept of memory reconstruction is used in a variety of contexts and may encompass a variety of different processes in autobiographical memory retrieval” (p. 204). The distinction, for example, between direct and generative retrieval used by those authors and others (e.g. Conway & Pleydell-Pearce, 2000) indicates a recognition that there are different ways to go about remembering something. However, those particular concepts focus on the effort involved in generating internal cues rather than on the different ways that external information can be used in constructing memory.

Thinking back to Chapter 2, we have limited understanding of the significance of different photography practices for memory or of how the combinations of practices that people engage in over time affect how they remember personal experiences. There is a need for empirical research into the situated and distributed nature of memory that considers the complexity of diverse, overlapping, and interdependent photography practices and that takes into account the contexts in which they are performed. Further, while distributed cognition has informed recent developments into contextualised, socially- and materially-distributed remembering, our understanding of what it is like to remember in distributed ways is very limited. To address this issue will require a more complex understanding of the experience of remembering in general. For example, while episodic and semantic memory have been shown to play important and distinct roles in autobiographical memory, the different ways in which they combine during remembering are, as yet, poorly understood.

## 4 Methodology

In this chapter, I set out methodological issues relevant to the overall thesis, covering considerations that are common to the two empirical studies presented in Chapters 5 and 6, respectively<sup>2</sup>. I begin by stating the research questions in response to the shortcomings of the literature described at the end of Chapter 3. I then consider the epistemological challenges of studying the relationship between photography and memory. Next, I outline a philosophical position that has both guided and been changed by the research presented in this thesis, and which is manifested in the discussion in Chapters 7 and 8 and reflected on in Chapter 9. I move on to discuss some methodological challenges of studying memory, arriving at an overview of my own method before describing how I determined who would be the participants in my research. In the next part of the chapter, I talk about the research setting and consider the research materials. Finally, I outline my process of data analysis.

Ethical approval for each study was granted by the School of Education Ethics Committee at my University. However, ethics are not a distinct issue that can be separated from any part of the design, implementation, or reporting of the research (Cousin, 2009). They permeate all facets and, as such, I hope that much of what I describe in this chapter contains a degree of reflexivity pertaining to ethical issues and considerations of “trustworthiness” (Cousin, 2009). The most important ethical issues in my research involved consent, anonymity, use of photographs, emotional risk to participants, the potential to distort participants’ beliefs about memory, the dynamics between researcher and participant, and the challenges of studying memory. Rather than presenting a separate section on each of these, I have, where appropriate, discussed them throughout the chapter. For a full account of these and other ethical issues of this research, the reader must take into account the detailed discussions of the methods and limitations in this chapter as well as the reflections presented in Chapter 9 where I reconsider some important issues after having done the research. Indeed, many aspects of this chapter represent a beginning to which I

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<sup>2</sup> The particulars of each study and its methods are given in the two chapters that follow.

return at the end of the thesis. What is presented here is an account of how I went about my studies and why I chose to approach them in these ways, but without the benefit of the lessons learned through conducting the research. Those lessons are presented in the final chapter as a way of helping the reader make sense of my findings and conclusions.

#### **4.1 Research questions**

At the end of Chapter 3, I argued that there has been limited research into how different ways of engaging in photography practices influence autobiographical memory. By characterising memory not as a system that stores and retrieves stable information but as one that dynamically reconstructs information through activity, I also set the scene for an exploration that takes into account socially and materially-situated processes and performances of remembering. Chapter 3 highlighted some unknowns about how people adapt their photographic practices and remembering activity to the contexts in which they take place. I have summarised this area of enquiry through the following, simple-sounding, but actually very complex, research question:

*How do people use photography to remember experience?*

This broad question was broken down into the following, more specific questions:

- 1. What is important in determining how people remember with photography?*
- 2. What roles do photography practices play in remembering?*
- 3. To what extent do features of technology determine how people remember?*

#### **4.2 Epistemological issues and this thesis**

Memory and knowledge are intimately linked. In this thesis, ideas of reality, truth, and objectivity are closely examined. In considering different arguments, counterarguments, and alternative explanations of memory, I have often found myself questioning my epistemological stance. This may be an important element of

studying memory. Some of the work of Michaelian (2011b), for example, that I have found useful, has involved presenting different epistemological views of an aspect of memory (forgetting, distortion, etc.). It is perhaps unsurprising that, in doing this research, my epistemological position has shifted as my understanding of how we remember and make sense of the world has changed.

A further point to note is that, while this thesis has been built upon a base of cognitive psychology research, it departs from that field in drawing on the theory of distributed cognition. Allowing research to cross traditions may open up new avenues of thought. Sutton (2010), for example, advocated studying cognition both “scientifically and culturally at once” (p. 328), claiming that non-scientific explanations can, particularly in complex situations, be more effective in producing understanding. However, a risk of crossing disciplines is that different definitions and methods can be difficult to reconcile (Keightley, 2010). To this end, a careful explanation of how my results relate to the literature across multiple fields is required. In Chapters 7 and 8, I have taken care to draw those multiple literatures together in a way that I hope is respectful to each discipline yet reveals productive contrasts and overlaps between them.

#### **4.2.1 *Memory, photos, and reality***

A challenge for this chapter is to present a defined position that allows readers to judge the extent to which my conceptualisation of memory is consistent with the different arguments presented. To begin with, my discussions of memory accuracy have implications for the possible realities against which accuracy can be judged. For instance, Wells et al. (2014) argued that memory creates an understanding of the world based on subjective experience:

Memories are not of objective external events—“reality”—rather they are of our experience of reality. Our experience is the mind’s nonconscious and conscious construction of reality. Memory details are the product of constructive and attentional processes active during the actual experience and also later during their consolidation in long-term memory when they become

integrated with existing autobiographical memory knowledge structures.  
(p. 1259)

This is a perspective in which only subjective experiences of reality can be remembered. If this is the case, then what we know of the world must be based on subjective experience rather than objective reality. An implication of this view might be that, without recording our full, subjective experience, technology cannot completely remember experience for us. We must interpret what it does record such that it makes sense in relation to our experience of reality.

At the same time, in considering memory as adaptive and primarily for guiding future action, I have adopted ideas based on the theory of evolution, which suggests an underlying, shared reality that governs biological development. Similarly, the notion of an indexical link between photograph and reality (discussed in Chapter 2) seems to support this view, where elements of that reality can be captured in a photograph and recognised by different people, even if their perception of it is not identical. Consider Barthes' well-known quote: "I call 'photographic referent' not the optionally real thing to which an image or sign refers but the necessarily real thing which has been placed before the lens, without which there would be no photograph" (1981, p. 76).

My understanding of both the theory of evolution and the indexical link must be reconciled with my portrayal of memory and knowledge as materially and socially distributed and dynamically constructed. It must also make sense alongside my assumption, aligned with the comments of Wells et al. (2014), that people do not have *direct* access to a shared reality but an understanding of it that is always meaning-laden and contextual. Ultimately, for me, this comes down to a practical point: although it is impossible to know whether different people can have an exactly identical and direct understanding of reality, it is reasonable to say that we often behave *as if* we do. As I will go on to discuss later in the thesis, people can see photographs as unrealistic and subjectively understood and, at the same time, they can use them as if they were objective holders of truth. It is this latter capacity that

gives photographs a general sense of reliability that, in many circumstances, seems to be justified by virtue of not being contradicted. On those occasions in which photos are seen to be discrepant with other, convincing evidence, their subjectivity rises to the surface and they can be seen differently.

Thus, while I have taken our understanding of reality to be constructed, I do not accept that all ways of understanding are equally valid. There is a danger in assuming that because experience and understanding are influenced by prior knowledge, we are living in entirely individually constructed realities, that social activity can only be understood in relation to its specific context, and that understandings cannot be compared across contexts. For me, our individual realities are made up *mostly* of broad social consensus. In the main, we behave *as if* things can be objectively known and *as if* we are all talking about the same things. Only when there is disagreement does the constructed nature of things become visible.

However, dealing in constructs allows us to question, even after thousands of years of studying a particular thing, whether that thing really exists as we have conceived of it. This allows for the possibility that there are better ways to think of it. Memory is an excellent example of this. As Chapter 3 showed, it has been thought of differently at different points in history (see also Tulving [1979] for a review). None of these changes in the way we have thought of memory have shifted any fundamental, underlying physical reality of memory. Instead, they have simply allowed us to look at it and understand it in different ways that, hopefully, are slowly bringing us closer to being able to make useful predictions about how we experience the world.

For Tulving (1979), the purpose of memory research was to refine theories such that they better explain what happens when we remember. For him, each new development constituted a more useful approximation rather than a truth. Though I believe Tulving to have taken up a different philosophical stance from mine, I share this belief that the validity of a view relates to the extent to which it is useful and is convergent with the ways that different people experience the world. To me,

constructs are not independent and endlessly flexible but are based on social consensus and empirical evidence. The research presented in the literature review, much of which is based on measurements of aspects of memory, is useful because it helps to explain our experiences and observations rather than because it reveals actual truths about the world.

The philosophical position from which I approached the design and analysis of the two studies presented here has itself been examined through the production of this thesis. My stance on how we understand the past and present is implicit within the discussion of how my participants remembered, and I attempt to draw out elements of this more explicitly when reflecting on my findings. To go into too much detail here would involve jumping too far ahead, to argue for my conclusions without the support of my analysis and synthesis of the data. A further discussion of epistemological issues, with the benefit of hindsight, having done the studies, can be found in Chapter 9.

### **4.3 Studying memory**

Although the studies cited in the literature review have been extremely useful in establishing an understanding of important aspects of memory, there are a number of important limitations to the way memory has typically been studied in cognitive psychology. Firstly, what should be remembered has often been chosen by the researchers, rather than the participants, and there has been a heavy reliance on remembering word lists, rather than meaningful experiences (Cohen & Conway, 2008; Tulving, 1979). Along with this, there has been insufficient attention paid to the context and conditions in which remembering has been studied. Single instances of remembering have frequently been studied in isolation, often with short intervals between encoding and retrieval. In contrast, several researchers have highlighted the importance of ecologically valid (situated, complex, naturally-occurring) memory research (Cohen & Conway, 2008; Neisser, 1978). It can, of course, be argued that all remembering, including the kind that happens in experimental studies and

interviews, is ecologically valid as long as the ecology in which it occurs is appreciated within the analysis, conclusions, and reporting.

Relatively recently, there has been a shift towards studying more complex aspects of autobiographical memory that relate more closely to our day-to-day activities. At the same time, a number of tools have been produced to measure phenomenological characteristics of memory output, including the Autobiographical Memory Interview (Kopelman et al., 1989), the Autobiographical Memory Questionnaire (Rubin et al., 2008), and, perhaps most influentially, the Memory Characteristics Questionnaire (MCQ). Developed by Johnson et al. (1988), the MCQ has been used to investigate the effects of true or false memories (Laney & Loftus, 2008); emotional valence (D'Argembeau & van der Linden, 2006); belief of accuracy (Rubin et al., 2003); reality, virtual reality, and imagined experience (Hoffman et al., 2001); and rape and other negative life experiences (Boesch et al., 2001; Koss et al., 1996).

Despite featuring in studies by prominent memory researchers, some scholars suggest that the validity and reliability of such tools remains unclear.

Phenomenological measures of memory characteristics are problematic because they cannot be compared between two people without a clear benchmark. Loveday and Conway (2011), for example, pointed out that an individual's perception of "vividness" of recall is not only subjective and changeable but influenced by that participant's understanding of what counts as vivid. Further, self-reporting carries an assumption that the memory is still accessible after it has been remembered. If self-rating the qualitative aspects of an instance of episodic recall involves asking participants to re-remember it and concurrently analyse this experience of recall, they are producing a report that is actually a best guess about the original remembering experience. As I found when conducting a test of the MCQ, a further issue is that these tools can, themselves, be powerful aids to remembering and the associations that are evoked in answering the questions can aid remembering in subsequent questions, influencing the characteristics that are being measured.

#### 4.4 Interviews

Tools like the MCQ can help us think about a range of aspects of memory, but the measurement of memory through such means is problematic. Instead, the interview was chosen as a way of exploring accounts of the behaviour, experiences, motivations, and beliefs of the participants in relation to photography and memory. I have attempted to negotiate memory, not as something that can be extracted and studied, but as something that is realised in interaction and can be articulated to others in some form of expression, such as a narrative. I do not see this expression as the memory itself, but nor do I believe that there *is* a “memory itself.” Memory is characterised here as activity, realised through talking, practising, and experiencing. Further, the troublesome distinction between true and false memory, which might impact on the perceived reliability of the accounts produced in interview, is negotiated by taking the position that all memory is false to some extent (Conway & Loveday, 2015) and that memory may also be understood in terms of coherence with other beliefs or in terms of “narrative truth” (Neisser, 1981) in which accuracy is not critical beyond what is required to serve a functional purpose.

In each interview, I asked participants to talk about some of their photographs as stimuli to memory and conversation. In Study 1, participants provided me with their full set of photographs from a wedding. In Study 2, participants selected—during the interview—a range of photographs for discussion. My understanding of how photographs contribute to remembering is relevant both for my analysis and for my approach of conducting photo-elicitation interviews. Photo-elicitation is based on assumptions that this thesis brings into question: that photographs increase the accuracy of recall and that photographs increase the emotive connection to prior experience (Harper, 2002). Collier (1957) did a controlled study aimed at examining such assumptions. He found that using photographs produced accounts that were much more precise but also more focused on the content of the photographs, suggesting that the selection of photographs plays a significant role in the outcome of the interview. It seems that, in Collier’s study, photographs produced more precise (though not necessarily more accurate) information at the cost of freer association and certain kinds of intuitive or reflective insights.

As well as helping participants to remember, photo elicitation is thought to aid communication between participant and researcher by providing a common frame of reference to talk about (Cupchik, 2001). This was probably the most important reason for using photo elicitation in my research. It would have been strange not to look at the photographs we were talking about and they provided much needed context for me to make sense of the participants' accounts. Nevertheless, the question of whether using photos as prompts produced richer, more accurate, or somehow more valuable information is very close to the area of enquiry of the thesis itself, and the same challenges that my participants faced in relation to remembering with photographs would presumably be present within this research process.

As part of my preparation for interviews, I conducted a pilot with one of my supervisors. This was useful in highlighting a number of issues that I was likely to face with my participants. The most important of these related to the nature of talking about photographs. For example, photographs could distract participants from the line of enquiry because telling the story of the photograph was easier and, possibly, more interesting than discussing how the photograph supported the remembering of that story. The pilot interview also showed that it was important to impose a clear structure around participants' selection of photographs because it was tempting to start talking about particular photos as they browsed during the process of selection. The risk was that, without careful monitoring, there might be insufficient time to discuss their choices and reflect on the beliefs, motivations, and practices relating to these selections. The pilot interview also highlighted practical issues, such as the challenges of audio recording while moving around different parts of a participant's house (relevant for Study 2).

#### **4.4.1 Research materials**

I transcribed all interview recordings from Study 1, and used a transcription service for Study 2. This was a pragmatic decision to save time that could be used instead on analysis and writing up. While transcription involves paying close attention to the

data, there is no clear evidence that this produces a better overall sense of the data for everyone. From my experience, transcription is a stilted, stuttering process of listening, pausing, and typing un conducive to clear thinking or oversight of what has been said. My process of listening to recordings without having to type, then pausing to write down a potentially useful thought, seemed to me to better facilitate familiarisation and analytical thinking. Ross (2010) argued that the process of transcription involves important choices that impact on the meaning taken from the transcripts, and so it is possible that having someone else transcribe might introduce important differences. In an effort to mitigate this, I checked each transcript against my own understanding of the interview during the process of familiarisation (see 4.6 Data Analysis). Rather than having two different styles of transcription within the thesis, I converted the excerpts into a style consistent with Study 1. It might be argued that what appears in the thesis is not what was analysed. However, the differences between the styles were very minor (examples of each style can be seen in Appendix 6). It is also worth considering the value to me, as a novice researcher, of seeing another style of transcription and understanding the gains and losses of having someone else do my transcription.

In Study 1, I collected digital copies of participants' photographs. In Study 2, as part of my generation of research materials, I took photographs of participants' photographic media and devices. My earlier epistemological discussion is important to the extent that it might imply that the authority of photographs would be privileged above that of interview transcripts in terms both of the past that the participants described in interview and as indicators of the photography practices that they have engaged in. This tension, in fact, lies at the heart of this thesis: photographs as both support and competitor to memory. I return to this issue in Chapter 9. Here, I will simply acknowledge that as well as using participants' photos in the interviews to stimulate discussion, I used them to aid my own memory of the interviews and to support my analysis. Yet photos were not privileged above narratives. Following Keightley (2010), I was not concerned with hierarchies of data types but in how discrepancies and overlaps could inform new insights into photographic and remembering activity. My observations of the way that participants

interacted with their photographs were not directly analysed as part of my data, although participants sometimes described these interactions within their accounts. However, I acknowledge that my observations of these interactions necessarily had an influence on the way that I understood the interviews. A clearer account of these issues might have resulted from making observation a more explicit part of the research method.

#### **4.4.2 Retrospective accounts**

An important limitation of the interviews was that I could not be sure how the data corresponded to the actual events and behaviours being discussed. As van House (2006) wrote, “an enduring problem with interviews as a research method is the potential slip between reality and retrospective accounts” (p. 1464). The position I came to during the analysis was that I was examining potentially flawed retrospective accounts that were produced through actual remembering that took place in the interviews. This tension is discussed in depth in Chapter 9.

Just as the accounts given in the interviews relied on the memory of my participants, the analysis of the transcripts relied, to an extent, on my own memory. Along with photographs, the audio recordings and transcripts acted as references to what happened in the interviews, yet what I remembered and what I interpreted from them may be different from what another researcher would. Even if my remembering of the interviews was not radically different from how other researchers would remember them, the constructive nature of memory is a consideration that adds to the subjectivity inherent in the process of analysis.

While the decision to use interviews limited the number of participants and generated subjective accounts that relied on memory, I felt that the depth of the accounts produced was necessary to develop a meaningful framework that could explain the interconnecting functions and contexts of remembering. Indeed, asking participants to talk about past photographic behaviour was instrumental in uncovering what they could remember about the practices involved in the construction of and engagement

with their photograph collections. I was reassured by the fact that semi-structured interviews have been successfully used to elicit accounts of remembering practices in a number of studies that have influenced my thinking (Drazin & Frohlich, 2007; Durrant et al., 2009; Keightley & Pickering, 2014; Petrelli & Whittaker, 2010; Swan & Taylor, 2008; van House, 2011; Whittaker et al., 2012).

#### **4.4.3 Consent, anonymity, confidentiality, and emotional risk**

Every participant completed and signed a consent form (see Appendix 3) allowing me to interview them, to record and transcribe the interview, and to use anonymised transcripts in my research and excerpts from them in future publications. Before taking consent, I explained the aims and context of my research and clarified that participation was voluntary and that consent could be withdrawn at any time.

Consent to collect the participants' photographs and to use these to aid analysis was also asked. The possibility of using photographs in this thesis and in subsequent publications was raised prior to interviews, but I did not ask for consent at that point because I did not feel confident that participants could make a decision that took into account all of the photographs they might show me and all of the uses that I might put these to. Instead, I explained that they, the participant, owned the copyright for their photographs, that I would ask for consent each time I wanted to include any of their images in a publication or presentation, and that my research did not rely on the inclusion of these photographs.

A further risk was that it might not be feasible to obtain the permission of all people appearing in the photographs. The risk of publishing images of people without their consent or knowledge was, therefore, minimised through careful selection of which photographs to include, as well as the pixelation of faces where appropriate. For example, images with few people in the background, or in which precise details of those in the background are difficult to make out, were favoured for inclusion in this thesis over those in which many incidental people can be seen. Where faces were not important to understanding an image, they could be blurred using Photoshop. Further

checks were made with the owners of included photographs prior to publication to establish any concerns they may have on their own behalf or on the behalf of those shown in the photographs. This follows the British Sociological Association's (2006) *Statement of Ethical Practice* for visual research.<sup>3</sup>

In the transcripts, each participant was assigned a pseudonym and these were used in all references to individual participants. In Study 1, I used initials. In Study 2, I used false names, thinking that these were easier for the reader to relate to. I considered renaming those in Study 1 for consistency but I found it useful in Chapters 7 and 8, where both studies were discussed together, to be able to tell at a glance which study a participant belonged to. Recordings, transcripts, and photos were encrypted, password-protected, and stored on the University network. They will be retained until two years after the final acceptance of my thesis (expected viva date is 2017) to allow for any relevant outcomes to be published. Therefore, data will be kept until 2019 after which they will be destroyed. Concerns may be raised about anonymity and confidentiality when using a transcription service as I did for Study 2. Even though pseudonyms were used in filenames sent to the service, identifiable information may have been present within what was said. A service was chosen on the basis of its memorandum of agreement to preserve confidentiality and the quality of its security. Files were transferred over a 256-bit SSL-encrypted channel and stored on a secure server. The service automatically deletes audio recordings after a few weeks and the transcripts on request or after one year, whichever is sooner.

Although it is critical to preserve anonymity of my participants, at times, I found myself constrained by what I felt able to put into the thesis. My research involved personal accounts of people's meaningful experiences and some issues of a potentially sensitive nature arose. For example, there were mentions of unhappy or ended relationships, negative experiences and emotions, traumatic events or life

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<sup>3</sup> As it turned out, at the time of writing the thesis I did not feel able to include pictures of people at the wedding in Study 1, despite gaining consent, because I felt that—even with pixelation—they might deanonymise the event and, therefore, all of the participants and those they spoke about. However, a compromise had to be made as it was impossible to remove the images from the published paper which is included at the end of the thesis.

periods, etc. To protect the identities of my participants, I had to omit contextual details that might have helped readers to interpret my results and decide what conclusions could be generalised or transferred to other contexts.

The potential to discuss important life events brought with it other risks for the participants. In both studies, participants were warned that they could experience minor discomfort when discussing aspects of their past or in sharing personal photographs. They were not obliged to talk about painful or traumatic experiences, as these were not necessary to the development of a framework. I expected that those people who did not wish to discuss personal issues would not volunteer to participate in the study or would not select sensitive photographs for discussion. It was made clear that, should a participant become distressed during an interview, we would take a break before deciding whether or not to continue. At such a point, a reminder could be given that participants were free to withdraw themselves, their photos, and their interview recordings and transcripts at any time. Despite all of this, the risk that sensitive, personal experiences might arise unexpectedly in the interview conversations remained and this is discussed in more detail in Chapter 9.

#### **4.5 Population and sampling**

In Study 1, I interviewed six people about their practices around a shared event: a wedding. In Study 2, I interviewed 15 university staff about their practices in general and how these have developed over time.

Photography and memory are relevant to many populations. While photography was initially restricted to the elite and the rich (Jeffrey, 1981), technological evolution has brought with it a reduction in expense and a widening of access, almost to the point of ubiquity in some countries. For my purposes of exploring how different ways of engaging in photography might influence memory, any population with a reasonably diverse range of practices could make an appropriate place to begin. That is not to assume that everyone photographs and remembers in the same way, nor does it mean that the choice of population is unimportant (Polit & Beck, 2010). For example,

different groups are likely to differ in terms of access to technology, photographic literacy, cultural norms and taboos, etc. Yet there is no clear reason to think that the practices of one population will be more or less important than those of another in relation to establishing the roles that they play in remembering.

I could have chosen to explore the practices of children, teenagers, young adults, older adults, or parents. Ultimately, my choice was guided by practicality. The first study came about because I was able to gain the cooperation of a key participant who could arrange access to guests at their wedding. For the second study, I drew from a similar population, reasoning that this would make it easier to reconcile the results of the two studies and that sampling from existing networks would make recruitment easier. Since four of the six participants from Study 1 were professionally affiliated with a university, I chose to recruit from a population of university staff. More detail on these samples is given within the description of each study in Chapters 5 and 6.

Despite sharing aspects of socio-economic status and education, university staff are diverse in characteristics of cultural background, health, engagement with technology, etc. The age range of my participants (25-60) meant that all participants had experience of both pre-digital and digital photography, allowing insights into significant perceived differences between these categories. However, a criticism of this choice of both population and sample might be that it favoured convenience over a theoretical basis. This was mitigated to an extent for Study 2 by the fact that, while they might be considered a convenience sample of a wider population of interest, there were over 12,000 staff at the university in question at the time of writing. Although they did not all have equal chance of being recruited, the size of the pool of potential respondents meant that I was able to adopt a purposive sampling approach within this wider group. Qualitative studies often use a combination of sampling approaches to allow the researcher to be responsive, rather than prescriptive, in seeking the most productive approach (Marshall, 1996).

In Study 1, I interviewed the first six people who volunteered. In part, this was because I was unsure of my approach and wanted to begin by exploring whether this

event and these interviews would produce data that seemed useful. I also felt that those six represented a useful set of participants, including the bridal couple, the Best Woman, the professional photographer, and two guests. In Study 2, I recruited with the aim of creating a broad range of perspectives, or “maximum variation sample” (Marshall, 1996). After an essentially arbitrary initial sampling (I recruited via a message to a journal club that had nothing to do with photography), I began to purposively recruit participants who seemed likely to elucidate my emerging theoretical framework both by complementing it and by producing counterarguments to it (Marshall, 1996). This included people who felt they had unusual profiles in relation to photography<sup>4</sup> (deviant sample) and people who engaged in specific practices (critical case sample), such as constructing physical albums. Using a varied sample, in terms of engagement with photographic practices, provided a breadth of ideas for developing the theoretical framework.

An important trade-off in conducting interviews is that, due to the time required for transcribing and analysing rich interview data, it is not practical to include a large sample. Rather than reaching theoretical saturation (Morse et al., 2008), I stopped at the point where more data would have made it too onerous to analyse the complexity across my interviews to a satisfactory level. Regardless, to me, theoretical saturation is a troublesome concept because, rather than indicating that all important ideas have been found, it might suggest that the researcher has run out of ideas or energy. Equally, while there may be no new codes worth applying, there may still be important ideas to understand about the codes that have already been applied (Hennink et al., 2016). For the purposes of my research, I believe that the diversity of views and experiences of my participants was sufficient. In combining the sampling processes discussed above, I was able to build a theoretically-informed sample (Barbour, 2001) which I hoped would increase transferability to other contexts (Polit & Beck, 2010). The extent to which this is the case is discussed in Chapter 9.

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<sup>4</sup> An issue with this is that it may actually be common to feel unusual.

#### **4.5.1 My position in relation to participants**

Alongside convenience, recruiting through my own university networks for Study 2 simplified the establishment of trust and rapport (McConnell-Henry et al., 2010). This is essential for effective interviews (Cousin, 2009) and may be even more important when discussing personal memory. However, in such situations, clarification around the role of the researcher is critical (McConnell-Henry et al., 2009). I made clear my position within the university and reassured participants that the selection of photographs and stories they told in the interview would be left up to them and that these should relate to their personal, rather than professional, life. Although they may, within these parameters, have chosen to talk about issues relating to their work, I did not anticipate any need to talk about issues to do with their professional capacity that they might find uncomfortable or compromising.

In general, I avoided interviewing colleagues with whom I have any direct working relationship, hoping to reduce the likelihood of power relationships with my participants or political motivations (McConnell-Henry et al., 2009). I did, however, allow one exception. In the wedding study, a key participant (referred to in this thesis as JI) was well known to me and was acquainted with my research. She had been party to a number of early discussions in relation to this thesis and her preconceptions may have influenced both her own responses during interview and the selection of wedding guests she recommended for interview. This familiarity allowed me to discuss with her the research design and the sensitivities, ethics, and logistics of carrying out a study of her wedding. It also helped me, I believe, to build a rapport with the participants more easily than if I had been a complete stranger. Thus, while interviewing someone I already knew well risked increasing my influence on the data, I believe that this risk was outweighed by the overall benefit to my research of securing the wedding as an event for exploration.

## 4.6 Data analysis

### 4.6.1 *Framework analysis*

Developed by the National Centre for Social Research, framework analysis is a systematic variant of thematic analysis that focuses on making the analytic process clear so that readers can follow how the reported results were produced from the data (Gale et al., 2013), including how the full set, rather than a selection, of data was dealt with. Both a priori and emergent themes can be included, which allows an initial framework to be validated in terms of “fit” with real world cases through application to the data. This method allows for both within and between case comparisons, meaning that I was able to observe and compare different behaviours by the same person in different contexts, as well as by different people under similar contexts. Since I had derived categories of photographic practices and some conceptions of influencing, contextual factors from the literature, framework analysis seemed like a systematic way to test and develop my ideas against the data.

According to Lacey and Luff (2007), framework analysis consists of the following five steps: familiarisation with the data; identifying an initial thematic framework; indexing (coding data by identifying transcript sections that corresponded to the themes in the framework); charting (evidencing themes by placing coded excerpts alongside them, allowing a thematic view across interviews); and mapping and interpretation (visualising themes through diagrams, searching for patterns, and generating theory. Rather than following these in a linear fashion (e.g. by generating data before starting the analysis), data generation and analysis were performed concurrently and the initial framework was revised as new data revealed gaps and redundancies. See Appendix 7 for snapshots of each of the five steps.

Immediately after each interview, I noted down ideas about what the participant had said and done. This informed my understanding of how the different excerpts of a particular interview related to each other and helped to guard against drawing conclusions about a person’s general attitude or behaviour from single excerpts viewed out context. This process also informed productive lines of questioning for

the next interview. As such, it did not make sense to familiarise myself with all data before producing an initial framework. Instead, for each study, I developed an initial thematic framework from existing ideas and from the literature before engaging in familiarisation. I drew these frameworks up in Microsoft Word and they formed the basis for coding the transcripts. These initial frameworks, as well as an example of post-interview notes about each participant, can be seen in Appendix 7.

For Study 1, I began the process of familiarisation with each interview by transcribing. For Study 2, I employed a transcription service and familiarisation began by reading through the transcripts, only listening to the recording to check or correct sections that seemed to warrant it. After this initial difference, the process of familiarisation was consistent across interviews in both studies. I familiarised myself further with each interview by reading through the transcript while listening to the recording. As I did this, I looked through the relevant photographs to reinforce associations between the sounds and images of the interview experience. I hoped that this approach would help me to remember some of the experiential aspects of the interview when I was later dealing with the text of the transcripts. I did not code the transcript at this stage but wrote general memos in Microsoft Word (see Appendix 7 for an example of familiarisation memos).

Once I had familiarised myself with a transcript, I began indexing, in Dedoose according to the framework. Dedoose is an alternative to the more prominent Nvivo qualitative analysis software. It allows a flexible view of the codes that have been applied and makes it relatively simple to modify those codes. It also makes it easy to see what codes have been applied to particular excerpts and what excerpts have been associated with particular codes (see Appendix 7). I started out being overly inclusive in the codes I would apply. It was easier to go back and remove and merge codes than to add new ones, although this was unavoidable to some extent as it was possible to forget about potentially relevant codes as my mind focused on particular aspects of the framework at particular times to the neglect of others. An alternative approach might have been to code each transcript according to a particular subset of

codes and to then go back and code according to the next subset, but such an approach might limit the application of ideas that sat outside of those subsets.

In each study, the evolving framework was used to listen for particular behaviours, influencing factors, motivations, etc. It was a way of organising but not necessarily interpreting the data (Parkinson et al., 2016). Keeping an open mind and not forcing data to fit existing categories was important for producing an analysis that might inform research into other contexts (Cousin, 2009). At different intervals, I would chart particular codes to see whether interesting patterns could be identified. I normally did this after reaching the end of a transcript during the indexing process and this gave me the opportunity to review the coding framework. I also checked the co-occurrence of codes to look for relationships and redundancies (where one code was adequately covered by another). In such cases, I checked to see whether this relationship seemed to exist across participants or mostly within one, and whether the distinction should be preserved or the difference in that particular participant's account might prove to be informative in some way.

Charting was done mostly in Dedoose, but twice per study I exported all excerpts, organised by code, into a Microsoft Word document. This allowed me to review the extent to which my coding had been consistently applied across interviews and whether I should add or remove any categories. I added memos in the form of comments to the text. By changing applications, I was able to view my coding from a somewhat different perspective, albeit one constrained by the features of Word rather than Dedoose. During each of these reviews, a number of new codes emerged. Through this iterative process of analysis and review, the codes of the framework continued to be refined until all transcripts had been analysed. Appendix 7 provides a snapshot of these different analytic processes.

#### **4.6.2 Mapping, interpreting, and writing: from analysis to reporting**

Framework analysis is based on the premise that its process makes it easier for readers to follow what the researcher has done and how conclusions have been

reached. However, a risk of framework analysis that I felt during Study 1 was that it can lead the researcher to try to force every aspect of the data into categories. I felt that it was useful to consider the data in relation to the established categories (e.g. by asking to what extent a particular excerpt fits with these categories and why) but not to categorise everything. As Cousin (2009) warned, exceptions are an important part of generating theory, including particular instances in which a participant or circumstance resists categorisation.

Further, I found that after I had completed the first four stages of framework analysis, the final stage—mapping and interpretation—was not clearly bounded or transparent and my ideas continued to develop throughout the process of writing the thesis. Ultimately, the “systematic and visible stages to the analysis process” (Lacey & Luff, 2007, p. 13) promised by framework analysis were, for me, insufficient. While framework analysis helped me to organise and support the way I understood my data, I felt that it also limited the depth of this understanding.

In writing about the results, I came to understand the gaps and weaknesses in my analysis and took steps to address them. The same was true for Chapters 7 and 8 as I returned to the literature to contextualise what I had found. This, for me, was not a flaw in my approach but an essential part of my process of sense-making. Writing allowed me to reach further in my thinking, building on the systematic but heavily constrained process of framework analysis to construct a richer and more meaningful synthesis. I have included the final frameworks in Chapters 5 (Study 1) and 6 (Study 2) in the interests of transparency, but I must acknowledge that the presentation of the results diverges from these by virtue of the structure of the chapter and the links between ideas that emerged during my writing process. By having an imagined audience, writing helped me focus not on what was prominent within my data but what was most important, interesting, and relevant to my research question. The implications of this for the research are explored further in Chapter 9 where I also consider the limitations of my analysis and the particular challenges of coding excerpts in relation to my frameworks.



## **5 Study 1. A complicated marriage: memory and photography of a wedding**

### **5.1 Methods**

#### **5.1.1 Aims**

The first study was designed to understand more about how people approach the photographing of events they wish to remember. In Chapter 3, I identified a need for empirical research into the diverse ways in which people engage with photography practices and their connection to autobiographical remembering. As such, I wanted to explore photographic behaviour and remembering that took place in a setting with limited influence from my research framework and where participants were not aware that they would be asked about the experience later. The best way to achieve this seemed to be to ask people about something that had already taken place, where photographs had been taken and then shared with others. By interviewing people who attended the same event, I could understand how different people's practices related to each other and how different aspects of the event led to different practices of photography and remembering for different people.

This study relates to the overall research question by first establishing the different kinds of practices of photography relating to an event, then investigating the role of these practices in remembering experience (research question 2). The study begins to address the first and third research questions by considering how different functions of technology are appropriated and the extent to which practices are influenced by the context in which they are performed.

#### **5.1.2 Setting and participants**

A civil partnership wedding, held in late 2010 in the United Kingdom (UK), was chosen as an event to explore the relationship between photographic behaviour and remembering. The wedding was a self-contained event where all participants were involved in a common set of episodes (ceremony, speeches, dinner, dancing, etc.),

allowing me to explore the diversity of when, how, and why people took photographs within a similar setting.

Eighty guests attended the wedding ceremony and another 20 evening guests attended only the reception. Eighteen months later (early 2012), six participants provided their collections of photographs of the wedding and, using these as a stimulus, were asked about how they came to have these photographs, what they had done with them, and what it had been like to engage with them through various technologies. Participants included the bridal couple (JI and AE, both women), the official photographer (KA, known to the bridal couple but paid to take high-quality photos of the occasion), a couple who attended as guests (YS and IO, who was the “Best Woman”), and another guest (PJ) who was not part of a couple. This sample was chosen for convenience and, although it provided a variety of perspectives within the wedding, it was a homogenous group in terms of gender (all female), age (30-45 years old), and socio-economic status (well-educated, professional). Table 1 provides characteristics of each participant.

**Table 1: Characteristics of participants at time of interview (Study 1)**

<b>Name</b>	<b>Occupation</b>	<b>Nationality</b>	<b>Living Status</b>	<b>Role at wedding</b>	<b>Children</b>	<b>Interview location</b>
<b>JI</b>	IT	Europe	Couple	Bride	No	Home
<b>AE</b>	Researcher	UK	Couple	Bride	No	Home
<b>IO</b>	Lecturer	UK	Couple	Best Woman	No	Office
<b>YS</b>	Health professional	UK	Couple	Guest (with IO)	No	Office
<b>PJ</b>	Lecturer	UK	Single	Guest	No	Office
<b>KA</b>	Photographer	UK	Single	Professional photographer	No	Office

### **5.1.3 Interviews**

Interviews lasted between 30-60 minutes, depending on the flow of the conversation. Semi-structured interview scripts evolved during the study as it became apparent what sort of questions generated the most productive responses. Example questions can be found in Appendix 4. One interview was shared between two participants (IO and YS) for their convenience. This turned out to be important because, while all interviews involved social exchange between participant and researcher, the shared interview demonstrated remembering as a social exchange between participants. Implications of this shared interview are presented in Chapter 9.

Each participant also gave me their full set of digital photographs from the wedding, consisting of both photographs they had taken themselves and those given to them by others. Counting duplicates, I collected a total of more than 4,000 photographs across all participants. This included 2200 from the professional photographer (participant KA) as well as those collected from other, non-participant guests. Only three of the participants (KA, YS, and PJ) had taken photographs during the wedding.

Participants were given the choice of location for interview, provided it was a quiet space and we could access their photographs. Four participants (PJ, IO and YS, KA) were interviewed in my office. JI and AE were interviewed separately within their home. The main difference between the office and the home setting was that the home seemed to have a more relaxed and familiar atmosphere for the participants. The office setting involved each participant (or, in the case of the shared interview, both participants) sitting beside me in front of a large-screen (27 inch) iMac computer. In each interview, we looked at a large number of photographs. I had pre-loaded the photos they supplied into iPhoto. In the case of the home interviews with JI and AE, we used their shared Mac laptop with their own version of iPhoto. Participants selected which photographs we looked at in more depth. On their own laptop, JI and AE each operated the computer themselves. On my iMac, each participant decided whether they would operate iPhoto or simply point out how they wanted me to navigate. In all cases, this turned out to be a shared process where sometimes I would have the controls and, at other times, participants would have the

controls. In the case of the shared interview, IO did not operate the computer but made suggestions about which photos to look at.

Participants were asked about how they had come to have these particular photographs in their collection and what they had done with them. A particular emphasis was placed on how photographic practices contributed to their remembering, and this was understood both in terms of the reflections of the participants and via the construction of memory narratives during interview.

## **5.2 Results**

The analysis generated a framework (Table 2) of photography practices, motivations behind these, the contextual factors that influenced them, and the ways that photography supported the construction of memory narratives during the interviews.

### **5.2.1 Practices**

In discussing photographic behaviour with participants, it was clear that photography concerned more than just the taking of photographs. There were many other, relevant photography practices, including putting photographs into physical or digital collections, editing, deleting, annotating, viewing and sharing. Photographic behaviour was mapped to four categories of practice derived from the literature: capturing, organising, sharing and viewing. These categories were generated at the start of the analysis and changed very little,<sup>5</sup> although my understanding of them and how they related to remembering evolved significantly.

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<sup>5</sup> “Viewing” was originally called reviewing, but I felt this sounded more effortful and attentive than was necessarily the case.

**Table 2: Study 1 final framework**

<b>Practices</b>	<b>Interaction with photographs</b>
Capturing	Taking photos
Organising	Sorting, copying, deleting, editing, annotating
Sharing	Showing or distributing photos, talking about photos
Viewing	Looking at photos
<b>Motivations</b>	<b>Purpose of interaction</b>
Memorial	To remember the past
Communicative	To communicate about the present
Creative	To contribute to a project or express creativity
<b>Contextual factors</b>	<b>Barriers and drivers to behaviour</b>
Technological	Design and functionality of media, software, and hardware
Cultural	Conventions, social pressures, formality, privacy
Economic	Time, money, storage capacity
Environmental	Lighting, movement, obstacles
Idiosyncratic	Competence, reluctance, loss aversion
<b>Cueing Processes</b>	<b>Ways that photography informed memory narratives</b>
Recognition	Recognising as familiar, people, settings and objects within a photograph
Cued recall	Episodic or semantic recall prompted by photographic stimulus
Remembering photography practice	Producing memory of photographic behaviour
Inference	Deducing narrative details from information in or relating to photo
Revelation	Learning new details from photo

## Capturing

Only three of the six participants (KA, YS, and PJ) had taken photographs at the wedding. For those three, capturing was the practice they spoke about most and this seemed to reflect the large number of photos taken. A common goal of photography at the wedding was to capture intangible and ephemeral aspects, such as “moments” or “the essence” of the event. This was generally expressed in terms of preserving, within a photograph, subjective qualities that conveyed meaning beyond the activity portrayed. There were a variety of strategies in the service of this goal. For KA and YS, for example, this involved taking photographs of natural action rather than posed or staged scenes:

*KA: I don't like posed photographs because I don't think it captures the essence of what's going on.*

*YS: Very often the shots where people aren't looking at you tend to have a quite a good outcome because it's not such a staged photograph. It's more of a — you're catching a moment in time.*

Though capturing an essence or a moment was generally expressed as a desirable outcome, there were times when captured moments provoked a negative reaction. It seemed that some moments should not be preserved within the photographic record:

*JI: You know you get that moment where she would, like, capture something where, 'Oh god, that is my mum stressed', or something like that.*

Within the wedding, some things seemed more likely to be included in the photographic record than others. To an extent, this could be attributed to how conducive situations were to being photographed. For example, it was difficult to produce good photos that involved moving people or low lighting. There were also times when photography was socially appropriate (e.g. the speeches) or inappropriate (e.g. JI did not want pictures taken during the meal). There were also times when technology did not work as expected. YS had been unable to take what she considered to be a good photograph of the signing of the register. Despite being disappointed, neither she nor IO considered collecting photos of this important

moment from other guests. They claimed that this was not necessary because they could remember the experience:

YS: *There was a bit of a bombing out of the camera for the signing of the register which is a bit of a shame — I'm slightly disappointed because I wish I had them. But I wouldn't seek to complete the library by going out to get some.*

IO: *Yeah, and I just wouldn't think of it. I'd just look at the ones we had and think, 'Oh, we didn't get a good one of them signing the register.'*

It was notable, however, that difficulties did not always lead to fewer photographs. Indeed, they may sometimes have resulted in more:

YS: *The camera settings don't ever seem to work as well indoors as outdoors, which is why sometimes there are so many, cos you try and catch the one that isn't slightly blurred.*

In general, the capturing of important aspects of the wedding seemed to be achieved not through an intentional and systematic approach but through taking a large number of photographs and then recognising important moments after the fact. Similarly, producing aesthetically-pleasing images seemed, for the three participants who took photographs, to be approached by prolific photo-taking:

PJ: *There's an awful lot in here but I think that's the nature of this type of photography — you assume most of it's going to be rubbish or not mean much to anybody, but there might be just a few pictures that end up being important.*

IO also spoke of the difficulty of judging what would be important later, indicating that the quest to produce salient images could be approached via unselective and indiscriminating photo-taking:

IO: *The situation where I'd take 500 photos is where I'm anxious about missing 'the good photo.' So you take 500 photos to compensate for that. Whereas if you're confident that you know that you're capturing moments you only need five photos. But who knows what turns out to be the photo you look back at and go, 'Oh, yeah, that was the key.'*

In fact, IO did not take any photographs, nor did the other two participants with key roles in the wedding: JI and AE. All three claimed not to habitually take photographs but, perhaps more importantly, they were too busy during the wedding. Their central roles also meant that they were highly visible and extensively photographed.

Photography seemed to be thought of, at least by JI and AE, as external to the experience of the wedding. Part of the role of photographers at this event was to be unobtrusive or, if possible, invisible. For JI, on her wedding day, the risk was that photography would intrude on the experience of those being photographed. She expressed the tension between capturing aspects of the day and allowing herself and her family to experience the wedding without intrusion. She had specifically asked KA - the professional photographer - to be as inconspicuous as possible:

*JI: All [KA] needed to do for me was not be seen all day and she did that beautifully. I promised my family the photos for the family would take minutes. I don't know if there is a timeline at the back end of any photos, but if there was, you would see there is about seven minutes. That was it. They put their drinks down on a wall. Photos. Back up. That is the photographer I wanted. That is what I got.*

KA had tried not to be photographed at the wedding. Her own desire, and that of JI, that she be invisible during the event, extended to being absent from the photographic record, suggesting that she was not considered a legitimate part of the wedding. PJ, who did have a photograph showing KA, explained further:

*PJ: So this one does capture the official 'match photographer', KA, in the background there. She's great about getting into little corners and taking really interesting photographs of people, but she's not often photographed herself — which is exactly what you want someone to be — capturing everything but unobtrusive.*

KA was mindful of photography's potential to be intrusive. She had photographed what felt like a private moment between two guests yet rationalised that the physical distance between the camera and its subjects reduced the intrusion. This suggests that she felt that it was not the taking or subsequent sharing of the photograph that was

the more problematic aspect, but the potential disruption of the lived experience; of the moment being photographed:

*KA: I felt a little like I was intruding, I have to say, but I took it anyway — I felt that I was far enough away that I wasn't going to be intrusive.*

In the following excerpt, PJ described AE and JI smiling and posing for the cameras in front of them while betraying a different attitude to those who could see them from another angle, demonstrating the sense of performance that was sometimes brought about by the taking of photographs:

*PJ: You could see there was a lot of private chat going on between them as well. It's interesting because the front of their bodies were doing the smiling and the public face but there was quite a lot of — yeah, they were sort of holding hands and things and stuff that was actually more visible from the back, little intimate things that were more visible from the back than the front. So sometimes the back of people can be as interesting as the front of people.*

Photography could also disrupt the experience of those doing the capturing. For example, AE felt that acting as photographer could distract her from feeling part of the moment:

*AE: I gave up ages ago taking lots of photos cos I get distracted from being present at the event by the fact of taking and framing photos.*

KA's role, and to some extent the role of photography in general, was to capture moments without becoming part of them. However, the appearance of KA in PJ's photograph collection and the ability of participants to recall the circumstances of taking photographs provide clear evidence that photographers and photography were part of the event rather than passive, external recorders of it.

## **Organising**

The extent to which participants had organised photographs of the wedding in ways that facilitated future sharing or viewing was limited. There had been some attempts

at integration into larger photographic archives and some selection of images for later use. Organisation, rather than capturing, seemed to be where selectivity was exercised. Photos were chosen for display, to put into thank you cards, or for use in creative projects. Looking through photographs or organising them almost always occurred in response to a social trigger. For example, the deadline of a party helped JI and AE organise their photos into a slideshow:

*JJ: Just after the wedding, we uploaded everything onto this laptop and brought [it] on honeymoon. We wanted to show those that didn't attend at a party in Ireland a week later. So there was a deadline on us.*

While most participants spoke of having had intentions to sort, annotate, or delete photos, these practices had rarely been carried out. Such practices seemed to require social pressure, without which, intentions were not realised:

*PJ: At some point, I probably should just delete [my 'rubbish' photos], but, you know...*



**Figure 3: A 'rubbish' photo.**

There were times when particular aspects of organising were simply not considered to be worthwhile, as summed up by YS in relation to the annotation of photographs: “Oh no, life’s a bit short for that.” In many cases, the investment of time and effort required was too much, even for JI and AE:

*AE: KA did offer to make us up a book, but we were like, ‘No, it’d be nice to do it ourselves, make sure we’ve got all the people included.’ Have we done it ourselves? No, we haven’t. Hopefully we will get to do it at some point.*

AE had felt that she and JI should construct a wedding album themselves, rather than have it done for them. This stemmed from a desire to feel a sense of ownership of the resulting album, as well as a desire to configure it to what AE felt was important in terms of her understanding of the event and the guests. Participants generally seemed to aspire to organising their collections but rarely engaged in such practices due to constraints of the time and effort required, particularly in light of the large numbers of photographs that had been taken.

### **Sharing**

Another important aspect of photography was showing or distributing photos to others. Like organising, sharing tended to be reported as taking place in response to a social trigger. Sometimes, photographs were shared to provide access or to contribute to a larger collection, with very little attention paid to viewing. For example, the day after the wedding, a number of guests visited JI and AE and copied their digital photographs onto JI’s laptop without looking at the images. Most significant instances of sharing, however, were directed at facilitating the viewing of photos by others. AE described a significant form of coordinated sharing that took place at the party after the wedding:

*AE: The week after the wedding we [had a] family event because the kids hadn’t been at our wedding and at that event we put, like, the first cut of [KA]’s photos — just all of them without having sorted them at all — on the projector and just projected them, which was really great fun actually*

*... we got all sorts of random stories from different people ... Different pictures tweaked different memories for people.*

For AE, sharing in this format was very engaging because it led to storytelling. Further, this sharing of photos and stories allowed people who had not been at the wedding to form an externally-sourced memory of it. In contrast to the rich social interaction that occurred around the slideshow, when JI uploaded images to the photo sharing website Flickr ([www.flickr.com](http://www.flickr.com)), no subsequent communication was apparent and JI had little interest in whether people had looked:

*JI: I don't really know from that who actually went online ... I actually never looked at views on my set, I didn't care, really, who viewed what.*

Flickr was simply a channel for providing access to shared photos after the wedding. A more selective and potentially significant form of remote sharing involved the inclusion of physical photos (along with a link to the Flickr collection) in thank you cards sent out to the wedding guests:

*JI: In the thank you cards everyone got photos printed — a photo, two photos, three photos — not like — 'Here's 25 photos' ... cos in every thank you card there was a sticky that just said 'the photos are online at this URL.'*

Through sharing practices, different participants ended up with copies of the same photographs. Some of these seemed to gain exaggerated prominence, presumably through the conversations that emerged. For example, a particular photograph taken after the onset of rain had caused the ceremony to be moved inside, showed the bridal couple walking in as the sun reappeared and shone down through a skylight. This photograph was emphasised in the accounts of different participants and had taken on pronounced significance for JI and AE because of the moment that it had “captured” and its unlikely source:

*JI: It is the one shot that the sun is just coming in via the light. And she took like no other photos that are worth really keeping — But this photo makes me smile because it is, like, the person that took this photo and*

*just, like, the chance that this is a photo that we really like. It wasn't front of thank you card stuff, but it is a beautiful photo of us ... She had to get her settings fixed later and everything. But it makes me smile.*

*AE: Almost all of her photos were blurry and totally unviewable, but ... this one she got as we walked in to the ceremony ... And at that point we walked into the room, the sun came down into the skylight and I just looked up and was like, 'Oh, Sod's law', you know. We just got that half hour of rain and that was the only half hour of rain for the whole day. So that one. I really like that.*

In fact, the person who had provided this photograph had also taken others that had been flagged by JI and AE for inclusion in the slideshow. Yet, the accounts of different participants converged around this photograph, suggesting that the story of the photograph had been established through discussion. This story also highlighted that the circumstances around the taking of the photograph had become part of the greater narrative of the wedding.

### **Viewing**

Viewing photographs of the wedding did not seem to occur for its own sake but as part of another practice. For example, organising photographs often involved reviewing them at the same time, such as KA's practice of deleting "rubbish" photographs after the wedding or AE's sorting of thank you card photographs:

*AE: I suppose that's the last time I looked at the photos ... when we were getting them together to put them in the thank you cards.*

Viewing also took place as part of sharing practices. The slideshow was a clear example of this, where co-located viewing and talking were central to the motivation around sharing.

Since participants were showing me their photographs, the research interviews themselves were largely made up of practices of viewing and sharing. This viewing involved different ways of appreciating photographs. Some participants claimed to like particular pictures because they were well-composed or attractive, or because

they represented people in a favourable aspect. To a large extent, this seemed to be a matter of personal preference. For example, YS showed a very different appreciation of the aesthetic and technical quality of a set of images from IO:

*IO: These are all very similar to me — just photos of people.*

*YS: Yeah, some of them look better though. Like that one is blurred and a bit rubbish, technically, but that one is quite good because it's nice and clear. The focus of the picture is right in the centre.*

Although the previous example shows that technical issues, such as composition or exposure, played a role in how images were valued, aesthetics were not the only consideration of quality. JI commented on how an aesthetically-pleasing photograph taken by the professional photographer (KA) was less valuable and meaningful due to her lack of contextual knowledge:

*JI: It is a gorgeous photo of them. But beside them on either side are the actual couple's partners. And KA is not to know who is partners.*

On the other hand, some photos that were technically poor were valued because of their perceived capturing of some ephemeral or intangible quality:

*PJ: I quite like that because it kind of captures a little bit of her personality as well, whereas someone just looking and smiling doesn't, you know. So I quite like, even though they're not perfect but there's a little bit of character, a little bit of personality in them as well, and a bit of movement. Which means they're a little bit blurry [laughs] as well because people obviously were moving around rather than standing posing.*

In some cases, the large number of photographs produced at the wedding devalued images both individually and collectively. A saturation effect, evident in the following excerpts, clearly reduced engagement with photographs and with the practices of viewing and organising them:

*AE: It's not hugely important to me to see lots and lots of photos — I probably got a bit photoed-out.*

*JJ: I got bored. I mean it's thousands — you get to a point where you are like ok, that is enough for now, they are much the same now. At this stage those five look very alike.*

*JO: When we were looking through them, it was like, 'Skip, skip, skip skip skip, these are all the same boring crap.' It annoys me slightly.*

It is striking to note that the first two are statements by the bridal couple and the third is from the Best Woman. Despite being intimately involved in this experience, these people became disengaged with what would normally be considered to be highly-relevant and personally meaningful photographs of an important life event. Such statements also show that, while it was sometimes the case that participants paid careful attention to the details of photographs, viewing was often not done with a systematic, critical, or reflective eye.

### **5.2.2 Motivations**

Based on categories of motivations of photography derived from the literature, the purposes of photographic practices around the wedding were categorised as memorial (aiding future remembering), communicative (sharing information in the present), or creative (as enjoyment or contributing to a project). Another category, investigative (to aid understanding through using photographic content as evidence), was abandoned because, although photos were used in this way, this seemed rarely, if ever, to be the purpose for which a photograph was taken or looked at. Instead, “inference” and “revelation”, discussed under “cueing processes” below, suggest how this capacity of photography informed the construction of memory narratives, whether this was the intention of the participant or not.

#### **Memorial**

The primary intention of capturing images at the wedding was memorial: the preservation of potentially important moments for the future remembering of the bridal couple. As well as being prompts for conversation and recall, photographs

generated evidence of the events that had happened and of the fact that the photographer or the people in the photograph had participated in them. PJ aimed to produce photographs that would help others (JI, AE, and their families) to remember:

*PJ: You're mainly collecting photographs for the people to whom it means the most — which is for JI and AE and their immediate families.*

This was often done through an ad-hoc, documentary approach, with a number of people talking about taking photographs “just in case”:

*PJ: You never know when you might have captured that person that they don't have any other photographs of from the day.*

### **Communicative**

While memorial photos might be taken with a view to showing other people in the future, it was the desire to show something to someone in the present that distinguished communicative from memorial photography. In other words, communicative photos were not concerned with memory but with sharing elements of a current experience. That they might end up being used in the future to look back was incidental to their production. This purpose of taking photographs seemed rare for my participants, perhaps because they were too caught up in their experience of the wedding and their roles within it to send photographs or, indeed, to engage in practices other than capturing:

*PJ: I don't remember doing anything along those lines, no. I mean certainly no texting or uploading or anything.*

Though some photographs were used to communicate an aspect of the present, such as one that was posted on Facebook during the event, whether these were taken for this purpose was questionable. Indeed, the most notable aspect of this category within the present analysis is its relative absence within the accounts of participants. It is included in the framework because of its prevalence within the literature; its

limited appearance in this study potentially indicating something particular about this event or about these participants.

### **Creative**

Often, the taking of photographs involved creative expression or an intention to use them as part of a project. The presence of “arty” photographs within participants’ collections showed that photography could, at times, have a creative, artistic, or playful role within its function of recording the event. YS gave an example:

YS: *We had the arty picture of [IO] taking a picture of me.*

Creative engagement could also come later during editing, such as when KA converted a selection of photographs into black and white or sepia. The expression of creativity could be important when photos were viewed, since they were appreciated for aesthetic qualities as well as for their content. Subtle concerns around the aesthetics of relatively straightforward images suggested that there was a creative or artistic aspect even for documentary images:

PJ: *That one’s probably a little better actually because the balance of the people is, you know, is a little bit better with the registrant, celebrant woman a bit more in the middle rather than right behind JI. As with all these occasions there are so many people around you’re always going to get bits of elbow and handbag.*

Creative elements seemed, in some cases, to make photographs more effective as memorial artefacts since the creative process involved reflection around the event being captured and creative photographs may have been more thought-provoking. For example, KA suggested that the creative appearance of her close-up shots might lead people to investigate previously unnoticed detail:

KA: *That is maybe why I like close ups. They are less obvious. I kind of like [when] people look at something they might not have seen ... I quite often get people saying, ‘What is that?’*

## **Overlaps and inconsistencies**

In reality, most photographs were probably taken for more than one of these purposes, with no guarantee that the photographer was aware of any of them. The frequent overlaps between purposes indicated that there was more to photographing the wedding than simply capturing the details. Further complicating matters, the purposes for which participants took photographs were often distinct from what was actually done with them later. For example, independently of the wedding, AE had taken creative photos of flowers in her garden and later decided to use them in the design of the thank you cards sent to guests after the event:

*AE: Although largely I think they were taken for the purposes of cataloguing and identifying the flowers rather than actual photography ... they turned out to be useful.*

### **5.2.3 Contextual factors**

The photographic behaviour that took place during and after the wedding, as well as the content of the photographs themselves, was influenced by a combination of interacting factors outside of the control of the participants. These are briefly described below under defined categories, although there was considerable overlap and multiple categories are discernible in almost every excerpt included within this chapter.

#### **Technological**

Unsurprisingly, photography was greatly affected by the possibilities for interaction created by the combination of available equipment, media, and software. For example, the potential for taking a high number of photographs due to large storage capacity or the ability to quickly and remotely share photographs through online platforms, such as Facebook and Flickr. In some cases, technology opened up opportunities for photographic behaviour and in other cases it produced barriers to engagement. AE described differences in the ease of sharing digital and printed photos:

*AE: Digital photos kind of aren't to hand, like, if someone comes to visit or something like that, whereas we've got, like, a wooden box thing with inserts that have got pages that you can flick through and that's kind of there and it's kind of — it's an ornament as well.*

AE's view seemed to be part of a negative perspective towards digital technology which she blamed for a general decrease in selectivity and engagement:

*AE: I do certainly think that [technology has] contributed to the 'photo-ed out phenomenon.' I think that a [pre-digital] photographer at an event probably wouldn't have taken as many photos and certainly they wouldn't have shown you as many photos. I think they would have been a lot more selective about what photos got printed. And it's probably contributed to the fact that we haven't sorted them yet.*

The extent to which different technologies acted as drivers or barriers seemed to be a matter of perception. In stark contrast to AE's position, PJ's view that digital photos were more accessible than printed ones highlights the idiosyncratic nature of beliefs about the characteristics of different media:

*PJ: My memory of film photographs was usually they would just stay sitting in their envelope, so, for me, although I don't formally present my photographs in any way, the digital does work because you never know when there's a whim that you might want to look through or you might be talking about something with somebody and you might say, "Look, I'll show you.' I like the immediacy of it all being there.*

Technological issues often interacted with other factors. The following example shows the issues of using flash and the related technical challenges resulting from environmental conditions. These had clear consequences for photographic practices and the resulting photographs:

*YS: Most of the time I'd turn the flash off because the flash is too bright and it gives very artificial-looking photographs cos the colours are wrong, so you have to have a very, very steady hand which, when you're taking pictures of people [who are] walking down stairs, just doesn't happen.*

## Cultural factors

Photography practices were affected by wider norms, taboos, and feelings of appropriateness, as well as more direct social factors, such as requests, modelling of behaviour, or a sense of obligation to take photographs on behalf of JI and AE. The following examples show that photographs seemed inappropriate in some situations and expected in others:

*IO: I mean, I wouldn't take pictures at the meal anyway, I mean, I don't — people do, I suppose, but I'd be a bit focused on the food.*

*YS: You had to be there [to photograph the entrance of the bridal couple] cos ... it was announced to you, you had to be poised.*

Technology interacted with the participants' cultural understandings of different forms of communication. For example, JI's use of the online photo-sharing platform Flickr amounted to a form of broadcasting, because she did not know or care who looked at them. Technological factors also created both triggers and barriers to behavioural practices around ownership and privacy, with evidence of specific conventions arising around different technologies:

*YS: I probably wouldn't [put a photo of the wedding on Facebook] unless actually I'd asked JI and AE because I didn't know what — feel that it's not — probably wouldn't be right, I suppose.*

In talking about a photograph that had been posted online by someone at the wedding, JI echoed YS' sentiment that she and AE should have control over the online distribution of photographs, at least during the event:

*JI: It wasn't hers to put up, on Facebook of all things where people that weren't invited — if they were meant to see this photo they should have been at the wedding.*

This view was not shared by IO, who claimed that people posting photographs to Facebook of her own ceremony would not have bothered her. This suggests that

concerns of privacy and ownership around photograph distribution were a mixture of idiosyncratic and cultural.

### **Economic factors**

Photography practices required an investment of time, money, attention, or effort. As such, economic factors played a significant part in influencing photographic behaviour. For example, the following excerpt shows the limited time JI and AE had invested in organising their collection of photographs:

*JI: We haven't even taken the time to rotate them properly.*

Organising practices were perceived to require more time than was usually available. There were numerous examples of participants aspiring to be more organised with their photograph collections but having been unable to invest the time and effort. JI expressed the challenge of creating the thank you cards, which involved selecting photos relevant to each guest, printing them on card, and sending them via post, as much in terms of effort as time:

*JI: The thank you cards took 9-10 months because you'd do a few and you were [exhausted].*

The investment of attention and effort was often expressed in terms of selectivity—the decision-making that occurred around whether or not to take a photograph or what, if anything, to do with it later. This was clearly influenced by the storage capacity of digital cameras. KA, a professional photographer, took a large number of photographs of the wedding and was the only participant to mention deleting any:

*KA: I took 2200 so the first thing I do is delete the ones I think are absolutely rubbish.*

IO described what could happen when, in important moments during the wedding, there was insufficient time to be selective:

*IO: You're clicking almost at random. Things are happening quite quickly and people are moving all the time so that's why they're kind of blurry.*

PJ suggested that not being selective (or, in other words, photographing copiously with, as she described it, a “low positive yield”) was a way of ensuring that some valuable photographs (in terms of their representing meaningful moments or constituting aesthetically-pleasing images) were taken. This was, in part, made possible by the decreased cost of digital storage.

### **Environmental factors**

The physical environment was significant in determining the type and quality of photographs taken. For instance, scenes with movement or low lighting were difficult to photograph. In the following example, YS suspected that she stopped taking photographs due to the difficulty of obtaining good results indoors, although it may also have been to do with technological issues:

*YS: It could have run out of battery, but what I suspect is that I probably got annoyed at the fact that I couldn't get any good ones indoors and I thought, 'Oh well, bugger it, someone'll get some nice pictures.'*

The dancing was seen as ill-suited to photography because of the complications of lighting and movement in combination with the shortcomings of technology:

*PJ: When the lights go down for the dancing to all start, the opportunities to take nice photographs diminish because there's not enough light and then your camera takes that bit longer to respond when you see a moment and people moving about quickly and there's lots of people in the way.*

In this way, environmental factors were closely related to the effectiveness with which a participant could use their technology. A combination of competence and camera functionality either could or could not overcome environmental challenges. Where PJ and YS had difficulty with a number of the wedding scenes, KA was able to configure her equipment to compensate for the conditions:

KA: *The majority of these would be taken on a Canon 50mm 1.4 lens which means that you can pretty much use it in low light indoors and get a really nice shot.*

### **Idiosyncratic factors**

There were factors particular to the personality, tendencies, preferences, or beliefs of the individuals involved that seemed to influence photographic behaviour. For example, some people at the wedding were reported as reluctant to have their photographs taken, while others were happy to pose. The following excerpt shows that idiosyncratic factors were not necessarily stable traits but may have been influenced by the situation:

PJ: *[My friend], for some reason, was very reluctant to be photographed that day. She doesn't seem to be someone who's normally reluctant to be photographed but she did — I remember on several occasions trying to take a photograph of her and she ended up turning away at the last minute and laughing it off, so there aren't actually very many of her.*

Others had long-lasting preferences that affected their behaviour as well as their engagement with different practices. AE's view that printed photos were better for sharing than digital was perhaps a consequence of a personal preference for traditional forms of face-to-face storytelling. Likewise, beliefs about the relationship between photographs and memory shaped the motivations and practices of the participants. For example, YS and IO felt that, while it would have been nice to have a photograph of the signing of the register, it was not essential to the remembering of that experience. On the other hand, JI and KA talked about photographs as being potentially critical to the preservation of memory. For them, photographs were a way of retaining access to elements of the past:

JI: *I am not saying the memory would go, but I just didn't want to feel like you had lost that one photo; like you had pressed delete and you could never have it again.*

KA: *It is memory, it is there. Whereas if you didn't have [the photo] to actually trigger that memory, I think you probably wouldn't remember.*

KA, in fact, described photographs as “memories” that could be exchanged or transferred:

*KA: I like capturing things and I like being able to give people a memory or something that says, ‘I was here.’*

In contrast, AE believed that memory and meaning did not reside within photos but had to be constructed around them in the form of stories:

*AE: I’m much more interested in stories and stuff and I’d much — for me you don’t really get those from — photos can bring back memories and stuff like that but seeing them without the story behind them I don’t find particularly interesting.*

As mentioned above, competence with technology had an impact on both what people did and what photographs were produced. Some participants and guests were described as good photographers, while others were not. The following excerpt shows that YS had become the nominated “family photographer” due to a preference on her part and a reluctance on the part of her partner (IO) to take photos:

*YS: [IO has] never been interested in it, and I’ve always really rather liked it, so ... it’s been an easy division of labour.*

#### **5.2.4 Cueing processes**

In talking about past activity, participants drew on a combination of different kinds of information. Though it was not an explicit aim of the study, an analysis of these yielded a tentative framework for differentiating processes of mediated remembering that were combined in the construction of memory narratives.

## Recognition

In order to talk meaningfully about elements shown in a photograph, participants needed to be able to locate these in their past experience. The following example shows how recognition was tied up in the recall of the people in a photograph:

*AE: That's a friend of [JI]'s from our end. [Lady's name] — one of [JI]'s brothers' mother-in-law.*

The significance of this process becomes clearer when considering the relatively rare instances in which things were not recognised within a photograph. For example, PJ did not recognise some photos that were taken by people who borrowed her camera, nor some taken later in the evening when both the clarity of the photographs and the general capacity for remembering seemed to deteriorate:

*PJ: Particularly as the series of photographs goes on and obviously the evening do commenced, there are a few [laughs] that you're probably thinking, 'What on earth is that?' ... this is [female guest] showing us something quite unusual that she can do with her tongue. I don't know, I presume a few drinks had been imbibed by this stage.*

Without recognition, use of these photographs in the construction of memory narratives was limited to what could be inferred from the visible details and knowledge of the context in which they were taken.

## Inference

Sometimes, participants used evidence shown in their photographs to interpret what “must have happened.” Phrases such as “I would have”, “I think”, “it looks like”, and other suggestions of uncertainty seemed to indicate interpretation and deduction on the part of the participant. The following excerpt shows a clear example of inference informing the construction of memory based on visual clues present in a photograph:

*PJ: I think they were maybe doing Strip the Willow, eh — The Dashing White Sergeant or something — just looking at the formation of the three of them there makes me think of that.*

Participants used a variety of facts and details about what happened, who was shown in a photograph, or the origins of the photograph in the construction of narratives. On many occasions, participants were aware of the source of a particular photograph without any clues from the metadata (file names, creation dates, etc.). At other times, this could be pieced together from different kinds of evidence in order to deduce something about the image:

*PJ: This looks like an accidental snap. [My friend] took the last couple of photographs so I would imagine she probably took this one and, with it being not her camera, you know, maybe you're more inclined to take the accidental extra shots.*

The shared interview between IO and YS showed how inference could be done in negotiation between people. In the following excerpt, YS asked IO for confirmation of the setting of the photograph:

*YS: So, this was in the kind of lounge area, wasn't it?*

*IO: Oh yeah, I can't see that from this angle.*

However, there was not always agreement:

*YS: That's actually the last picture that I took of the day...*

*IO: Is that right though, cos I've seen other ones of me giving that speech ... I thought there were more of the actual day. Cos I'm sure we've got a few pictures of me giving the speech. No? I've seen them somewhere else then.*

In cases of uncertainty, the photograph collection could be used as evidence to resolve a particular question, or it could be left unresolved within the narrative.

## **Revelation**

Photographs allowed participants to closely analyse or examine static representations of scenes. This allowed participants to perceive aspects of the wedding that they

could not remember or had not seen at the time. In looking back at photographs this seemed to occur by chance, when participants saw things in the images that they had not seen at the time of the event or had forgotten about. PJ suggested that, rather than reminding her that something had happened or cueing a memory of it, the content of photographs could *tell* her that something had taken place or that she had been present at an event, as if it were new information:

*PJ: Sometimes people do capture a moment and you think, 'Wow, that's great, but I don't remember being there.'*

A similar process was involved in learning from photographs things that had happened for which the participant was not present. The following example shows AE's surprise at seeing in her photographs that a particular guest had danced with lots of people:

*AE: It was really funny because afterwards we were looking at all the pictures and [KA] had taken all these pictures of the ceilidh and we were like, 'What on earth are they doing dancing with — you know — with X?' There's loads of — [A particular guest] danced with, like, everyone, which really made me giggle, and there's loads of pictures of her dancing with all sorts of people.*

Along with inference, revelation contrasted the static nature of photographs with the ephemeral nature of lived experience and real-time perception. AE's surprise discovery had already been made before the interview and was recounted as part of an established narrative. What had previously been revelation was now recall and this process had allowed her to construct a more comprehensive picture of the event than was possible through direct perception. JI pointed out the capacity of photographs to allow a way into experience that she was not able to witness and thereby significantly expand her memory of the event:

*JI: That is the coach arriving — we did not see that. I mean, it is not very important that we see people getting off the bus, it is just that they are there in the mix. We can't see everything. Photos really help — and it is really nice to see that everyone is being themselves having a great time and all that.*

Indeed, photographs created a shared point of reference that facilitated the co-construction of narratives around witnessed and non-witnessed experiences:

*AE: My favourite bit about having photos was putting them up [on the projector] ... and getting everyone's stories and memories and things that we didn't see there. Cos you can't be everywhere at once.*

### **Cued recall**

This category described instances where the photographic stimulus appeared to elicit narrative details more directly, for example through episodic or semantic recall. It was not possible, using the present research method, to know exactly which elements of a narrative were produced through this process, but it seemed to be recognisable by a lack of conditional phrases, such as “I think” or “we must have.” It was, instead, characterised by certainty, by past rather than present tense, and by a first-person perspective. AE’s description of the sun coming out just after the ceremony had been moved indoors (mentioned previously) provides an example:

*AE: At that point we walked into the room, the sun came down into the skylight and I just looked up and was like, ‘Oh, Sod’s law’, you know. We just got that half hour of rain and that was the only half hour of rain for the whole day.*

Thus, this process was identified by an apparent lack of inference or revelation. AE’s excerpt above places her firmly in the past. She seemed to be able to tell her story without effort. However, many examples were not as clear-cut. Consider the following passage about one of the speeches:

*PJ: I like this photograph — he’s not someone that I know terribly well, but I really enjoyed what he said that day and I was glad I sort of had a little snap of him. And, again, with the flowers in the foreground there looking very nice and gives you some idea of what the occasion is.*

In her narrative, PJ moved from the present (“I like this photograph — he’s not someone that I know terribly well”) to the past (“I really enjoyed what he said that

day and I was glad I sort of had a little snap of him”) and then back to the present (“And, again, with the flowers in the foreground there looking very nice and gives you some idea of what the occasion is”). The part in the middle, set in past tense, implies cued recall not of what the speaker said, but that he said something that she had enjoyed. It is not clear that she had been transported back to the experience of hearing him speak (which would indicate episodic recall), yet the memory that she had enjoyed his speech was expressed with certainty, rather than probability. The elements of the excerpt that were set in the present tense seem to relate more to the development of associated context. Participants moved between these different processes frequently within their accounts, as can be seen in the following exchange between IO and YS:

*IO: At this point, I felt like I had to be official and I was kind of, you know, prancing about and trying to decide whether we should move things inside.*

*YS: You can see already the raindrops actually. Here and there. And that was starting to make people’s decisions. They look like little white dots.*

IO’s articulation of the past appeared to involve cued recall, while YS moved from pointing out details shown in the photograph (“You can see already the raindrops”) to recalling the experience (“that was starting to make people’s decisions”). Recall was not always directly about the experience captured in the photograph but could involve remembering associated details or stories that were not represented:

*JJ: These are two best friends. One is married to my sister and one is married to my best friend ... I met them first before the ladies and introduced them and they are all married now.*

### **Remembering photography practice**

Participants could often describe practices of capturing, organising, sharing, or reviewing photographs:

*PJ: I remember standing at the bottom of the stairs; there was a group of us standing there and, you know, just trying to catch a nice shot of them coming down.*

Acts of photography not only produced images that could be used for subsequent remembering, they could become part of the memory of the event and could have a significant impact on the original experience being remembered. According to PJ, the experience of looking at a photograph was enhanced by the experience of having taken it:

*PJ: You do retain that memory of having taken a photograph as well ... yeah, there probably is more to it when you know that you've — you've been involved in the process of taking it.*

Through looking at photographs, participants came to be able to remember the existence of photographs as well as what they looked like, and sometimes photographs became tied up with memory in interesting ways. In the following example, JI was not sure whether she remembered the original experience or a photograph of it:

*JI: I talked to you before about my parents waltzing and not feeling like a ceilidh dance at that time ... I am not sure if there is a photo, or if I saw it, or if I was just told it. That one for me especially is just such a warm — It is not really important because I can see, in my head, them waltzing.*

Later in the interview, JI stumbled across the photograph she had been unsure of:

*JI: That is actually kind of the memory I have for the waltzing part so maybe that's where it is from.*

### **5.3 Summary**

Four main categories of photographic practice were evident in this study: capturing (taking photos); organising (sorting into albums, editing, annotating); sharing (showing or sending photos to other people); and viewing (looking at photos). Capturing featured much more prominently in this study than the other practices.

Some organisation of photographs had been carried out, primarily in the service of sharing (e.g. creation of a thank you card or flagging photos for inclusion in a slideshow), and only the professional photographer mentioned deleting any photographs. Sharing and viewing were heavily influenced by previous interactions (such as how many photographs had been taken and how they had been organised), the perceived quality and value of the photos, and the functionality of available technology.

Though the purposes of photography were not always clear, the three main categories of motivation that had been derived from the literature (memorial, communicative, and creative) were evident. Since this study explored photography around a major life event, it is perhaps unsurprising that the emphasis was on documenting the experience for future remembering (i.e. memorial). There was limited evidence of photographs being taken for communicating the present, but playful and creative photographs were present in participants' collections. The different purposes seemed to overlap and interact, and participants may not always have been aware of why they had taken a photograph. There were also a range of contextual or situational factors that were influential in terms of photographic behaviour and, consequently, the photograph collections of the participants. Like motivations, these overlapped significantly and were often interdependent.

Although large numbers of photographs were produced during the wedding, there was limited interaction with these images over the next 18 months. Despite considerable variances in the photographic practices of different participants, there was a consensus that the number of pictures generated at the wedding was overwhelming and this had created a barrier to subsequent engagement with the photograph collections. A clear discrepancy between the general approach taken at the time of the event (taking a large number of photographs) and the limited viewing or organising that happened afterwards seemed to be explained primarily by a desire on the part of photographers to capture all the important parts of the wedding and the challenges of the time and effort required to engage with the resulting large collections. The approach of taking numerous photographs seemed related to both a

difficulty judging what might be important later and a quest for valuable photos in terms of aesthetics and intangible elements (e.g. moments or personalities).

Despite divergent practices, there appeared to be some common ways in which photography informed the participants' construction of memory narratives around the event. These were characterised as cueing processes. In most cases, participants recognised the content of a photograph. In some cases, photographs also appeared to cue episodic recall or established semantic narratives (though it was not necessarily clear which). This could include memories of the practices of capturing, organising, sharing, or viewing photographs which could then lead on to other, associated memories. Other times, photos provided clues for deducing what was likely to have happened. The concepts of inference and revelation acknowledged the possibility of constructing—with the aid of photographic evidence—memory narratives of episodes that had not been directly witnessed. These processes presented a potentially promising way of conceptualising memory in interaction with photographic media, albeit one that requires further exploration beyond this study. Further, they showed that photography influenced remembering both by providing information around which people could make sense of, and remember, the wedding and by changing the experience that would later be remembered.

## **6 Study 2. Patterns and distributions of remembering**

### **6.1 Methods**

#### **6.1.1 Aims**

Among other things, Study 1 showed that the taking of photos during a wedding did not align clearly with the subsequent organising, sharing, and viewing of those photos. Study 2 explored this notion of alignment further by asking a set of participants about their approaches to photography and remembering across a longer time period, and incorporating a range of events. The aim was to develop a sense of their short and long-term patterns of photography, the factors that influenced these patterns, and the ways in which photography was used in remembering within and across different contexts. Further, by asking more direct questions about participants' beliefs about memory and photography and how these impacted on the way they experienced, recorded, and remembered, the study focused more closely on the first research question. By paying particular attention to the crossover between beliefs and attitudes and technology, it also addressed research question 3. Lastly, by considering the photography practices and motivations developed in Study 1 in relation to the subjective experience of distributed practices, it developed my thinking around research question 2.

#### **6.1.2 Setting and participants**

For this study, I employed a mixed sampling strategy to recruit 15 university staff, beginning with five participants recruited from groups with no direct association with photography, meaning that their engagement with photography was unpredictable. I followed this with deviant and critical case sampling; I asked for volunteers with unusual or particular kinds of photographic profiles (Marshall, 1996). I did not recruit on the basis of whether people felt they had a good or bad memory, hoping that beliefs about memory would vary naturally across different people. Each participant was required to have at least 10 personally relevant photos across at least 2 devices or media for discussion in interview.

All 15 participants were staff at a UK University. Most were of UK background with three from elsewhere (North America and Europe). There were seven women and eight men employed as either lecturers (n=6), researchers (n=2), or information technology (IT) professionals (n=7). All IT professionals were male, whereas all researchers and all but one lecturer were female. There was a mixture of people who lived alone (n=6) or with a partner (n=9), were parents (n=6) or not parents (n=9), and a range of personal circumstances and comfort and competence with technology. Both John and Henry had worked as part-time, professional photographers. Where appropriate, these issues are considered within the analysis described in this chapter.

**Table 3: Characteristics of participants at time of interview (Study 2)**

Name	Gender	Age	Occupation	Nationality	Living Status	Parent	Interview location
Kate	F	40-50	Lecturer	N. American	Single	No	Home
Ingrid	F	30-40	Researcher	Europe	Single	No	Home
Lorraine	F	50+	Lecturer	UK	Couple	No	Home
Mary	F	50+	Lecturer	UK	Couple	Yes	Home
Sophie	F	20-30	Researcher	UK	Single	No	Office
Jane	F	40-50	Lecturer	UK	Single	Yes	Home
Robert	M	50+	Lecturer	UK	Couple	Yes	Office
Ellen	F	50+	Lecturer	UK	Couple	No	Home
Dan	M	50+	IT	UK	Couple	No	Home
Thomas	M	30-40	IT	UK	Couple	Yes	Home
John	M	40-50	IT	UK	Single	No	Office
Henry	M	40-50	IT	UK	Single	No	Home
Phil	M	30-40	IT	UK	Couple	No	Office
William	M	50+	IT	UK	Couple	Yes	Meeting room
Nick	M	30-40	IT	Europe	Couple	Yes	Office

### **6.1.3 Interviews**

In this study, I conducted 15 semi-structured interviews between June and September, 2015, each lasting about an hour (see Appendix 5 for an interview schedule). In Study 1, I found that viewing photographs rarely happened in isolation but was mostly done as part of other practices. Study 1 also showed that the process of selection was important to remembering because it involved decisions about what to capture, organise, and share that had implications for engagement with photograph collections. The process of selecting photographs was, therefore, expected to be a strong stimulus for talking about the content and meaning of photographs and related photographic practices. As such, during the interview, each participant was asked to select up to three different sets of photos (e.g. those on a particular photographic device or medium, such as physical albums, digital photo frames, printed photobooks, mobile phones, or photo-sharing websites) for discussion. For each set, they were asked to select up to five photos from any time period that they felt represented different aspects of how they used photography. I was not just interested in individual photos but also wider collections.

During this process of selection (in which I would often follow them around their home or office), I asked about their photographic practices, motivations, and what they valued within their photographs. We discussed these particular photos and media, the technologies used to capture, organise, share, and view them, and reflected on the participant's general beliefs and philosophies of memory and photography. This was intended to create a way of understanding their behaviour and exploring the extent to which their practices seemed to fit with their beliefs. To minimise participants' preparing for interview (since this might lessen the advantages of the selection process), the recruitment letter (see Appendix 2) stated only that we would look at and talk about their photographs in relation to memory. Full details were given at the start of the interview before asking about consent.

In this research, following a number of studies that have influenced my thinking (e.g. Drazin & Frohlich, 2007; Durrant, Frohlich, Sellen, & Lyons, 2009; Petrelli & Whittaker, 2010; Swan & Taylor, 2008; van House, 2011; Whittaker et al., 2012), I

aimed to conduct interviews in familiar environments where participants were likely to have routinely engaged in practices of organising, sharing, and viewing. My preference was to interview participants in their homes, surrounded by their personal media. As it turned out, the offices in which I interviewed some participants were also rich spaces of personal media, although these participants may have accessed different sorts of photographs, particularly when using printed media or hard drives on desktop computers. In many cases, we looked at photographs on mobile devices that moved around with the participant, meaning that they were accessible from the home, office, or meeting room. In this study, participants used their own devices for browsing to better stimulate discussions about their technology. On a number of occasions, I followed the participant around the house or office as they looked for photos on different media.

With the consent of each participant, I selectively photographed the media and photographs as they appeared during the interview for later reference. Rather than simply collecting digital versions of the participants' photos as I had done in Study 1, I wanted to represent the material environment in which the photos were experienced during the interview.

## **6.2 Results**

The framework developed in this study was used to organise the data into experiences of remembering (connections); the subjective valuing of photographs, experience, and memory (values); distributed remembering practices (activity); and ways that practices, collections, and contexts evolved over time (trajectories). The first category constituted a refinement of the cueing processes generated in Study 1 into ways in which photography or photographs featured in the construction of subjective connections to the past. This was then used as inspiration for an exploration of the relationship between particular subjective aspects of photography and memory, including what was important or valued in photographs, how participants approached the pursuit of such value, and the extent to which what was valued at the time of taking a photograph related to what was valued in subsequent

practices. The third section of these findings is about the ways in which photographic behaviour could be seen as forming part of wider remembering activity and how this activity was distributed across people, tools, and the environment. The final section explores the distribution of remembering activity over time, considering the relationship between specific behaviour and long-term patterns. This structure allowed for an examination of how participants' activity made sense within the immediate situation and across different situations, what the conflicts were between different goals and functions of memory and photography, what external factors formed barriers or disruptions to these goals, and how the changing context in which actions were carried out created challenges for fulfilling plans or intentions or for developing clear systems for taking, organising, sharing, and viewing photographs.

### **6.2.1 Connections**

The cueing processes proposed in Study 1 related to the use of photographs or the memory of photographic acts in informing or stimulating processes of remembering. Although these were interesting, the conclusions that could be drawn were limited because the interviews were not designed to examine cognitive processes. In this analysis, I have reframed those ideas to look instead at how participants talked about the experience of using photographs to link the present with the past and, consequently, what can be learned about the relationship between memory, photography, and experience. These experiences were categorised into four kinds of subjective connections between past and present: surfacing, transporting, associating, and inference.

#### **Surfacing**

The first kind of subjective connection was surfacing, where participants were reminded of the existence of past experience or previously known information. This was usually the first element of the experience of cued recall and was related to the process of recognition from Study 1. Unless the participant was already thinking about an event or did not recognise what was shown, photographs provided a basis for starting to think about experience.

**Table 4: Study 2 final framework**

<b>Connections</b>	Subjective experiences that contributed to an instance of remembering in the interview
Surfacing	Bringing an idea into awareness
Transporting	Bringing the past into the present or the participant into the past
Associating	Connecting to ideas not shown in the photo
Inference	Using photo details to work out what happened
<b>Values</b>	The balance of what participants felt was important in valuing photographs and photographic practices
Objectivity vs aesthetics vs personal meaning	The capacity of a photo to show truth of what happened, to represent issues of personal relevance or to be visually pleasing
Experience vs recording vs remembering	Taking photos as disruptive to experience or as part of experience
<b>Activity</b>	The parameters that influenced both what was done (practices) and what it was like to do it (experiences)
Access, materiality and engagement	The effect of aspects of the photographic media on practices of viewing
Distributed practices	The balance of functionality, competence, conditions, relationships and attitudes across people and tools
<b>Trajectories</b>	The ways in which different practices and experiences related to each other over time
Goals, plans, and spontaneous activity	The patterns and long-term approaches to photography.
Habits	Consistencies and inflexibilities of practice
Changing contexts	External factors
Collections	The coherence and chaos of greater archives of photographs

However, surfacing could be distinguished from recognition by its focus on the bringing of different aspects of the past into consciousness. Dan gave an example when talking about the organisation of old pictures into his digital archive:

*Dan: I don't actually know what's in here, this set, but we can — oh, so these are not going to be organised at all, because these are — I just spent a couple of weeks at some point, stuffing old photographs through — actually I think they were photographed, re-photographed rather than scanned.*

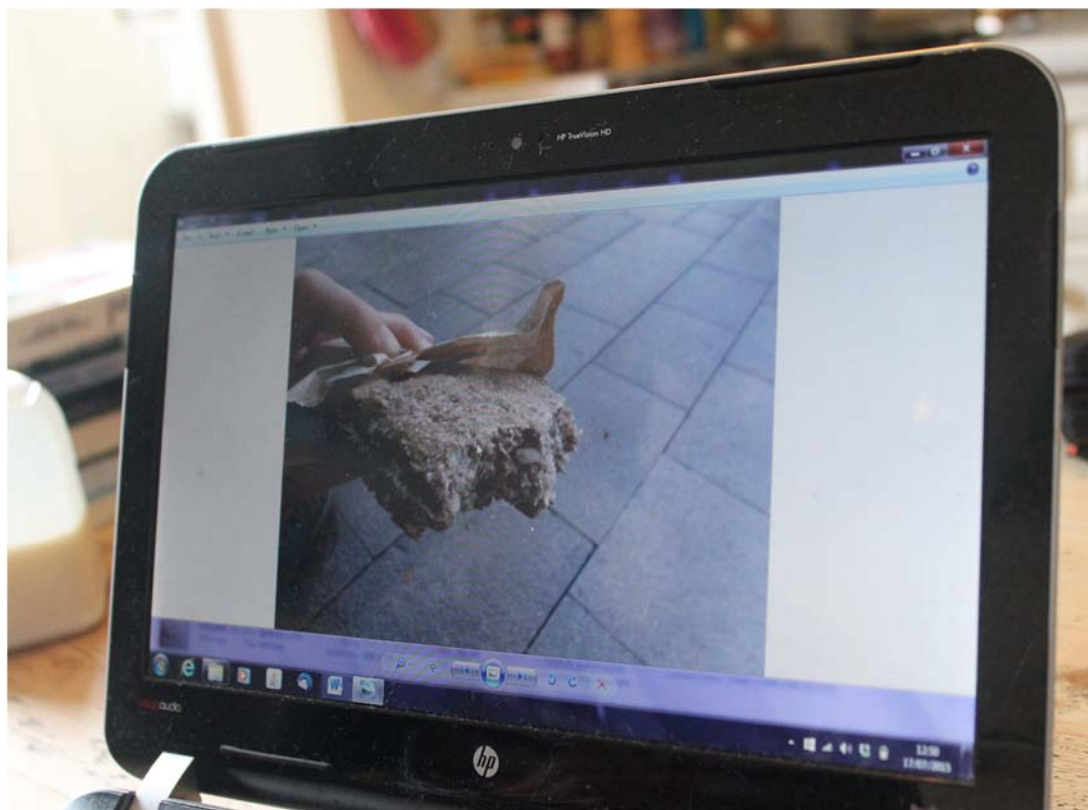
Dan's understanding of what he had done with his photos developed as he spoke. Aspects of his activity seemed to rise into consciousness from not knowing what was in that particular folder, to realising that the photographs would be disorganised due to the rapid scanning process, and finally that he did not scan them after all but digitally photographed them. From there, he was able to articulate the reasons for this: photographing was faster than scanning. In the example above, surfacing was a gradual process of realising what had happened. At other times, surfacing presumably happened instantly and was only evident in that the participant started talking about something related to a photograph that they had not been speaking about before seeing it. For example, Dan brought up a hiking photograph and immediately said the following:

*Dan: This was from a backpacking trip into [place name]. So that particular trip has a lot of memories because the weather was very good.*

The surfacing mechanism here was simply that the photograph brought the hiking trip to mind, and its importance was that without the photograph he may not have thought about this event. This idea was supported by Ingrid who suggested that photographs provided a means to facilitate the remembering of experience that might otherwise not be thought about:

*Ingrid: We went through the pictures and then we came to the pictures of the bread and I was like, oh yeah, there was this piece of bread in the bakery ... and of course, when you see the picture, it — you know, it triggers*

*that, whereas — when I came home and the first time we met again, that wasn't the first thing I told him. You know ... and I think that actually he only came over and I then had the picture of the bread. I don't know. Maybe I would — I probably would have remembered eventually.*



**Figure 4: A picture of bread.**

Thus, looking at photographs could be a way of accessing memory that might otherwise remain outside of conscious awareness. A number of participants hinted at this possibility—that remembering was sometimes reliant on the surfacing of an experience by looking at photographs:

*Thomas: It reminds you of stuff that you hadn't thought about, was more the thing — not forgotten. Because, you know, I could remember them, if someone was to talk about them, I'm sure I could. But it was things that you just hadn't thought about in a long time.*

*Ellen: It wasn't a photograph you go, 'Crumbs, I can't remember this at all'. I did remember it, although it's not one I think about.*

*Phil: I rely on my photos, and I'm very aware that if I lose my photos, I'll maybe struggle to remember a lot of the stuff.*

### **Transporting**

Photos were sometimes described as mentally transporting participants into the past. This often appeared to be manifested as cued recall of imagery, sensory information, and emotion, in which the participant spoke as if reliving a past experience (see Study 1). Such remembering was often conveyed either as the past coming into the present (e.g. by “flooding back” as in the excerpt below) or as the participant being transported into the past. There was a strong link between transportive experiences and emotion. Lorraine was clearly affected by the emotive nature of some of the remembering she did during the interview. Her description of memories as “flooding back” suggested that remembering was happening without conscious effort:

*Lorraine: That's me washing an elephant.*

*Tim: And are these bringing back memories?*

*Lorraine: Yeah. Flooding back.*

*Tim: What kinds of memories?*

*Lorraine: Joyful memories.*

*Tim: Images? Or episodes? Or emotions?*

*Lorraine: Emotions. Just feeling so happy and excited.*

Such remembering was often described as effortless, with Nick, for example, claiming that “it just comes naturally when I look at those photos.” On the other hand, it did not necessarily happen instantly. For instance, Kate described the process of remembering as an evolving “cascade of connections”, in which emotions were prominent but only once the transporting connection had been triggered:

*Kate: What it feels like is happening is that it kind of triggers a cascade of connections particularly between sensory things and emotional things. So, yeah, there just always seems to be, kind of, a similar flow as the memory evolves, so, you know, it starts just by the side of the photo and that hasn't really triggered anything yet and then very quickly I may remember sounds that were going on, or smells at the time, and suddenly*

*my brain feels quite active with the past as if I'm almost reliving what happened and that is inevitably connected with emotions.*

Kate claimed that not only was “reliving” more likely with photos that triggered emotional connections, but the details of what happened were more likely to remain clear over time:

*Kate: The memories that don't have a lot of strong emotion attached to them fade and I don't remember the details. So, yeah, all those photos I talked about today do evoke some sort of emotional response fairly quickly after I've seen the picture.*

For Thomas, the apparent capacity of photographs to transport him into the past was related not only to what the photos were of but also the manner in which they were viewed. His example of looking through old photographs in his old family home contained a mix of narrative details and emotion typical of participants describing the way that photos could facilitate a transportive connection to the past:

*Thomas: I spent a couple of days at the weekend there, at home. And at the end of that, you feel totally different at home than you do when you come back to Edinburgh, to your flat, and go to work. So, you know, looking at photos of when you were a wee boy, when, you know, the room was full of smoke, and my papa wouldn't get out the house without wearing a tie, and a handkerchief in his pocket. These are all sort of memories that ... I'm trying to think of, to put it into focus. But memories of a different time, that I could never, I would never feel like that again. But, even though I'm the same person, just all grown up, I will never know those experiences again, and never feel the kind of emotions I had then. So it gives you a kind of tap into something that was back then.*

For Robert, having previously experienced an emotional connection when looking at photos could reinforce their power. The following excerpt is interesting because he was reminded not of the experience of the funeral but of looking at the photographs afterward. The practice of viewing “took him back” to the funeral via a connection to a previous experience of viewing:

*Robert: I took some pictures when my mother died, we had a funeral and I took some pictures then, and I suppose they're very emotional pictures in the*

*sense that they remind me of seeing them, so it immediately takes you back to the funeral.*

### **Associating**

The third kind of connection involved the experience of using photographs as a prompt to think about related ideas or stories. There was not always a clear distinction between transporting and associating connections, both of which were related to the process of cued recall from Study 1. The distinguishing feature of the associating connection was that the narrative account featured experiences or details that were not directly part of the scene represented in the image. For Mary, this tended to be in the form of associated stories:

*Mary: It comes out in stories. People remembering funny things that happened and you would look at one picture and then they end up looking at more in the book, and it's not about looking at the pictures. It's using that to help us bring back the different things that are hidden away in the back of your head, but you don't remember it without a prompt to think about it.*

Mary used her scrapbook to document experiences, incorporating photographs as the focal points around which a story was written. It seemed that for Mary, the story and the photographs functioned as mutual reinforcers of memory—each helping to consolidate the other:

*Mary: That's my memory of that trip and the things we did on it and it's things that I wouldn't remember without the whole story, but the story immediately means I can remember lots of things round about it, so it makes the whole thing much more real for me.*

Other times, photos prompted more general associations, rather than specific stories. Photos could summarise an event, time period, or relationship for participants. For Thomas, for example, a small number of photos represented a decade of experience:

*Thomas: To see some photos from the start, it was like, well actually, yeah, that was when it started, and it was ten really good years.*

Similarly, a formative period was represented for Kate by a small number of old, analogue photos:

*Kate: So this is my high school in [foreign city]. This is a really special time in my life ... I was actually [there] for about six and a half years or six to seven years, most of my teens.*

William spoke of a photo of a favourite holiday destination as “a very general memory in the sense that it’s not that particular day or that particular occasion, but it reminds me of holidays that we spent there.” Of another photo, William talked of its significance developing over time:

*William: Actually I quite like it as a photo now. I mean, it’s funny, it’s one of these photos that kind of grows on you even though it doesn’t seem very much — I couldn’t tell you the occasion when I took that particular picture, however. The kind of significance of it for me is that [café] ... it’s just round from the [Children’s Hospital] ... I spent quite a bit of time at the [Children’s Hospital].*

This image had come to summarise a complex mix of feelings connected to a period in which his daughter had been unwell. Participants generated new meaning around photos individually and collaboratively through reflection and discussion. For example, a conversation with her mother changed Ellen’s understanding of a photograph and the associated memories. The photograph was no longer about her graduation, it was now associated with Ellen’s perception of her father:

*Ellen: I think it was after my mum speaking about it that kind of made me think about it and that helped to reinforce it, would that make sense? The kind of feeling of awkwardness. I was relatively young, I don’t think I sensed that or was aware of that. And I think the photograph helps to kind of reinforce — it’s kind of evidence for that, if that makes sense.*

After this change in understanding, Ellen was able to see the photo as evidence of her father’s awkwardness within the formal, academic setting of a graduation ceremony. The influence of Ellen’s conversation with her mother points to both a subjective

aspect to how photographic “evidence” was perceived and the notion that sharing photos was more than an issue of providing access but the enabling of a shared point of reference for discussing the past.

### **Inference**

The fourth connection involved the experience of using visual information within the photograph or related metadata to work out what must have happened, to confirm details, or to learn things about people or events. It is most closely related to the processes of inference and revelation in Study 1.

At times, photographs were seen as records or indicators of truth. As such, the information shown could be used as evidence that a participant had been somewhere or done something. As William said of one of his photographs, “I can show it to you and I can say, well, I was there.” Photographs could also establish facts or details, such as when Robert used an old picture to remember visual details that he had only been able to vaguely remember without it:

*Robert: I've got one of my father and I thought, oh yes, that's what he did look like.*

As in the previous study, in addition to establishing facts or certainties, photographic evidence could be used as the basis for inferring what was likely to have happened. Participants incorporated what could be seen in photographs and what was known about their provenance to deduce plausible explanations of what was likely to have happened. A simple example was when William suggested that he must have taken a photo with his camera, rather than with his phone, because the phone could be seen in the picture. Often, though, the process of deduction was slower and more complex. Jane described what it was like for her. The wintry appearance of one photograph and the appearance of Christmas decorations and particular people allowed her to narrow the photographed scene down to a particular kind of occasion:

*Jane: I'm looking at these, I can't quite remember when that was but I'm seeing it's winter, it's Christmas time, my friends were up visiting.*

From this basis, she was able to recall further, related information and combined this with a deductive process comparing the times at which different events happened:

*Jane: What else happened that year, you know, gosh they weren't married at that point, they only just got engaged, their dog was here, [my son] liked the dogs but the cats didn't...*

These bits of information could be used as cues for further recall. Recalled details, including event-specific and contextual information, mixed with guesses about things they “would have done.” Thus, not all the available evidence was contained within photographs; it could also be produced through association:

*Jane: And then just thinking about all the other things I would have done around that time. I mean, it's Christmas time so, I've gone home for Christmas and where did I spend Hogmanay and what other events, cos [my son] and I tend to do one thing each year, you know, a kind of Christmas event. What was it I did that particular year?*

The memory narratives of my participants often showed signs of inference and many uncertainties remained unresolved—they were left as an account of what might have happened, rather than a statement of what did happen. This did not seem to be a problem—a plausible explanation was sufficient in many cases. Thus, precision and accuracy were often perceived as non-critical. As such, inference could lead to false assumptions or incorrect details. Sophie gave an example of other people wrongly presuming that she was in a romantic relationship with her friend based on both of them being shown in numerous photographs. These inferences were subsequently corrected, but only because Sophie's friend became involved in the conversation:

*Sophie: She always takes tons of photos and puts them online. And then people go, 'Oh, about your new girlfriend.' And she goes, 'She's still not my girlfriend...'*

*Tim: And that's based on you appearing in lots of her photos?*

*Sophie: Her photos, yeah. The regularity to which I appear in her photos. But, like, that happens with people that we both know.*

Photographs could also correct inferences, either by fine-tuning the details of a face or a scene (e.g. Robert’s photo of his father, mentioned above) or by contradicting remembered details (e.g. Ellen found a photograph that she said had looked different “in her head”). Further, photos could show people details that had been forgotten or that had not been seen or appreciated at the time the pictures were taken. The process of incorporating new information from a photograph within the construction of a memory narrative was referred to as revelation in Study 1. Such cases showed a willingness of participants to believe what they took from photographic detail and to integrate it into what they could remember. Through this, photos had the capacity to change the way participants thought about people, places, or events. Ingrid, for example, explained how seeing old war photos of her grandfather affected the way she thought of him:

*Ingrid: When I first saw this little batch of pictures, one of the things that really struck me, even though I did know it before, my grandfather was, what, seventeen or so when he went to the navy? Sixteen or seventeen. So you know that they were all really, really young. But looking at the pictures and seeing just a young guy. He was such a young guy. And that was really — that was so shocking really. And they’re all — they all look like children.*

Ingrid’s account suggests that the experience of inference was enabled by the perception that a photograph could contain truth:

*Ingrid: This is the kind of picture you see in history books. But suddenly it’s your — you know, it’s not just a picture. It’s your own grandfather in these pictures.*

For her, the set of photographs did not just show her grandfather, it had captured him—he *was in* the photographs. This idea of the photograph being more than “just a picture” showed its potential power as evidence of the past.

### **Blended and distributed connections**

Subjective connections were produced both individually and socially. Conversation and social interaction could lead to surfacing, transporting, associating, or the collaborative use of evidence to establish details of the past. At the same time, individually experienced connections could remain private. For example, Mary spoke of her scrapbooks prompting the co-construction of memory with friends, but she kept some details to herself, particularly around emotive elements:

*Mary: I suppose I remember things for myself that I wouldn't share with other people — things that are more emotional. Going on dance trips, there's lots of people and there's lots of relationships that happen and don't happen and all the kind of emotional stuff that goes on. So I would remember things about — I remember that was the day that somebody said something to me that really upset me and I wouldn't share that with other people, but the pictures can bring those kind of emotional memories back.*

For Mary, the experiences of such private connections seemed to have lasting implications for the way she saw and engaged with her photographs. Indeed, the different kinds of subjective experiences of remembering described in this section did not simply happen in isolation—they contributed to larger patterns of remembering. Surfacing, transporting, associating, and inference could all make it easier for further connections to be constructed. For example, remembering associations could generate evidence that could be used in inference. As such, rather than taking one of these forms, a single instance of remembering might incorporate all four kinds of connection in combination. This could happen in sequence, such as the example just given, or it could happen as an overlapping or simultaneous combination (e.g. transporting and associating at the same time). The implication is that recall is a complex process made up of the interplay between different processes. For example, Robert conveyed a sense of the power of combining surfacing (providing a means to bring an event into awareness) and transporting (facilitating the placing of oneself back in the event):

*Robert: Again, it all floods back. It's amazing how much you forget if you don't have something to remind you about it.*

Not only did photographs bring memories flooding back, but they made remembering those events possible. Jane, too, indicated the combination of different kinds of connections by characterising photographs as supporting the surfacing of specific elements of the past that could lead on to wider associations and memories:

*Jane: I suppose it's like the opposite of, you know, if you're zooming into something, you get closer and closer in more detail, it's the opposite of that — you are starting there and then the broader details, sort of, fills it out — so, I suppose it's like zooming out from a google image, you see the house and then you see the street and town and everything and that's how I think I would describe it — the photograph becomes the focal point of the memory system that everything then extends out from it, so, you look at that one particular photograph and think, 'Okay, where was that, when was it, what else happened round about?' and then you just build and build and build and it gets wider and wider.*

Both Phil and Jane described how photographed scenes could be used as anchor points around which other contextual information and narratives could be built. In the excerpt below, Phil also indicated that other photographs in a collection could provide information that was helpful in interpreting the story around a photo:

*Phil: So, I think it just, sort of, builds layers up around it — the way that my photos work, is when I go through my collection of pictures, especially if I've taken lots, they're the points that you remember the different bits about it — quite often, you'll get the picture, the photo that you've taken, especially if it's one that you've put effort into it, to actually printing. And you remember that point is your starting point, and then maybe you remember you did bits before or after it.*

As can be seen in the examples above, it was not always clear if what was happening was inference or slowly progressing recall. The view taken in this thesis is that they are simply different facets of the same greater activity and it is not necessary to attempt to deconstruct each instance of remembering into component mechanisms. My aim here is not to understand exactly what was happening inside the participants' heads, but to highlight that remembering with photographs appeared to be made up of different processes that drew on different sources of information in complementary ways.

### 6.2.2 Values

The previous section showed that photographs could be used to make different kinds of connections to the past. The relationship between these different uses raised some issues worth considering around participants' subjective understandings of experience, photography, and memory. While Study 1 indicated that images were valued according to aesthetics and personal meaning, Study 2 developed this to include an appreciation of the apparent potential for photographs to convey objective evidence of the past. At the same time, Study 2 revealed more evidence of communicative photography, creating a more complex picture of the purposes of taking and sharing photographs.

#### **Objectivity, aesthetics, and personal meaning**

Participants seemed to value photographs in terms of a perceived capacity to objectively preserve truth, as an aid to remembering or communicating personally relevant associations, and as aesthetically-pleasing images. These values of objectivity, aesthetics, and personal meaning were held in various states of balance. For example, Mary felt that, for some photos, the associations around what was represented in the image were more important than aesthetic qualities:

*Mary: You can see that the quality of the photographs isn't particularly good, but it's not really about the quality of the photograph, it's about the memory in my head and what it does.*

For her, "capturing memories" involved facilitating the construction of stories that contextualised the photos. Producing artistic photographs, on the other hand, depended less on context or particular understandings and this limited the connection of such pictures to memory:

*Mary: The more artistic ones aren't about telling a story. A lot of the others are about capturing memories. The artistic things are about something that was attractive. It's trying to go for something that could be of appeal to*

*anybody, so they didn't have to know the story or the context. It's an image that is intended to have some beauty in its own right.*

For Mary, a lack of context made it difficult to know the specific time or place shown in artistic photographs and, as such, they did not work as memory prompts. On the other hand, William suggested that aesthetic qualities could increase the prominence of a photograph within remembering. He had chosen to talk about a picture of an ordinary holiday that had no particular significance other than that it looked nice:

*William: This is just a particular holiday which, to be honest, wasn't the greatest of holidays, but it seems to have been memorable. It was also visually very appealing ... this would be a sunset — so it actually looks as if the light's coming — so, it was just a holiday that, in some ways, perhaps I could say, it was very visually rich.*

Aesthetics seemed to be a way of raising the salience of a photograph and, therefore, the probability of engaging with it. In other words, creating visually-pleasing images could promote surfacing connections. William valued a balance of aesthetics and objectivity: photos needed to convey a sense of reality by being “a record first of all” but, within reasonable limits, they should be as visually appealing as possible:

*William: I think I'm fairly clear about what I appreciate in photography in that it's a kind of middle ground. I'm not overly impressed with highly processed photographs or photographs that are gimmicky. Photographs should be a record first of all, but I'm also — I feel that it should have some composition, sense of colour, drama, all of these are things that make a good photograph.*

For many participants, the desired balance of context, accurate representation, and visual appeal seemed to be a form of aesthetic idealism: an attempt to capture the most appealing possible version of a real experience. This may have been related to a desire to remember experience in a positive light, as highlighted by Sophie's regret that the reality of an experience had not been a little different because it would have made a better photograph:

*Sophie: I would have liked if the sunshine had kind of swept across the board because then it would have been the kind of picture that I possibly would have printed out and put it up somewhere. But it wasn't that time of day.*

Sophie's suggestion that if the photo had looked better then she might have printed and displayed it indicates the importance of aesthetics in sharing.

In many cases, Sophie attributed aesthetic shortcomings to herself as a photographer. The ability to take aesthetically-pleasing photographs was important, to different degrees, to most participants. Indeed, creating a photograph that was effective in supporting remembering was not always the priority or even the goal. Robert spoke of aesthetic quality strongly guiding the composition and selection of his images even when recording family events. For him, aesthetics were more highly valued than the extent to which life experience or personal relationships were represented or to which the photograph supported remembering:

*Tim: Do you have any intention [that they will prompt your memory] when you're taking photographs?*

*Robert: No, I don't, actually, that's a kind of by-product of what I'm doing. Most of my photography is — to try and take some pictures which both, in a sense, record it, but also are aesthetically-pleasing and attractive — so if someone saw them who hadn't been on holiday, would actually think, 'Well, that's a nice photograph.'*

Robert, John, and Henry—all keen photographers—distinguished between “photographs” and “snaps”, the former being artistic images that could be appreciated by anyone without knowledge of the scene that was shown; the latter being context-dependent and associated with documenting life experience. There was a clear sense for these three participants that they were interested in the pursuit of “photographs”, rather than “snaps.” However, Henry spoke of his deceased mother's old family “snaps” that had gained artistic value for him by virtue of their historical style. His account was striking in its valuing of aesthetics over personal meaning:

*Henry: I love these — that's my auntie, and dad — these old, classically posed studio pictures from back in the day.*

*Tim: And what is it you love about them, is it the way they look, or... ?*

*Henry: Yeah, and it's not necessarily the faces of the people, it's just that they're great pictures. And, you know, you don't even have to — my mum would write on the back who they all were. But in the end, it didn't matter, 'cause some of them were just great snaps, the kind of thing I'd love to scan in and print big.*

As such, the artistic appreciation of photographs seemed more related to technical qualities than the extent to which it accurately conveyed lived experience.

In contrast, most participants seemed to value photos primarily as memorial documents. Within this, however, they often sought out evidence that would portray the past in particular ways. Photos could be intentionally orchestrated to suggest a different reality from that which actually happened. This could be subtle, where participants attempted to make photos look better than reality (e.g. by choosing the most pleasing angles). There were also more significant forms of orchestration, such as when participants took part in photographic events that involved pursuing or constructing a photo-worthy scene, rather than recognising one that was already happening. For example, Nick, Ingrid, and William described times when they went out specifically to take photographs, engaging in experiences that would not have happened otherwise:

*William: I like to take the dog for a walk just because it gives me a chance to take a photograph. So, I'm not purely documenting what's happening. I'm looking to take a photograph.*

A more extreme example was where Kate actively constructed a fictional event for the purpose of taking a photograph (see Figure 5). Here, the photo did not show the important aspects of Kate's experience and the visual details did not convey the associated emotive elements:

*Kate: It evokes quite a lot of negative memories, which is I think interesting because there's nothing overtly negative about the photo. You know, it was obviously a party night. It was New Year's Eve — So obviously there was some celebration, although it doesn't look like anyone drank anything — it was actually, I remember it being, like, a dull night, as far*

*as I think that bottle got cracked and then everybody just went off to bed and I tried to make it look like we had some sort of a party there and, you know, hung it over the cat to make it look like it was a wild party, but it was a very sad time actually. It was a very lonely time and whatever party is perceived there, didn't actually happen.*

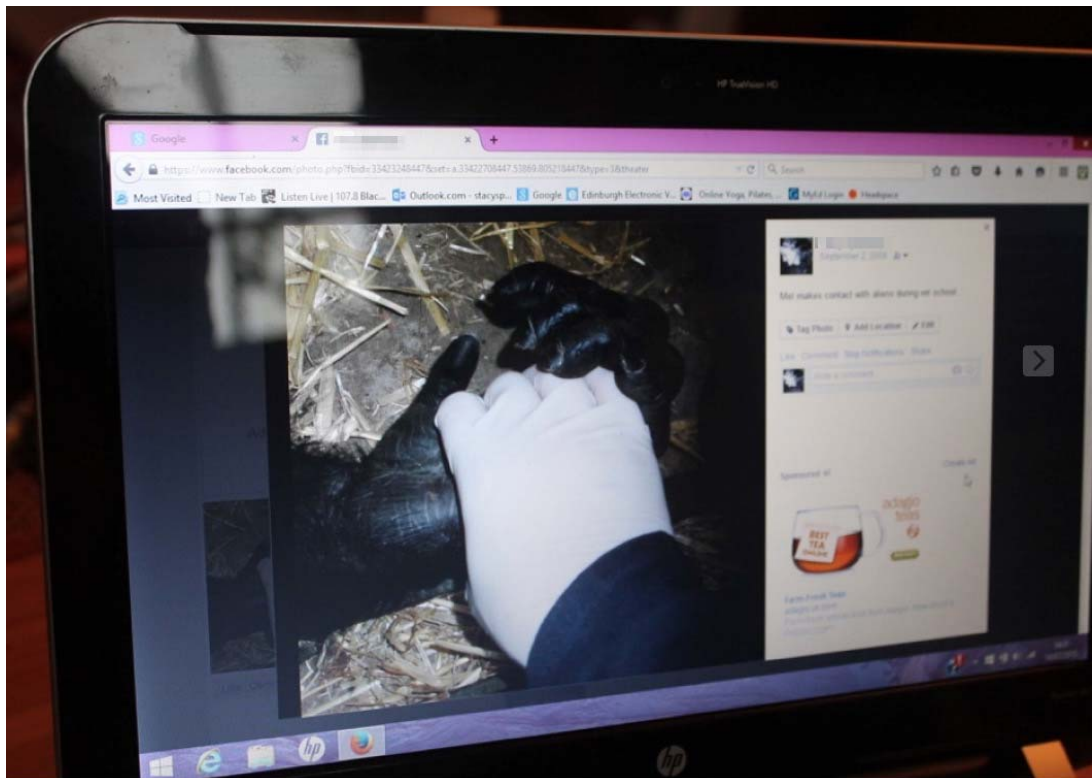


**Figure 5: The cat party.**

This was a form of tampering with the photographic record. Nonetheless, Kate clearly associated this photo with her memory of the real experience and with the taking of the false photograph. There were also cases where there was an unintentional contrast between what a picture looked like and the experience it represented. In the following example (see Figure 6), a calm-looking photo of a human hand holding a chimp hand prompted Kate's memory of the highly stressful situation in which it was produced:

*Kate: That's my colleague and a chimp at the zoo. Obviously it's knocked out... It was such a scary day actually. They're such terrifying animals and when they saw the vet had arrived with a team of people, they were just screaming and throwing stuff at us and slamming doors. I just cannot tell*

*you how frightening they were — we were all on edge, you know. It looks calm but we were ready to bolt if it opened an eye at all.*



**Figure 6: The peaceful chimp.**

These examples demonstrated that the experiences of transporting and associating connections did not require the photo and its referent reality to be visually congruent. In other words, for these connections, it was not critical that a photograph looked like the experience it represented as long as it was associated with personal and emotional relevance.

Inference, on the other hand, relied on the assumption that the photograph showed aspects of a real scene. However, this could be complicated by differences between memory of real-time perception (i.e. what the participant *thought* the scene had looked like) and what was shown in the photograph. An example was the disconnect that could be produced by being behind the camera rather than in front of it:

*Phil: There's definitely some things where it looks like I've not been to that event, even though I was really part of it. But because you're the one taking the pictures, you're not there anymore. And you kind of have to remind yourself that, actually, you were there.*

Robert believed that skilful intervention was needed in order to produce a photograph that looked like what was seen during the corresponding real-time experience. He explained how careful orchestration was necessary to achieve the perception of objectivity—in other words, to make a photo that looked like the *experience* it represented:

*Robert: You've got to be very careful, I think, in order to make sure the image actually represents in a way that you want it to, what you actually took a picture of, because your mind will filter out all the extraneous things, so it's like taking pictures of buildings where there are telegraph wires in front of you, or whatever it is. You don't see them when you're looking at it, but you do see them immediately and often devastatingly when you actually take a picture.*

*Tim: A sort of pre-filtering.*

*Robert: It's a pre-filtering, yeah, that's right.*

Robert tried to avoid clutter in his photographs<sup>6</sup> because, for him, photography and reality involved different ways of seeing. Robert's comments suggested that objectivity was an impression that was subjectively contrived. His photographs seemed to be an attempt to simultaneously capture and portray something, a creative sort of documentation or memorialisation that involved aesthetic concerns of composition. For Robert, photos were never “random” but were “designed to bring out the essence” or to show something in its “best light.” For Jane, on the other hand, orchestration could make photos feel less real. She claimed to like photos of her moving son that were blurry or cut off part of his head because the lack of staging made them more “real.” For her, a photograph needed to not just look like what it represented, it needed to actually be *of* that thing. As such, a staged photograph of her graduation was regarded as false and lacked memorial value:

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<sup>6</sup> John was similarly motivated in editing out distracting details such as “Exit” signs from photos of music scenes.

*Jane: I didn't like the resulting photograph and because it wasn't a record of the actual day, it didn't seem — it felt pointless to have it.*

Nick also felt that capturing reality required “natural” or candid photography:

*Nick: I think that's what true life is — if you start messing with the scenery or with people, like what you want them to do — you need to just be natural, otherwise it is a bit fake, it is a bit weird.*

However, while he might not be “messing with the scenery”, he would actively seek out particular and unusual ways of framing scenes, looking to capture otherwise hidden aspects of his world:

*Nick: These are just some photos of understanding the world, of how the world interacts, or what are things around us that we don't really see them because we don't look at the right place because we are too hurried to get to work or our everyday life consumes a lot of our time.*

Participants placed particular emphasis on different aspects of their lives in their taking of photographs and this emphasis came to be reflected in the resulting photograph collections. Although there were examples of miscellaneous subjects (e.g. food, advertisements, unusual objects), each participant's photographs often pertained to a general theme. For example, Ellen, Dan, and Robert all preferred to take pictures of landscapes; Jane and Thomas primarily photographed their children; Mary, Lorraine, and Phil all preferred travel photographs. Beyond such broad preferences, the kinds of photos that ended up in the participants' collections depended largely on what seemed, in the moment, to be worth photographing. This seemed to be a complicated and dynamic judgement, based on a number of factors, such as the trade-off between aesthetics and personal meaning, whether the environment was considered suitable in relation to their ability to use the tools at hand, or other practical issues. In discussing whether she was likely to take photographs at an upcoming dance event, Mary conveyed the complexity and situated nature of this judgement:

*Mary: It's going to depend on the weather, clearly would be one aspect. I know that the scene will be colourful enough, you're going to have international dancers in costume, [the] Castle as a background, you know, it's real good photography material. Dancing photographs are difficult to take because of the movement. So often they come out just looking like a mishmash. So it's good often to take groups of dancers that are standing talking in costume. They tend to come out much better. So if I saw a circumstance where a nice, maybe two people from different countries are talking together, with the castle behind, you might think, 'Hey, look, that would look really nice, I'll just take that', especially if it's two people that I've had something to do with. So there's a memory thing in there. But when will I know? On the moment when I see it.*

For Mary, it was not just the broad question of whether the event itself was worthy of recording, but what kind of photographs would be produced from it.

### **Recording and experience: preservation, intrusion, and coherence**

There were many examples of how the taking of photographs could affect the way events were perceived, experienced, and remembered. As well as constituting part of the behaviour of the photographers, capturing practices affected what those behind the camera saw and how they paid attention to an experience. Taking a photograph could be more than an incidental part of an event: it could become the focal point. In fact, some participants discussed the issue that photography could sometimes become too prominent or distracting:

*Jane: I think it is very easy when you have got a camera in your hand to go through your holiday experience of taking great shots and you think actually how did I feel? So, I've always tried to get a balance between being in the moment and experiencing it and actually forming the memories on their own — and the photograph.*

Jane spoke of actively seeking a balance between paying attention to an experience and photographing it, and her phrase “forming the memories on their own” suggested a distinction between internal and external encoding. The following excerpt showed a related distinction between being “in the moment” and seeing reality “as an image.” This view had been influenced by a book on photography that Jane had read at school:

*Jane: The particular piece that we read was talking about how if you spend too much time looking through the camera and taking photographs, you've failed to actually experience where you are. You see everything as an image rather than being in it in the moment.*

For John, the extent to which photography disrupted experience related to the complexity of the practices of capturing and how much attention they required. He gave the example of professionally photographing a football match:

*John: You don't see the game at all. You just see what you're looking [at] through your lens.*

John seemed to suggest that the amount of attention he needed to pay to producing photographs affected the extent to which he could “see” the event. Importantly, he talked about events that he attended for the purpose of taking professional photos for other people. As such, the quality of the experience was secondary to the quality of the images produced. However, John's apparent separation of photographic and non-photographic “seeing” suggested that photographic practices with a higher cognitive load were more disruptive to experience, whether professional or personal. His favourite kind of photography was of musicians playing live music. Generally, he was only permitted by the venue to take photographs for three songs, after which he felt he could pay attention to the event rather than the production of images. Taking photos, then, involved a switch to a different way of experiencing. Nevertheless, photographing moving musicians in the short time available was an exciting experience in itself:

*John: There's the buzz of taking the images and being where you are, at a concert.*

Phil also found photography to be most disruptive to experience when it was attempted in situations where it was difficult to take good photographs. Even in those situations, however, there seemed to be value in having poor quality images that might prompt a limited sort of remembering:

*Phil: You're so busy trying to get your camera ready, your picture is never good, and you've missed it. But at the same time, even having that rubbish photo, means you remember that you were there.*

This was a complex tension. For Phil, taking photographs could disrupt experience but looking at photographs was important for prompting his memory. Yet he suggested that reliance on photos as memory prompts could emphasise those aspects of experience that were shown in the images, and that these were not necessarily the most important things to remember. For him, the issue was not only *seeing* experience as an image (as Jane discussed, above) but *remembering* it as an image:

*Phil: I think you remember the photos — like full stops, which is good, because you've still got that memory.*

Phil's notion of "full stops" seemed to suggest that photographs could sometimes stand in for memory, rather than facilitate its construction. In the absence of having paid sufficient attention to an event, rather than to the photographing of it, Phil claimed that remembering could become like "a tick box," or recognising that he was there rather than reconnecting with experiential and sensory memory:

*Phil: There are other things that I probably would have concentrated more on if I wasn't trying to look at taking the picture — you remember being at the event, so it's like a tick box, but you don't really remember how you feel at the event, because you're busy taking the picture.*

At another point in the interview, he described what he felt was the potential for photographs to take over from other forms of remembering:

*Phil: It's kind of a funny thing, I think for a memory, once you have a photo, you remember it from the photo. Whereas other things, where you don't have the images, you remember it in a different way.*

Phil was concerned that such simplified memory might come at the expense of richer, experiential remembering. However, he then went on to qualify that this may

not be very different from other processes through which memory becomes simplified over time:

*Phil: There's definitely some things where you think of a memory, but actually, you're just thinking of the photo, that sort of third person approach. But then, I think even for memories I don't have photos of, I've probably got a third person element to it, where you've actually created your own narrative a little bit. I don't know why that is, but it probably does happen.*

Jane felt conflicted. She seemed to believe that experience and internal, unsupported memory should be considered more important than photographs, yet described the impact of not having photos of the time following her son's birth as having "lost a moment." Her comparison of her photograph collection with those of others illustrated a social component to the equation: photographs were not just for future remembering, they were also potentially valuable, socially-validated possessions:

*Jane: That was a moment that I think I have lost and what I would like to have done is have recorded that first day with a photograph. It shouldn't be intrinsically important, what should be important, as I've been trying to convince myself, is the experience and remembering the experience yourself. But I think because my whole life has been about recording things and my parents or my dad has done that, I feel that a photograph is something that I would have liked. But also, when I see other friends of mine that have those photographs, I think, 'I wish I had [my own].'*

While Jane and Phil wanted the best of both worlds—an uninterrupted experience *and* a photograph of it—Lorraine appeared to hold a clear position: engaging in an experience was more important than having a photograph of it:

*Lorraine: If we're on holiday I definitely don't take a camera — I find it really gets in the way of me experiencing stuff.*

She was critical of other people for "taking photos but not really looking." However, Lorraine acknowledged that she was able to take this moral stance because she had the luxury of a partner who would take photographs for her. This conflict in her

position was highlighted by her admission that, when she was by herself on holiday, she did take photographs:

*Lorraine: I used to say this pretentious thing about, 'I take pictures with the film of my memory and keep them in my soul,' or something, it's really important to me. However, the reason I can do that is because I have my own travelling photographic companion, and I'll say, 'Oh, can you take a picture of that plant.' And so [my partner] takes a lot of photographs, but I don't.*

For Lorraine, photography could intrude upon experience because she saw them as separate. In describing her sister-in-law's behaviour, she considered that some acts of photographing were objectionable and unnecessary attempts to legitimise experience:

*Lorraine: That's the other thing, a sense of proving. My sister-in-law takes pictures of everything. Just as you're about to eat, she'll say, 'Stop, wait a minute, let me take a photograph'; it annoys me so much — let's just enjoy it. She seems to describe it as if it hasn't really happened unless she's got a record of it. And I don't like that, I think it's happening because it's happening.*

Robert had a different perspective. He suggested that photography could not intrude on experience because it was a legitimate part of experience: "I think generally taking photos is just part of life." Both he and Nick seemed to avoid the issue of whether photography was intrusive. For them, taking photos was simply a part of their ways of acting and seeing:

*Robert: Often the experience and the photograph kind of merge, it's not as if they are distinct things. The fact that I take a photograph, actually it's part of the experience.*

However, subsequent practices with the resulting photographs could change the way participants thought about an event. Nick discussed how he turned a tense moment with his daughter—treating head lice—into a fun occasion through the taking of a playful photograph. Taking the photo turned a negative experience into a positive positive story. Similarly, for William, a self-portrait which showed him in a bad mood was associated with both the negative emotions of an unsuccessful day and the

positive reaction to posting it within his community on Blipfoto (a social media website on which users post a single photograph each day):

*William: That was an absolutely terrible day. I mean, the expression on my face was that it's been a long exhausting day — so, it was quite nice and people noticed. I don't get a lot of comments online but that one people [asked], 'Oh my goodness,' you know, 'What happened?'*

This social element was significant because some of the emotions and impressions with which the photo became associated were actually generated by the taking and sharing of it rather than the experience it was intended to record

### **6.2.3 Distributed remembering activity**

Both the cueing processes from Study 1 and the subjective connections from this second study suggested that participants did not simply use photos prior to remembering but during or *within* their thinking. Surfacing connections allowed certain kinds of remembering to take place, transporting connections linked visual details with emotional memory, association drew on internal and external information to make connections between the photographed scene and other ideas or stories, and inference reinforced, augmented, or corrected what was remembered. As such, practices of viewing constituted important elements of the wider activity of remembering. Further, this wider activity extended across time, involving combinations of different practices that were influenced by the functionality of technology, the competence of those using it, the conditions in which it was used, and the relationships between people and their tools.

### **Access, materiality, and engagement**

Viewing practices involved more than the simple perception of images. Physical environments and media influenced both the nature of interactions with photographs and what interactions took place. For example, an important factor that influenced engagement with photographs was how easy they were to access. Jane had photographs on display on her wall, occasionally looked back at digital photos on her

computer, and very rarely looked at physical albums. She suggested that she might look at these physical collections more often if she moved them from her loft to her study. For Lorraine, digital photos were easier to access than physical ones (which were stored away in boxes) and were, therefore, much more frequently viewed:

*Lorraine: I associate [physical] albums with a lot of hassle, or even a bit of guilt, because it was always when we had photos it was like, 'Oh, I must get those classified because I must get them into albums, because they're just getting torn, or they're getting forgotten about.' And then we would say, 'Oh, let's put aside some time and really get them and put the labels on'; and never ever got round to it. And then they would take up a lot of room and get dusty and everything. But now the [DigiFrame] images are just there, it's so easy.*

Lorraine's feeling of guilt around her physical albums seemed to have created an additional barrier to interacting with them. During the interview, however, the rediscovery of forgotten images in those boxes led to powerful, emotive remembering experiences:

*Lorraine: When we looked in the album of the physical photos, they had a physical impact on me. I could feel the power of those; which really surprised me. Really surprised me.*

Similarly, Thomas conveyed a sense of the power of re-discovering photographs of his childhood. He had recently gone through boxes of "a couple of thousand photos" and realised that they contained many valuable pictures:

*Thomas: It's like photos of me and [my brother] with my dad, feeding a billy goat — that I had never seen before. And, sort of, you know, my mum and dad never got on, they were divorced when I was a really wee boy. So seeing photos of him, we never really had photos of my dad around the house. And so seeing photos like that, I was like, 'I didn't even know we had that, that's really cool.' So fantastic photos.*

These emotive experiences seemed to have been possible because the photographs were stored in ways that had restricted their access. Therefore, making photos more accessible increased frequency of viewing but did not necessarily increase

engagement with the experience of viewing. Thomas mostly accessed his photos via digital interfaces but felt that these lent themselves to skimming through collections. It was notable that, during his interview, he did not look closely at individual digital photos. Instead, he viewed them as albums of thumbnail images:

*Tim: Do you think you would, on the digital ones, zoom in and look at the actual photograph? Because when we looked at them just then, we didn't do that much, we kind of stayed on the kind of collection page.*

*Thomas: I think you're right. I think in the kind of lifestyle we have at the minute, because it's so busy with work, and kid, and another kid on the way, and all that kind of stuff, you don't actually spend the time looking at them properly.*

Although he linked this superficial engagement to his busy lifestyle, he felt that printed photographs were more conducive to meaningful and contextualised engagement where connections were made between different photographs:

*Thomas: With a photo in your hand, you actually sit and look at it. And you look at it again, and you look at the detail, and then you put another one next to it, and then you look at that, and then you go back. And you go between, sort of, photos that are physical in your hand. Whereas with a digital one, you don't tend to really kind of go between them quite as much. Or that's what I've found, you don't get quite as immersed in stuff, you just flick through, and it's all a bit throwaway.*

Thomas regretted not paying more attention to his digital photographs. He seemed more able to give physical albums his full attention, and this allowed him to become immersed in what he described as highly enjoyable remembering activity with significant personal and social benefits:

*Tim: Do you think it matters that you don't look at them properly?*

*Thomas: Totally! Because, well, what a different experience it is when you — on that day, when I looked through all those photos before [my brother's] wedding. It was great, you know, it was absolutely brilliant. And it's something that I came away talking about, and then I had a bundle of things to talk to my mum about after that, or I wanted to talk to [my brother] about it, or told [my wife] about things. So, yeah, it was great to spend the time looking at it, because you should, you know. It's your life.*

Kate also preferred looking at and holding printed photographs. Like Thomas, she expressed that it was not just looking at photographs but holding them—physical, embodied interaction—that was important to the viewing experience. She expressed a dislike of the material interface through which digital photographs were accessed and had experienced physical discomfort:

*Kate: I don't like having to look at this type of surface. I liked holding the picture in my hand. I don't get nearly as much enjoyment looking at stuff. I'm getting used to it now on Facebook, getting used to looking at pictures like that all the time... Before Facebook, I can remember feeling a bit headache'y sitting looking through pictures in this way, which I never used to feel when I had them in my hand.*

She felt as if her digital photos were trapped in a false format, in part because she did not feel knowledgeable enough to create physical albums from them. This, she felt, prevented her from incorporating her photographs into traditional, long-term, socially distributed memory practices. However, her objection was tied up with a wider emotional objection to the proliferation of computing:

*Kate: I really resent the whole computer age in every way possible and that includes having to store my pictures that way, that's particularly hurtful. They just go on that stupid computer. No, I want, like, scrapbooks and albums and things to handover to someone younger so they can flip through it and feel the pages and point and, you know, look at multiple photos at one time and just, I don't know how to get that out of that machine. You know, I get one photo at a time and then I have to click to see another one and, no, they're not getting used at all the way I had intended. They're just being stuck in some digital format somewhere.*

However, participants generally felt that digital photos were particularly easy to share with other people. Once shared, photos were often incorporated into personal collections. Notable exceptions were where participants accessed other people's online archives. For example, although Thomas was very concerned with losing photographs that he had taken, he had not copied important photos from other people's Facebook albums into his own archive. Sophie had lost access to photos taken by others for the same reason:

*Sophie*      *There'll be, like, millions of photos and they disappear and I'd be, like, 'Oh, what's happened?' And I'll realise somebody's had a bit of a cull and deleted them basically. I had a holiday visiting my friend and my friend's fiancé and then they broke up and all the photos disappeared. And I wished I'd saved them because I'd allowed them to take all the holiday photos.*

### **Distributed practices**

While viewing photographs enabled different ways of recalling the past, the practice of viewing was, in turn, enabled by prior photographic practices. Further, the meaning of the photographs related to the experience and memory of engaging in those practices. Ingrid, for example, believed that analogue photography produced more rewarding experiences and photographs. The expense and limited capacity of film meant that she had to be careful about what she photographed and this increased the value not only of the resulting photographs but also of the practices. Effortful photography was, according to Ingrid, more conducive to remembering because it required greater attention to both taking photos and to the related experience of taking them:

*Tim:*      *So how does taking a photo help you remember a moment?*

*Ingrid:*    *That is a lot easier with the analogue camera for me, I think, because you actually have to work for the picture, because you have to wind the film and then, you know, kind of — you have to focus and then it makes click and then you have to wind the film again. So it's — I think the practice of taking pictures with the old analogue camera is just so much more work compared to just going, 'click.'*

*Tim:*      *And the work that you have to do is a positive thing?*

*Ingrid:*    *Yes. I — yeah, I like it. It takes time so you have to take the time, if that makes any sense. It's very, very hard to take a picture just walking by something.*

Ingrid thought that she was more likely to remember engaging in effortful, analogue practices and that effort could, in turn, help her to remember the experience that was being photographed. Kate also made the link between effortful photography and “memorial value” which, for her, was not entirely bound up in a photograph's appearance but also in the process of creating and interacting with it. She lamented

that, because she was less involved in the process of producing a digital photograph, it was harder to remember digital photographic practices:

*Kate: I feel like I got more memorial value out of my hardcopy photos. I think I had a clearer memory of the moment when I was focusing hard on taking a good picture than I do these days. I can still remember taking some of the pictures when I was young. Whereas most of the current ones, I don't really remember the moment, I knew I was there, but you're just taking them all the time and other people are taking them all the time. I don't know, it's all lost its specialness.*

The distributed activities that participants engaged in were influenced by both subjective and practical considerations. For example, both Ingrid and Kate preferred the experience of taking analogue photos, yet mostly took digital photographs. For Kate, the increased effort and expense of developing analogue film was part of a pervasive digital culture that forced her to use digital cameras. Ingrid mostly used her smaller, lighter digital camera because it was more convenient:

*Ingrid: I used to actually carry [the analogue camera] around quite a lot. I don't know nowadays ... It's not that big, but it's heavy, one of these old things.*

More than just the use of a photograph to stimulate recall, or of a camera to take a photograph, practices involved complex networks of different people, devices, software, and infrastructures. The relationship between components of a system could be as important as the qualities of the components themselves. For example, combining cameras and software in complementary ways could enhance the possibilities for interaction between people and, therefore, social remembering.

Thomas used Whatsapp to help his extended family to distribute and discuss photos via their phones:

*Thomas: We'd use a lot of WhatsApp to share stuff— so there's a very specific WhatsApp folder, and that, funnily enough, gets shared by the grannies. So, they've got smartphones as well, and they absolutely love WhatsApp, and getting photos of the wee guy. Because, as [my wife] would say, they're not in Edinburgh, they're a couple of hours away, both of them. And they just love using their smartphones.*

Established patterns of distributed activity did not always remain stable. Phil provided an example of a complex, shared pattern of organisation that was still evolving. He described how he resolved the different approaches of himself and his wife in creating a shared archive:

*Phil: I'll use the last holiday as an example, it's probably the most recent way of it. [My wife] will take photos on her phone, I'll take pictures on my phone and the camera. Then, for Facebook reasons, I'll then air drop photos to [my wife's] phone, so then we've got copies on both. And I'll have my camera. But the ones that [my wife] thinks are good enough to go onto Facebook will go, and they'll be a mixture of both of our phone photographs, but none of the camera ones. And then, we'll get home, and I'll plug in my camera to the computer, get all of those, edit, delete ones I don't want, maybe make an album. And then get both of our phones, but then there'll be duplicates, because I'll have my photos on both phones, and it's a bit of a pain, and I'll have to go through them. Sometimes I'll be really strict and get every single one, sometimes I'll just fly through and just pick the ones that I kind of need. I've not done that in a while, 'cause it was a pain the last time! So yeah, I think the phone's changed it a lot, actually.*

The phrase “the most recent way” suggested a changing nature to this pattern and the repeated use of the word “sometimes” suggested inconsistency. There were issues yet to be resolved, primarily around different preferences and agendas that were leading to the inclusion of photographs that did not fit Phil’s system of organisation. This highlighted complex considerations to be resolved around different tools, such as phones, cameras, Facebook, and iPhoto. The emergence of new technology seemed to have contributed to changes in the practices of taking photographs, the quantity of images, and the locations where they were stored, impacting on Phil’s experience of interacting with his archive.

The experience of engaging in photographic practices was clearly affected by perceptions of competence and control. This was most evident with Kate when she complained that digital cameras were responsible for too much of the expertise of creating a good photograph:

*Kate: You can take 200 pictures within a few seconds and catch the motion exactly as you want it whether you're good or not it seems. Technology is now able to capture things and you no longer need as much of an eye.*

Like all participants, Kate valued photos that showed her skill as a photographer. Therefore, while it was important that their quality was attributed to her rather than to the camera, the tool impacted on her ability to demonstrate that skill:

*Kate: I keep going through the just point and click cameras and they keep disappointing me. I had one, the first one that I had was great and it took this picture and you could pretty much point and click at almost anything and you would get some astonishing shots. I just thought that was a combination of technology and my amazing photography. And then I got another one, when that one finally broke, and it was unusable, there was lots of blurry stuff coming out of it.*

It is notable that she was disappointed not only by cameras that produced poor images but also by those that produced good ones. Kate regretted that advances in automatic settings had taken away her sense of achievement of being a good photographer and that the quality of the images was mostly dependent on the technology. As a result, she was less invested in the photographs. In contrast, Sophie considered herself a poor photographer, but took advantage of the capacity to take large numbers of digital photographs to increase the likelihood of producing images of quality:

*Sophie: I'm pretty shoddy at taking photographs. I take loads on my phone, but I always take, like, 50 before I get, like, the one shot that I like.*

In this way, technology was able to compensate for Sophie's limitations. A number of participants mentioned a similar idea. Thomas who, like Jane, faced the challenge of photographing a son who would move about a lot, used a "photoburst" feature on his camera to take many photos in quick succession, making it more likely he would capture the right moment in the right way. John used a similar "rapid fire" function to photograph musicians moving around on stage. However, while technology could help with creating good photographs, it could also be perceived to overstep its

bounds. Phil, for example, felt that the photoburst function on his camera was problematic because it would generate too many similar photographs:

*Phil: My camera does this thing where, one of the settings is, it'll take five photos at once, and it'll pick the best one, but you still have all five photos. And that's a nightmare, actually, to have that setting, so you've got all these extra photos. They're fine, but I don't need five of them.*

The ability to perform photography practices was distributed across people and their equipment. Yet while Sophie felt that she used the photoburst feature to compensate for a lack of proficiency, John viewed it as enhancing his competence. A keen photographer with good equipment, John derived satisfaction from using his ability to get the best out of his camera in the challenging conditions of live music events:

*John: During your three songs — so that's maybe, what, 12 to 15 minutes — you've got to get all your shots. That's where there's a bit of a kick about it, cos you can't look through them. You just have to, kind of, trust your judgements.*

Although he had high quality cameras, it was important for John to be able to control their settings: he felt that there were limits to what the automatic functions could achieve. He was able to use his knowledge of photography, of his particular equipment, and of the venue and situation to negotiate difficult conditions:

*John: I don't use a light meter or anything, but, kind of, know from a venue what the light's going to be. And then I can set the ISO on the camera roughly. I know what shutter speed I need — during the first song, you get quickly into the habit of having a quick look round, does the ISO need adjusted? Or, can I maybe put the shutter speed up a little bit just to freeze action a little bit more?*

Often, it was not evident from participants' accounts how they had established distributed practices. In some cases, the processes involved seemed to have become invisible, with little need for effort from the participant. For example, Thomas spoke of the initial work of configuring his online archive and the subsequent automation of his processes of organisation:

*Thomas: Maybe setting up OneDrive was quite systematic, but after that's done, you know, you just rely on the automated processes to do it for you — and they fix anything that's broke. It's not really necessarily that we're doing anything, it's just all set up to go.*

The seamlessness of Thomas' system was in stark contrast with Kate's. She did not understand how the storage system on her computer worked and had learned by rote where to find things:

*Kate: What's happened is that, due to all my searching for things when I need them, I now know, sort of, where things are from learning. You know, I've had to learn where my own things are and I've memorised. It's like a game of memory.*

Kate's memorisation partially compensated for a lack of understanding the structure of her digital archive. However, her processes could not become seamless because they required constant learning. This could be seen as a problem of Kate's individual competence, or as a problem of distributed competence created by an incompatibility between technology, her preferred ways of working with photographs, and external sources of support. Where many participants had developed partnerships with spouses, partners, or best friends, Kate, living by herself, had no such help. Likewise, without anyone to help her, Jane felt isolated and helpless in the face of technology:

*Jane: When it goes wrong I have no idea of what to do and I totally disengage. The main priority on this computer would be the collection of my photographs and I would like just to be able to plug the camera in my phone or the SD card in and it to do what it is meant to do and what it promises me and it doesn't and I don't know where to go with that.*

Like Kate and Jane, Lorraine struggled to understand the workings of her system of organisation. For her, though, this was not a problem, because she had a partner who managed this side of things. Before his divorce, Henry and his now ex-wife had maintained a balanced partnership, having spent over 20 years collaborating in taking and editing photographs, their process had become almost seamless. Individual conceptions of performance and ownership had given way to collective ones:

*Henry: When you work as a team, and we did a lot of work together as a team, and it was almost immaterial who would end up hitting the button.*

Sometimes, however, ways of distributing practices and competence were disrupted by circumstances. Henry's organising had been more competent in combination with his ex-wife than as an individual without the benefit of her methods and routines. He had needed to establish new organising practices after his divorce. He had a number of rules that governed individual practices, but these had a very narrow focus (e.g. the development of particular editing techniques) and did not sit within a coherent overall strategy. He tended to be very focused on the particular practice at hand to the neglect of the wider system. This had not been a problem while his ex-wife oversaw how things were organised as a whole, but he had been struggling since their separation:

*Henry: I'm actually a very disorganised person, generally — the dishes can pile up for weeks... My wife, in contrast, was almost the complete opposite, she was incredibly organised. She would do a lot of the organisational work around what we did. And when I didn't have that, it was really difficult. And I'm only just now getting my fingers back into being organised enough to get to the scanning and file it away properly and all these things.*

Henry was still able to take satisfying photographs but had difficulty organising them in ways that made it easy to find particular images to look back on. Photography was a major part of how he made sense of the world around him and this uncoupling from an established set of socially-distributed practices had disrupted important ways in which he recorded, analysed, and reflected on aspects of his life.

#### **6.2.4 Trajectories**

This section explores how the activity of remembering was extended over time and the relationship between long-term patterns and particular, situated instances of photographic behaviour. As with Study 1, participants of this study often mentioned unfulfilled intentions.

### **Goals, plans, and spontaneous activity**

A number of participants found it difficult to develop plans or systems for taking photographs that would be valuable later or for organising their photographs in ways that made them easier to access or engage with. For Jane, it was difficult to generate a comprehensive record of her son's activities. Photography, for her, required vigilance and remembering to "action" her goal:

*Jane: I like the idea of having a visual record, but I'm not very good at actually actioning it at that moment in time. So I try and make a concerted effort to take photographs of whatever we're doing. But I often fail to do that.*

Jane needed to remember her goal during moments that were appropriate to taking photographs. Similarly, Lorraine had formed a plan that required her to remember to look at photographs at appropriate times. She had taken photos of flowers in bloom to help her to make changes in her garden but forgot to look at these when making planting decisions.

When Jane did take photographs, she would take a lot to compensate for events she had not photographed. She recognised this as a flawed strategy that resulted in an imbalance in her photographic record:

*Jane: It's sporadic and what I would like is for it to be, less of a, here is 50 million that I took over a period of two or three days and here is nothing for three months. I actually feel that there are lots of holes in that collection and that the subject matter is very, very similar.*

Others also compensated for missing photographs by taking numerous pictures of other things. Ingrid took many photos of her current cat to make up for having none of the previous one. Thomas suggested that his large collection of photos of his son was a response to losing six years' worth of travel photographs:

*Thomas: After losing all those photos previously, I want to make sure we've got all of the stages of his life and our life covered.*

These examples showed that approaches to taking photos were often reactive responses either to perceived gaps in the photographic record or to the conditions of the situation. Jane, Nick, Mary, and Dan all described acting in the moment rather than according to any longer-term agenda. Mary described the spontaneous and unpredictable nature of her photo taking:

*Mary: I couldn't tell you now what the next photograph I would take would be. So to that extent, there's a random element in there, a serendipitous element in there. So, I know that we're going to [a nearby town] tomorrow to see the dancers perform. I don't know whether I'll take a photograph or not. It will be quite spectacular, there will be things that would merit being photographed. I have absolutely no idea of whether I will not. So, there is that spur of the moment-ness of it ... I'm just as likely to take a photograph when I'm down walking on the beach of some pebbles, just because they look nice, because the colours look pretty, and it just appeals to me. And again, just pure chance, you might see something and you think, 'Hey, that's really pretty.' So I don't think there is a plan, an intention in there. It's a bit haphazard.*

For Nick, patterns of activity were born out of acting in the moment. He captured moments for future reference by intuitively following a “subconscious” process:

*Tim: You're saying that maybe in the future it would be nice for your daughter to look back and see her friends at nursery. Do you think you thought that when you were taking the photos?*

*Nick: I don't think I was conscious about all of this. I think it was more about following the pattern of taking photos of the moment — moments that pass away and never come back, so you have to capture that moment, but as a second thought, yeah, it's about having them in the future for reference. I think the process of taking photos is part of my subconscious at this moment, it's like it's a second nature, I have to take photos. I like to take photos, it's easy to take photos, so I will just do it and see what will happen afterwards.*

Such spontaneous and intuitive decision-making was resistant to specific, structured goals. Nick did not know what he would appreciate later. In contrast with Ingrid's position that photography should be selective and careful, he felt that taking a lot of photographs allowed him to capture images of unexpected value:

*Nick: What happens is I have a lot of photos and I do appreciate them after I take them, not the moment I take them. There are some moments when you see something really interesting or beautiful and you say, 'I have to take this photo', but it's rarely the case. Most of the time it's like shoot as much as you can, then you have time to go back and reflect on what you actually shoot, then say, 'Okay, that's interesting, that's not interesting.'*

Lorraine described the value that spontaneity and unsystematic activity could have, not only because it produced unexpected photographs that had value based on their unpredictability, but because having an archive that was somewhat chaotic encouraged the excitement of “serendipitous” rediscovery.

### **Habits, routines, and rules**

Although goals and plans were made more difficult by spontaneous activity, consistent behaviour could be achieved through the development of routines or habits. Dan would routinely tag his photos as soon as he returned home from a trip, so that the construction of their annual photo calendar was easier at the end of each year. John—who, as a semi-professional photographer, relied on an organised collection—had a similar process for highlighting photos he felt were worth keeping. He described his process in detail:

*John: For every gig ... I tend to do the same thing otherwise it would just be a mess. So I always have three folders, raw photo, where I copy all the images into it and then I create a Lightroom catalogue, import all the photos into there. And then when they're edited — I edit them to another directory. Then I go through — as I said, part of the process initially with being the raw photos is to flag them. Then you could go back to them at a later date and just dump all the unflagged images.*

Phil attempted to maintain a consistent approach through a number of rules or guidelines that helped him to make decisions about the organisation of his photograph collections. Some of this was about producing an archive that would be conducive to sharing. To avoid overwhelming people, he had developed a rule of

thumb that an album should contain no more than 200 photos per week. He had a second rule to work out who should have access to his Facebook photographs:

*Phil: I think my rule is who I would send a text message to. If I would send a text message to them, then they'll be a friend.*

Phil's rules sometimes created difficulties for him. For example, he organised his archive by "events" and had deleted valuable photos that did not fit his classification:

*Phil: Sometimes I might only have one picture and I'm really torn about, is that an event or not? Like, I need three or more photos to deem it an event. I don't know why that is.*

*Tim: So what do you do when there's only one photo?*

*Phil: I really struggle! There's definitely photos that I probably should've kept, but I've deleted because they didn't fit into the organisation. Which is stupid, but...*

William's Blipfoto approach seemed to be successful and consistent because he was participating in a particular photographic culture that generated rules for him.

However, breaking these rules or routines could have a disruptive or negative effect.

He spoke of an occasion, years earlier, when he had not uploaded a photo after a long period of posting one every day:

*Tim: You did 281 in a row?*

*William: Yes. Then I missed a day and I just — that was it. I think I was beginning to run out of ideas.*

William had found this demotivating and had stopped taking part. He later came to recognise that aberrations and slip-ups were inevitable and that they presented a motivational challenge to continuing with a system. He had learned that accepting occasional "failures" was integral to maintaining activity over time.

## Changing contexts and meanings

The consistency of participants' practices was affected by the shifting contexts in which they took place. This was true not only of the immediate situation (e.g. John's adjustment of his approach based on music venue), but the wider context. This could be seen in participants' engagement with old photographs. Ingrid, Robert, and Nick all had photographs of previous generations. These photographs were understood in relation to both the context in which they were taken and that in which they were viewed. For example, pictures of Robert's grandfather that were originally taken as holiday photographs had become historical documents:

*Robert: Pictures of my mother's father when he was in his twenties. I only remember him as a very old man, but that's kind of — what do you call it, history, rather than remembrance.*

Similarly, Nick's father had constructed an archive of photographs that allowed Nick to visualise how his ancestors lived and to "put things in perspective and context." By showing evidence of the past, photographs seemed to provide access to a previous context. However, participants could not help but see these images in relation to their current context, as indicated by Henry's summary of old photos of his relatives as "old, classically posed studio pictures from back in the day" or by Ingrid's description of how photos could reinforce a sense of change:

*Ingrid: If I look at pictures of something or someone who's not there anymore, or if something that I know will never be the same again. Or things that have changed very, sort of, drastically. And you think, 'What happened here? I don't recognise this anymore. This was part of my heritage. This was part of where I grew up. This is gone.'*

Sometimes, Ingrid deleted photographs because she did not want to be reminded of a past context or of what had changed. This was an active regulation of remembering, a notion that was also alluded to by Henry. While he did not dispose of photos of his ex-wife, he had thought about making it more difficult to access them:

*Henry: For sure, pictures of my wife just, you know, are — I can't stop looking at them, but sometimes ... I've got a whole collection on the computer,*

*little video clips, and pictures of stills. And I can't look at them sometimes, but sometimes, I have to. And there's been a few times where I've been tempted to take the whole lot and just put them somewhere and not look at them.*

Shifts in context and perspective could also be exploited to help participants understand themselves and their pasts. For Nick, a series of photographs of his daughter recovering from illness helped him to make sense of that experience and of her development. His approach was to record good and bad moments to help him remember and understand what he or his family had been through:

*Nick: I don't think we have to capture only good moments, but moments like that were difficult; taking photos helps remember them and if they go well, obviously, helps to recollect the good that came out of that difficult situation.*

Nick seemed to have a sense of what photographs might come to mean in the future and was proactive in attempting to increase the likelihood that certain things would be remembered. This tied into an overall conception of his photograph collection as a record of experiences that enabled him to see how he and his family had progressed through life:

*Nick: I see photos as a journey, because life is a journey in general... the photos help us take a log of that journey, so we know where we've been.*

New possibilities for understanding the past were created by the diverse functionality of technology and an increasing number of photographs. For example, automatic footage from Mary's garden surveillance camera led her to realise that "somebody seems to sit there and drink wine quite an extraordinary number of evenings."

For Robert, the privilege of recording in easier ways and ever-increasing quantities had created a very different context for remembering from that of previous generations. The photographs of his grandfather had been digitised and were viewed on a computer screen, something that would have been inconceivable at the time they were taken. Similarly, Jane mentioned that her father, despite being a photo

enthusiast, had a collection that was “tiny compared to what I already have of [my son’s] lifetime.”

These changes were largely attributed to a shift from analogue to digital photography—a disruptive change that was seen as positive, negative, or both by different participants. Other contextual changes, beyond the technological, disrupted established photographic practices. A common one was moving house, which led to reorganisation of photographic collections and displays, at the same time prompting participants to both rediscover old photographs and throw out others that were not worth transporting. Changes in family situations were another. Henry’s divorce resulted in a loss of overall competence, ways of working, and possession of photographs. Since the birth of her son, Jane’s lifestyle had changed dramatically, with new photographic goals as well as practical challenges. For Thomas, a change from being a single man working in a travel company to becoming a father resulted in the taking of very different kinds of photographs:

*Thomas: Holidays have changed now — instead of going to Costa Rica and Brazil and Argentina — Now, we went to a caravan park in [the local area].*

### **Developing collections**

It was notable that, having spent considerable time and effort taking photos, many participants did not seem to spend much time looking at them. There were exceptions to this, particularly where viewing photos formed part of established patterns of activity. For example, William had established a routine around the social practices of the Blipfoto community. Lorraine regularly viewed photos because they were set up to rotate in the Digiframe on her living room wall. On the other hand, while Ingrid did look at her printed photographs, particularly those on display, she spoke of rarely looking at the majority of her digital photos:

*Ingrid: I find that I never look at this [digital collection]. I mean sometimes, but rarely. And only if I want to find a particular picture — oh so many pictures that I hardly ever look at.*

Interestingly, while photos might be *taken* for a memorial purpose, there may not have been a conscious intention to look at them later. In some cases, it seemed that having photographs or even having taken them was enough to satisfy a participant. Jane very rarely looked at photographs, yet having them was of great importance:

*Jane: They're really precious — I'd be devastated if I lost them.*

Henry had a compulsion to record life that often did not translate into viewing, partly because of the huge amount of footage he collected:

*Henry: I hate missing things, even stupid things. When I'm walking down the street and I just see a bit of wall with some crumbling paint on it, and I go, 'I need that.' But I've no idea what I'm gonna do with it. Half the time, I'm not even gonna see it again, for ages. But I know I've got it.*

Kate's account suggested that taking photos could sometimes be more about the avoidance of loss than the intention to remember. She took photographs partly in preparation for the potential decline of her memory:

*Kate: As I get older, I'm getting more and more worried about losing memories. I've got a lot of family members that are, kind of, losing their memory. Yeah, photos still mean something to a lot of those people, you know... So, yeah, it's become more a focused process definitely as I've gotten older.*

Ingrid made the point that, rather than preventing loss, looking at photographs reminded her of what had been lost. She disposed of images that might be upsetting or for which she no longer “needed the memory.” An exception to this was a set of photographs of her grandfather in the First World War that she did not want to look at but felt she should keep because of their historical value.

Organising practices also had to deal with photographs that were not about personal experience. Collections encompassed different kinds of media and were produced through functions of work, gardening and home maintenance, creativity and communication. The goals of some of these activities were not directly aligned with

those of remembering or the construction of a coherent photographic collection. Further, sharing photos with others created networks of remembering even if photos were originally intended to communicate something about the present. This could create conflict. For example, Phil and his wife shared an album in which there were photos of limited relevance to him and tension arose around different individual preferences within their shared system:

*Phil: I was trying to keep them separate. But now, we've got this new computer, they're kind of coming together. But I keep on having a moan about whether or not to create a second photo library for other stuff that is less interesting to me.*

There were many cases in which participants had been unable to consistently apply organisational methods to their collections. There were often sporadic patches of organisation alongside numerous photos without any consistent annotation, metadata, categorisation, etc. Kate's photos, for example, were segmented by which computer she had been using at the time they were taken:

*Kate: This was everything that was on my camera between the time I shut off the old computer and so now even digital stuff is getting really segmented. So that's everything prior to getting this thing and then these pictures are everything after that.*

While Kate had no clear wish to integrate her digital and non-digital collections, Dan had begun the process of scanning in old photos but had not sorted them into his overall structure and elements of his collection were in flux. Like Kate's, the organisation of these images was largely automatic in the sense that he had not interfered with the default structure imposed by the software:

*Dan: I think they're just kind of broken up into lumps because that was the — separate days that I got around to it, scanning those, so I don't think that these are actually organised in any great way.*

Once he had the files, the impetus to organise them was diminished. This may have been a symptom of a wider shift from actively organising digital collections to new ways of navigating images:

*Dan: People take so many things that they just can't be bothered to, kind of, put them in albums and organise them and things. It's like having a big bucket of photos there and just other ways of moving through it is more appropriate.*

Because different ways of grouping and organising allowed photos to remain with a wider collection without being accessed, Phil and Robert both claimed that there was no need to delete digital files, even if they were unlikely to ever be used. However, Phil valued the curated structure of his archive and worried that some personalisation and control was lost through new ways of navigating collections (e.g. through the application of search filters). His primary goal in organising his archive seemed to be the creation of a resource for cueing memory. Yet it was not just the archive, but the organisational process, that was important in helping him make sense of his experience. For example, he mentioned that in looking back, months that had fewer photos than average made him feel as if he had not done much, even if he knew that there could be different reasons for it.

The most important space for William was Blipfoto where he invested much effort and attention to the curation of a highly selective collection. The constructed network of photographs included layers of meaning that bound them together. In his digital collections, William seemed to make a clear distinction between curated albums and general storage. Phil, on the other hand, attempted to curate his entire archive, with mixed results. Although he had previously put some photographs into albums in Facebook, by the time of interview he had passed this role over to his wife and his main focus had become the greater archive. He had attempted to establish a rigid structure in which a photograph was judged not only on quality or meaning but how it fit within the collection.

### 6.3 Summary

In considering how participants used photographs to cue recall in the interviews, four subjective connections were identified, each important in a different way: surfacing, transporting, associating, and inference. Together, the bringing of experiences to mind, the prompting of re-experience, personally relevant stories and meaningful associations, and the correcting or conveying of additional information were combined to produce complex memory narratives. For transporting and associating, emotional connections were particularly important. For surfacing and inference, the content of the images was key.

Photographs were valued according to a balance of perceived objectivity, aesthetics, and personal meaning. The photograph's perceived capacity to capture aspects of reality was important to its potential as evidence. This was at odds with the way that participants would emphasise particular elements and orchestrate aesthetically-pleasing pictures. This juxtaposition did not affect the high value participants placed on their photograph collections and the deep concern expressed about potential loss through fading, deletion, destruction, misplacement, etc. They had been to considerable effort and expense to produce large quantities of photographs and they found it enjoyable and rewarding to look through them or to construct photographic objects, such as calendars, framed prints, etc. Yet it seemed that many photographs remained unorganised and forgotten in boxes or on hard drives. Participants were often aware of their inability to deal with their collections, yet they continued to take large numbers of photos. Such issues often led to systems in flux (e.g. sets of photographs waiting to be organised at an unspecified, later date), disengagement, or approaches that required very little organisational effort.

For some participants, there was a tension between what was important in the moment and what became important later when looking back. Although some felt that taking photographs could detract from experience, *having* photographs could enhance, or even enable, remembering. In some cases, experiences came about *because* of the act of photography. In others, experience was sought out for the

photograph that could be produced from it. Further, photographic acts were experiences that could be remembered.

The distribution of tasks, roles, resources, and control across people and tools could be understood from both short and long-term perspectives. While actions often made sense in the context of the situation in which they were performed, they did not always integrate into consistent, long-term patterns. Conversely, while goals and systems were established with a longer-term view, actual patterns of activity were manifested or realised through specific, situated actions. There was a tension between what it made sense to do within a longer-term, ongoing plan or system and what it made sense to do in a particular situation. Habits, routines, and rules were adopted in the service of maintaining a consistent approach. However, participants did not necessarily want to develop plans or coherent systems. It was important to leave room for spontaneous decisions and actions that were appropriate to the situation, for adapting to new contexts and ways of doing things, and for unexpected rediscovery. After all, the difference between the contexts in which images were viewed and those in which they were taken showed the difficulty of predicting both how photographs would be used over long periods and the meaning that could be taken from them.

Shifting contexts changed not only the perspective from which participants looked back on the past but the kinds of photographs, practices, and social and technological distributions with which they engaged. The different functions and limitations of technology were important but they were not inherently positive or negative. Digital technology, for example, was seen both positively (e.g. Henry, Nick, and Robert valued the potential to take large numbers of photographs) and negatively (e.g. Kate and Ingrid objected to the reduction in attention and skill needed to take good photographs). As well as possibilities for activity, combinations of technology and people could create experiences of engagement that motivated future practices.



## 7 Blended memory

### 7.1 Overview

In Chapter 3, I characterised memory as a functional system that makes use of internal and external information and processes and is influenced by the context in which it operates. In this chapter, I discuss the roles that my participants' photography practices played in the composition and performance of such systems. In doing so, I discuss the value of thinking of memory in terms of remembering activity, arguing that such a view makes it easier to conceive of longer-term patterns and disciplines of autobiographical memory.

The combination of the two studies was designed to encompass both an event-specific and a longer-term perspective on photographic practices and remembering activity. In Study 1, the exploration of engagement with photography at the wedding and of the subsequent organisation and sharing of photographs enabled the construction of a framework that highlighted a diverse set of practices, motivations, contextual factors, and cueing processes. Along with supporting interpretation of how people used photography to remember a wedding, this framework informed my approach to examining the longer-term development of photographic practices in Study 2. In that study, the combination of event-specific and longer-term practices highlighted a tension between overarching approaches to remembering, such as the establishment of habits, routines, and rules, and spontaneous, in the moment responses to particular situations.

Similar issues were identified in both studies, but the dynamic nature of patterns of activity across time and context was more evident in Study 2. For example, while similar environmental factors affected what had been photographed, it was clear in the second study that participants had sought out particular kinds of environments for photographing. Similarly, technology was important in both studies, but Study 2 showed how it was adopted into both temporary and persisting "sociotechnical distributions" (Hutchins, 1995). Study 2 also showed how economic factors

influenced not only in the moment decisions but what tools and infrastructures were available. The longer-term view showed how idiosyncratic beliefs and preferences were connected to life circumstances. In social terms, it showed that taking photos wholly or partly for other people was not restricted to events like weddings but was a common part of the distribution of tasks and roles.

Of course, the participants in Study 1 also talked about both situation-specific practices and longer-term behavioural patterns and beliefs. Some of the ideas that emerged in Study 2 could, in hindsight, be seen in the accounts of Study 1. This highlights the utility of studying memory over different lengths of time, opening up different ways of understanding what is happening from both short- and long-term perspectives.

## **7.2 The distributed activity of remembering**

Recent studies have provided evidence that ways of thinking change in interaction with technology (e.g. Henkel, 2014; Sparrow et al., 2011). This is coupled with an expanding literature around distributed cognition in which it has been argued that memory is not simply affected by interaction with external resources, it requires and is partly constituted by such interaction (e.g. Sutton et al., 2010). At the same time, there are important processes that contribute to remembering that are not clearly related to the immediate environment (Sutton, 2010). For example, by drawing on my analysis presented in Chapter 6, I argue that conceptions of distributed remembering should take account of apparently internal sorts of cognition, such as episodic recall, which have been shown to support important decision making, identity, and social functions (Bluck, 2003). Such processes are important to the experience of remembering and affect the motivations, attitudes, and learning that relate to distributed remembering practices.

For the purposes of this discussion, it is important to establish a view of memory that is not confined to the brain. Loader (2013), for example, argued against objectified ideas of memory, suggesting that these be replaced by ideas of remembering as

activity. Further, he claimed that remembering activity does not require stored representations. The rebuttal of the storehouse metaphor of memory is now well established (e.g. Koriat & Goldsmith, 1996). Memory *traces* (i.e. the engram) may appear to be stored somewhere (though not necessarily in single, discrete locations; see Tulving, 2001), but that is not where memory *is*. Whether there is some underlying memory trace that remains stable across remembering contexts is, perhaps literally, immaterial because, as Tulving (1983) discussed, immediate episodic memory cannot be consciously accessed and is always contingent on the circumstances of the recollection. Thus, any stored memory trace would influence, but not constitute, what is ultimately remembered. Instead, memory emerges in the intersection between retrieval information (internal and external cues) and memory functions (Tulving, 1983).

This is the importance of the previously discussed surfacing connection: we become aware, or are reminded, that there is something to be remembered. This idea was supported by Gennip et al. (2015), who logically stated that involuntary remembering cannot happen without a cue of some sort. By becoming conscious of the possibility of remembering something, we can begin to remember it further, through recall, association, and inference. As Kate said in Study 2, seeing a photo can trigger a “cascade of connections.” At this point, though, it is worth looking more closely at what becoming conscious of a memory might mean.

### **7.2.1 Cueing, remembering, and consciousness**

Tulving’s (1983) theory of synergistic ephory proposes that both the internal potential to recall and the external potential to remind are necessary conditions for remembering. Cueing, which explains how we might come to remember something we were not already thinking about, is therefore vital to autobiographical memory (Tulving, 1983). Surprisingly though, it is difficult to find a clear definition for the term “cue” (van den Hoven & Eggen, 2014). Van den Hoven (2014, p. 380) recently wrote of the memory cue that “it is not yet possible to exactly pinpoint what it is and how it works” (p. 380). Tulving (1983) characterised cues as “the especially salient

or significant part of retrieval information ... that initiate[s] and influence[s] the process of retrieval” (p. 171). On the other hand, van den Hoven and Eggen (2014) argued for a looser definition: “a piece of information, a piece of mind, or an experience, which facilitates memory recall” (p. 111). Yet it is not clear if or how cues would be differentiated from other aspects of retrieval information, or how we could determine which aspects of the environment initiate and influence retrieval. It appears cue has not been well defined beyond information that aids recall.

Though they do not directly develop the definition of a cue, the cueing processes and connections, described in Chapters 5 and 6 respectively, provide a more nuanced picture of cueing than has tended to be the case in the literature. A number of my participants discussed the value of photos as reminders without which related events might not be remembered. Thomas, for example, thought that he would not “forget” the parties of his childhood but would not think of them unless reminded. In this light, it seems that surfacing relies on availability and facilitates accessibility of memory (Tulving & Pearlstone, 1966). There is a potential problem, however, with the idea that cueing is “the bringing to consciousness of an unconscious state” (van den Hoven & Eggen, 2014, p. 110). This suggests that there are memories waiting to be activated rather than memory-related information that can be used as the basis for dynamic and situated construction. Thus, it may be more precise to say that cues help to stimulate and facilitate the construction of states in consciousness.

### **7.2.2 *Distributed cognition and memory***

It is still possible, within this view, to hold onto the idea that the “proper work” of memory is done inside the mind of an individual and that external resources, such as technology and people, simply facilitate and inform this work. A number of scholars have discussed the influence of external elements on memory without concluding that remembering is distributed (e.g. Koutstaal et al., 1999; Loveday & Conway, 2011). I do not wish to argue that non-distributed views are incorrect. Indeed, they have produced much of great value on which this thesis is built. My purpose in turning to a distributed view is an attempt to avoid certain methodological and

conceptual limitations. Thus, my argument here is not that thinking of remembering as distributed is more *correct* than thinking of it as an individual, internal enterprise; rather, I argue that it can be, in some important ways, more useful.

As stated in Chapter 3, cognitive psychology has tended to focus on understanding individual, internal cognition. This traditional conception of autobiographical memory limits what is available for understanding. Memory's qualities must be inferred from approximations—brain scans, verbal accounts, phenomenological self-ratings, etc. Further, by attempting to remove the confounding influence of different external tools, for example, it separates the internal from the external. For Michaelian and Sutton (2013), the utility of the term “distributed” is in conceptualising the significance of interactions between brain, body, and material and social environment. For them, ideas of distributed remembering are primarily methodological, in that they help us understand what is important in memory and how we might better study it. What counts as memory is less important than what can be seen by changing our definition of what counts. Similarly, for Hutchins (1995), the utility of conceiving of cognition as distributed was that it avoided a need to explain remembering purely through internal processes. Instead, distributed activity becomes a unit of analysis that can be more easily accessed.

Reconceiving memory in terms of remembering activity makes it simpler to consider the influence of changes in technology because we do not have to make claims about changes to a person's natural memory ability. It is problematic to ask how technology impacts on “natural” human memory because—according to the distributed view—there is no such thing. It does not make sense to distinguish “organic” or “biological” memory from mediated or distributed memory (Clowes 2013). Memory, as characterised in this thesis, does not need to be an accurate or veridical record of what happened beyond the extent that this is functionally useful. It is more important that memory be adaptive to current and future needs which it does by being emergent rather than fixed. If memory is situated, distributed, and dynamically constructed, then “a memory” does not exist in any stable sense, waiting to be retrieved, but is generated on the fly, as needed. Manier (2004), for example,

removed the distinction between remembering and articulating the resulting memory by claiming that, in talking about the memory, we are actually remembering: “It is not as if the brain were doing something silently and then this silent something causes us to speak. The speaking itself is thinking; the speaking itself is remembering” (p. 259).

Of course, people can remember things privately that are not observable in their external behaviour. For example, Mary’s comment that “I suppose I remember things for myself that I wouldn’t share with other people” highlights a limitation of focusing only on observable aspects of memory—one can remember something without showing it, and one can show something that is different from what has been remembered. Considering the private, internal content or qualities of memory is problematic for any memory research because it is not possible to directly access the thoughts of the research participant. Even where researchers observe their own thinking, they are forced to analyse not the thoughts themselves but what they can remember (and articulate) of what they had previously thought.

A further problem with worrying about what is remembered, in addition to those mentioned above, is that, from the perspective taken here, something different is remembered in every situation. Thus, what is remembered is never “the memory” (Hirst et al., 2012). Manier (2004) gave the example of describing his memory of Christmas in four different settings. In each, the memory was different, yet none of these rememberings could be called the “real” memory, nor was there a real memory hidden somewhere within his mind. As he concluded, “memory is nothing but acts of remembering” (Manier, 2004, p. 259). Sutton and Williamson (2014) described the dynamic construction of memory as an embodied skill. To explain the sense in which any remembrance is neither absolutely new, nor absolutely old, they refer to Bartlett’s (1932) analogy of executing a tennis backhand that resembles—but is not exactly the same as—previous backhands. This dynamic manifestation of memory has informed Michaelian’s (2011a) preference for the term “construction” rather than reconstruction since, as he argues, a given memory—with all of its situated and emergent properties—has not been constructed in this exact form before.

This creates challenges for studying *what* is remembered. A more productive focus, and the one taken here, is on the processes and patterns of remembering. As I will go on to discuss, private, subjective aspects of remembering play an important role in these processes and patterns. For example, participants talked about the contribution of emotions, feelings, preferences, and beliefs to their motivations, decisions, and behaviour over time.

### **7.2.3 Blended memory**

There are a number of terms that have arisen to explain the increasingly obvious importance of external resources to remembering. Some of them are objectified terms, such as “digital memory” (e.g. Dobbins et al., 2013) or “e-memory” (Bell & Gemmell, 2009), each sounding like a description of a resource rather than an integration of externally-held information within the wider activity of remembering. “Mediated memory” (e.g. van Dijck, 2007) is more promising because it suggests that while memory may have been filtered through, or changed by, technology or external artefacts, biological remembering still makes an important contribution. However, mediation is not a filter through which some pre-existing memory passes. Rather, it is a fundamental condition of remembering, part of the genesis of memory. Interaction with tools and people does not affect memory but produces it. Van Dijck (2008b) has acknowledged this, writing that:

our lives are not mediated by media, nor are they simply informed by media. Pictures, videos, and other artifacts do not replace, distort, or confirm memories. We are who we are because we have constructed our experiences and our memories through and in media. (p. 80)

Thus, to think of memory as a combination of internal and external resources is to reinforce a problematic distinction. The boundaries of internal and external memory are not clear (Sutton, 2010) precisely because remembering is both internal and external *at the same time* (Dahlbäck et al., 2013). Dahlbäck and colleagues (2013) claimed that worrying about an internal / external divide may hinder considerations of real life situations. A number of scholars, when drawing on the theory of distributed cognition, have expressed a wish to avoid the debate about what counts as

cognition (e.g. Clowes, 2013; Michaelian & Sutton, 2013). Much energy has been spent on arguments about where boundaries of minds and of cognition should be drawn at the expense of understanding more about how thinking works in interaction with external elements. Michaelian and Sutton (2013) suggested that establishing these boundaries is not essential to answering more practical questions about how memory works in relation to external materials and the social world. Clowes (2013) agreed, claiming that such debate may actually block exploration of important issues, such as the qualitative or phenomenological aspects of distributed minds.

In considering the distributed activity of remembering, I do not wish to obscure the contribution of its subjective aspects. Feelings, emotions, simulated imagery, and thoughts about things that are not present within the immediate environment—these have been established as theoretically important within cognitive psychology and they played important roles in the narratives of my participants. Further, as I will argue in the Chapter 8, the subjective experience of remembering is important in relation to the way we learn to remember in the future. My aim in this thesis is to develop a perspective that views remembering as a distributed activity while maintaining the importance of subjective aspects of that activity. This view of memory is one constituted by an inseparable blending of biological, external, observable, and subjectively experienced elements. The value is in the blend—each component contributes something unique, important, and interdependent to the contribution of the rest. This view builds on ideas of distributed cognition by placing subjective aspects of remembering activity in a prominent position—the experience of remembering is crucial to determining patterns of future use.

Conceiving of remembering as activity helps to get away from only thinking of remembering as an individual enterprise. In this thesis, I have explored the accounts of particular individuals, but I hope that this perspective would also be useful when looking at collective or collaborative groups. While most of the cueing processes and connections presented in Chapters 5 and 6 were individual (due to the individual nature of the interviews), they could also be socially distributed. One person could surface an idea in another or could prompt the construction of other connections.

Multiple people could engage in dialogic inference around photographic evidence (e.g. in the shared interview with IO and YS, they discussed where a particular photo had been taken: YS: “This was in the kind of lounge area, wasn’t it?” IO: “Oh yeah, I can’t see that from this angle”). Study 2 also showed that, in many cases, remembering was done through socially distributed systems even if it included individual acts. Cueing was often described as involving the collaborative construction of memory via the interplay of different people inferring, revealing, and discursively generating further cues.

Terms such as digital memory or e-memory can suggest that there is a new kind of memory that has emerged in response to technological developments. On the other hand, conceiving of memory as distributed or blended does not imply that anything fundamental has changed. There is no clear reason to think that the cognitive processes involved in remembering with digital artefacts are inherently different from those employed by pre-digital humans when using elements of the environment to remember. Indeed, Donald (2010), referring to external memory artefacts as exograms, claimed that they have been in use since “the late Upper Palaeolithic” in the form of “significant objects that had been pierced, carved or painted” (p. 71).

I propose that most, if not all, autobiographical memory is, and has always been, blended. This includes many instances that appear to involve only internal processes. For example, in cases of paralysis (Kyselo & Di Paolo, 2015; O’Regan & Noe, 2001) or sensory-deprivation (Sutton, 2010), our thinking makes use of the internal simulation of external objects, artefacts, and environments. Similarly, when my participants remembered images that were not currently visible, they appeared to have mentally simulated their own photographs, further troubling the divide between internal and external. Further, Fagin, Yamashiro, and Hirst (2013) claimed that memory is often distributed unintentionally through the use of social and environmental cues. I would go further, following Hutchins (2014), whose view of distributed cognition is broader and less human-centric. According to Hutchins, distributed cognition is not a kind of thinking but a perspective from which all thinking is always distributed. Similarly, I consider autobiographical memory as

*always already blended*; as emerging in blended form. Blended memory is unavoidable—it happens naturally and is not necessarily intentional or conscious.

By drawing on the accounts of the participants of Studies 1 and 2, along with literature on memory and distributed cognition, I have characterised blended memory as grounded (anchored in beliefs and past experience), adaptive (according to effective or efficient use of resources), situated (dependent on context), distributed (across people, tools, environment, and time), iterative (building on previous remembering), and emergent (existing only in remembering). It is not so much a system itself, but activity that makes use of distributed systems comprised of people, tools, and environments. From this perspective, the distinction between memory and remembering is removed. As Lashley (1950) found in his 30-year quest for the engram, the nature of memory when one is not remembering is unclear.

Blended memory emphasises both practices (in the case of this thesis, photographic ones) and subjectivity. Memory is a subjective, human enterprise, but it is not necessarily human-centred. Rather, it allows a shifting consideration of the centre of remembering activity such that the balance of both control and contribution of different elements (including humans and their subjective aspects) can be examined. The opportunities created by this examination of control and contribution will be demonstrated in Chapter 8 when I consider the ways in which distributed remembering was achieved by my participants and how their ways of remembering relate to utopian and dystopian views of technologically-mediated memory. The rest of this chapter explains the blended nature of memory further in relation to the accounts of my participants and considers implications for the use of photography in remembering in shifting technological contexts.

### **7.3 Structural activity**

This section considers how photographic interactions structured the way participants remembered. I begin by examining photographs as cues, then widen this discussion to include the practices that produced, and then made use of, photos. Finally, I focus

on the subjective aspects of photographic practices, drawing out ways in which the experience of engaging in such activity contributed to future remembering.

### **7.3.1 *Photos as cues***

Tulving (1983) claimed that all recall is cued. He included both external cues such as objects or photographs, and internal cues such as thoughts. However, deciding to remember something that we are not already thinking about is problematic. If we want control over what we think about in the future, then we must engineer a way of stimulating that line of thinking. In talking of photographs as reminders, participants suggested their importance in facilitating surfacing connections. Some participants claimed that without such support, certain things would not be remembered.

Capturing practices, therefore, contributed to a structuring of what was likely to be remembered. This is both powerful and dangerous. According to Sarvas and Frohlich (2011), the content of photographs can be privileged within our socially constructed identities and, consequently, our memories. In psychological terms, this is important because the distortion that naturally occurs around what we remember could be exaggerated as those elements represented in our photographs are emphasised and those that are absent fade away (Koriat et al., 2000). In other words, photographs can have a levelling and sharpening effect on memory.

With the possible exception of lifelogging (discussed further in Chapter 8), cameras capture only a fraction of who we are and what we do. Although I did not find my participants' photographs to be exclusively positive and idyllic, as suggested by some scholars (e.g. Mellos, 2013), they did tend to be oriented towards an aesthetically superior representation of participants' current selves and lives. Many photographs showed people who were not smiling, but there were few that featured people looking sad (William's bad day, mentioned in Chapter 6, being one exception) and many in which people looked happy. It was not so much that everything was positive in their photographs, but that the negative aspects of their lives seemed generally to have been suppressed. Chalfen (1984) described the performative nature of being photographed and the cultural considerations of how

people want themselves and others to look in photographs. These considerations constrain not only a photograph that is already being taken but what sorts of photos will be taken in the first place. Some participants, for example, discussed their own or other people's reluctance to be in unflattering photographs. Aesthetic qualities also increased the salience of photographs within a collection and therefore the likelihood that they would be noticed or engaged with, such as William's attractive photograph of an ordinary holiday.

Elements that were "photoworthy" (van House et al., 2005) were more likely to feature in photos. Some settings (e.g. wedding speeches) were not only appropriate but expected, while others were unacceptable or irrelevant (e.g. the days before or after the wedding). The interior of buildings, dark places, and the night were underrepresented compared with the outdoors and sunny days, in part because they were more difficult to photograph. Such selectivity has been well documented over the years (e.g. Chalfen, 1984; Slater, 1995). However, the range of what is considered photoworthy is expanding along with digital storage capacity and ways of sharing (Lindley, 2012; van House et al., 2005). Those authors have found that collections now include more photographs that are mundane, playful, bizarre, or accidental. Among my participants, there were examples of this shift (e.g. Ingrid's bread or Mary's chickens), although the majority of photos followed traditional themes (e.g. family, landscapes, etc.).

### **7.3.2 Photo practices**

Photography practices not only created cues for future remembering but they constructed memorable experiences. Photographed experiences were, almost by definition, experiences to be remembered. More than this, constructing cues during an experience may have helped participants to avoid worrying about whether they would remember in the future (Dahlback et al., 2013). Thus, photography practices informed memory as well as shaping the experiences that were remembered.

The practices themselves were often remembered, suggesting that photographs were effective cues not only for the experiences being photographed but the experiences of photographing and of interacting with those photos. The four practices of capturing, organising, sharing, and viewing all contributed to remembering activity in different yet overlapping ways. Mirroring the findings of Rodden and Wood (2003), organisation helped my participants to share photos, appreciate the contents of their collections, and to find photos. Where organisation failed, patterns of remembering could be disrupted. Henry's inability to find certain photographs cast an interesting light on the findings of Sparrow et al. (2011) and Henkel (2014). The research of both these authors indicated that having future, external access to information impaired the ability to remember it unaided. Adaptive processes of remembering how to remember (rather than remembering information directly) can only work if one can actually find the information. Of further interest in relation to those studies is the distinction between actually accessing photos within a collection and simply feeling confident that one *could* access important photos (as exemplified by some participants apparently valuing *having* photographs more than looking at them). Another aspect of this equation is that participants did not just need to remember how to remember but also that there was something to remember. Often, participants did not recall an experience or the location of a photograph of it until they happened across a related photo that activated such remembering. Thus, acts of creating and placing information for future remembering form an important part of the structural activity of distributed remembering.

Ecological approaches have shown similar mechanisms in memory-related animal behaviour. For example, Healy and Braithwaite (2000) found that scrub jays used elements of the environment to both determine and remember when and where they stored different kinds of food. Although Clayton and Dickinson (1998) were able to demonstrate that these birds can remember when, where, and what kind of food is stored, it is not certain whether, in the wild, this information is stored as content (e.g. where the food is) or as procedure (e.g. as a system that allows them to store food in a particular way and allows subsequent retrieval in the correct order). In the latter case, should we say that the birds "remember" where they put the food? Perhaps

being able to rediscover (albeit potentially in a different form) previously known information is a viable definition of remembering.

It seems likely that the ability to structure and facilitate rediscovery, at least in my participants, was developed over time by previous practices. Their thinking was influenced not only by their environment but by what had happened before. Memory was iterative in the sense that each instance of remembering was informed by previous instances of remembering (Glenberg, 2006). In other words, remembering was not just constructive but developmental. Memory was situated not only within an event but in relation to other events and previous remembrances. Participants had developed beliefs, preferences, and habits in relation to the ways they supported remembering with photography. Focusing on a single event in particular (Study 1) emphasised how related practices permeated beyond the immediate timeframe of that event. In their engagement with photography practices, participants had played an active role in structuring their long-term patterns of remembering. In Chapter 8, I consider the extent to which participants could control this structuring activity.

### **7.3.3 *Subjectivity and experience***

As discussed in Chapter 3, the experience of recall has been shown in cognitive psychology to be important, yet an account of subjectivity and phenomenology seems to be lacking in a number of writings on extended and distributed cognition. Clark and Chalmers' (1998) extended mind hypothesis, for example, did not explain how the feeling that we have perceived something in the past is compensated for when using a notebook rather than biological memory. In Chapter 8, I propose that an overemphasis on the accuracy of memory at the expense of subjectivity may lead to flawed approaches to remembering and the potential neglect of important psychological functions. For now, the points I wish to make are that feelings are still important when using external resources to support memory and that subjectivity and phenomenology are crucial structuring elements of distributed remembering.

McCarthy and Wright (2005) simplified the analysis of phenomenological experience by thinking of it in terms of feelings. This aligns with a number of influential studies into the phenomenological experience of memory. For example, the feeling of familiarity is critical to reality monitoring (Johnson & Raye, 1981), while the endorsement of both internal and external information is informed, at least in part, by feelings (Jacoby et al., 1989). The reliability of such feelings seems, according to Michaelian and Sutton (2013), to be critical to the adaptive integration of internal and external resources such as that demonstrated by Sparrow et al. (2011). This point was echoed by Clowes (2013) in citing Kalnikaitė and Whittaker (2008) who found that the use of external resources related to feelings of uncertainty around biological memory. Phenomenology seems to regulate action—to a significant extent, we decide how best to use external resources by how we feel about them and those feelings help us to achieve adaptive distributed remembering.

Each of the subjective connections described in Chapter 6 had an important phenomenological aspect. Surfacing involved the feeling of familiarity that comes with recognition of something as relating to one's past experience (Wheeler et al., 1997). Transportive connections indicated auto-noetic consciousness, or the feeling of continuity of the self across time, and allowed people to feel as if they were directly connected with the past (an idea consonant with "mental time travel", see Suddendorf & Corballis, 2007). Both transportive and associative connections seemed often to involve emotional and sensory impressions. Even inferential connections made use of subjective judgement, interpretation, and a sense of probability, rather than certainty, about what had happened. The suggestion here is that subjective differences in the experience of this kind of remembering allowed for nuanced source and reality monitoring (Johnson & Raye, 1981).

Subjectivity was also evident in the participants' perceptions of the qualities and values of photographs. They valued a combination of aesthetics, perceived objectivity, and personal meaning. In many cases, these different values related to emotions (e.g. Lorraine's pride at having taken a nice photo; Ingrid's shock at seeing early war photos of her grandfather; William's mixed feeling of seeing the café near

the children's hospital) and beliefs (e.g. Robert felt photos should be framed to avoid "clutter"; Jane felt staged photos were false; Mary felt that photos should be about a story). Different values contributed to the connections made with the photographs. For example, aesthetics could make a photograph more likely to be engaged with and, therefore, more likely to facilitate surfacing connections. For inference, the participant needed to believe that the photograph showed aspects of the past that could be used as objective evidence of what must have happened. Personal meaning was important to transportive and associative connections because these depended on the link between what was shown and what was felt about a particular experience.

Further, subjective aspects of distributed remembering contributed to behaviour. Beliefs, emotions, and personal associations played a role in governing how participants engaged with, and experienced, both photographs and technology. For example, Kate expressed feeling a lack of control over her technology and a detachment from her digital photograph collection. Her emotional response to digital cameras and digital photos can be seen as a value judgement which led to her disengagement (McCarthy & Wright, 2005). Such idiosyncratic preferences, based on subjective experience, configured entire systems. For example, Lorraine displayed digital photos to look like prints because she preferred the experience of looking at them this way. She used them to prompt conversation and consequently favoured those relating to topics she liked to talk about (e.g. travel). As such, subjectivity and phenomenology might be thought of not as an incidental part of distributed activity but as something that helps to structure and regulate patterns of activity over time.

#### **7.4 Prospective activity**

While autobiographical memory has traditionally been considered in relation to recall, there is a case for considering prospective memory as an important component. Prospective memory, or the delayed realisation of intentions until an appropriate time (Schacter, 2001), has been distinguished from episodic memory as involving different systems and functions (e.g. Tulving, 1983). However, recent research has shown that episodic future thinking, enabled by episodic memory, is

likely to be beneficial to successful prospective memory (Neroni et al., 2014; Szpunar, 2010) because it supports the imagining of future intentions.

My claim in this section is that not only is retrospective memory important to prospective memory, but that the reverse is also true. Prospective memory plays an important role in helping participants to follow through with intentions and to produce photograph collections that align with their goals. In deciding what they might want to look back on, participants were deciding what to reinforce for the future and realising these intentions involved following up on previous actions.

#### **7.4.1 Remembering to do things**

Like other kinds of memory, prospective memory can be thought of as distributed (Dismukes, 2012). This often involves remembering to do discrete tasks, supported by specific technological intervention (van den Hoven, 2014). However, it can also be achieved by structuring one's environment in ways that facilitate remembering (Dahlbäck et al., 2013). The role of technology in prospective processes was not emphasised in the accounts of my participants, but the production of event-specific memory cues could be seen as evidence of an active structuring of remembering activity in which the timing of recollection was generally not predetermined. The intention was not to remember something at a particular time but to remember it in general; to add it to the store of things that were likely to be remembered. However, creating photos was not enough—they needed to be made easily accessible. Having photos to hand, whether in physical or digital form, seemed to make it more likely that participants looked at them and, therefore, looked back at the past. Once a participant started looking at photos, they often looked at many others in the same collection, whether that was a box of physical photos or a digital collection.

As well as using environmental cues, participants relied on routines and habits of engagement with different practices (e.g. Dan edited his photos each time he returned from holiday). Sometimes, they simply hoped, for example, that they would happen to look at their photos at some point, for instance when visitors came. The extent to

which participants were able to follow up on intentions varied. In Study 2, Jane indicated that generating a comprehensive photographic record of her son's activities required constant vigilance and remembering to action her goal, particularly since she was kept busy and distracted by the needs of her son. In Study 1, there were many examples where circumstances played a significant role in determining what aspects of the wedding were photographed (e.g. YS ran out of battery, PJ had only taken photos during certain periods). For others, like IO and Lorraine, they had outsourced the role of photographer and had limited control over what was photographed. Indeed, this was the case for JI and AE, for whom many people took a huge number of photographs, just in case they would be appreciated later.

#### **7.4.2 *Experiencing and remembering selves***

Remembering and photography, through looking forward and backward, sometimes simultaneously (as in the case of flagging wedding photographs for an upcoming slideshow), could thereby maintain continuity across time—from the present experiencing self to a future remembering self, and from a present remembering self, back to a previous experiencing self (Kahneman & Riis, 2005).

Kahneman and Riis (2005) described the “experiencing self” as the you who lives in the moment, and the “remembering self” as the you who looks back and maintains the stories of your life. It is the remembering self who makes important decisions about the future. Kahneman (2011; Kahneman & Riis, 2005) has primarily used this theory to explore the difference between experienced happiness and reported happiness. Kahneman and Riis (2005) illustrated this difference through the description of hearing a shocking sound at the end of a symphony, produced by a scratch on the record. They claimed that although this might feel like it “ruined the whole experience” (p.286), it is really the memory that is spoiled since only the end of the experience was negative. When looking back, the remembering self compresses time and emphasises the end of an experience and the most intense periods within it (see the “peak end rule”, Kahneman, 2011). Examples from Study 2 were given by William and Nick for whom the experiences of a difficult journey or

an ill child were mostly negative, but the combination of the acts of taking playful photographs and the subsequent existence of those photographs turned them into positive stories.

Such examples show how experience and memory become blurred through a “compelling cognitive illusion” (Kahneman & Riis, 2005, p. 286) that an experience reflects our final impression of it. For both William and Nick, the remembering self seemed to have come to look back with a more detached view that was heavily influenced by particular aspects of the experience (e.g. how it ended). This detached view seems compatible with Nigro and Neisser’s (1983) portrayal of the way that episodic recall shifts from a first-person (field) perspective to a third-person (observer) perspective and reflects the expansion over time of a schism between the experiencing and remembering selves. Indeed, this was precisely how Phil described the long-term transformation of memory. It seems that as time passes, the perspective of the experiencing self in relation to a given moment is increasingly marginalised.

However, Neisser’s (1994) distinction between the remembering self and the remembered self casts a different light on the situation. Neisser’s remembering self is similar to Kahneman’s, but his remembered self is a present construction of the past experiencing self. In other words, the remembered self is the past you that you are currently remembering. Where Kahneman (2011) emphasised the power of the remembering self in making decisions based on past experience, Albright (1994), drawing on Neisser (1994), suggested that because the remembered self provided the foundations and constraints for the present remembering self, it has exerted prospective control over what is remembered. While in Kahneman’s version, the self has power in retrospectively determining what is remembered, in Albright’s, the self has power in prospectively determining what will happen in the future. From Albright’s perspective, the inclusion of a photograph in a collection can be seen as an attempt by the experiencing self to increase the likelihood that an experience will be remembered. It is, in a sense, analogous to the inclusion of a bookmark that helps the reader return to a particular page at a later time. Dahlbäck and colleagues (2013)

alluded to a similar idea, claiming that, for one of their participants, a shopping list was a “physical instantiation of a plan” to buy particular things from a supermarket:

In the store the list works as a reminder of that very plan. In the instances when she looked at the list, it worked as a way to be in control of what to collect. She probably has some idea of what to buy without the list, but as an artefact it works as a way of being in control of the activity. (p. 159)

Perhaps, for my participants, photographs were also “physical instantiations of a plan” to remember an experience. Thus, the photograph is not just an aid to episodic recall but to prospective memory, helping the owner to remember to remember.

More than this, the way in which participants orchestrated photos (framing, composition, posing, etc.) suggested that they were structuring, to some extent, *how* they would remember in the future. Of course, as well as pre-determining, to some extent, how a scene would be remembered, orchestration may also have reflected how participants wanted to be perceived as photographers.

Equally, photographic decisions were made about what should not be remembered. Ingrid intentionally threw out photos that triggered negative emotions, thus reducing the likelihood that she would be exposed to evidence of the related events. Although JI had not deleted a photograph in which her mother looked stressed, her wish that it had not been taken suggested that not taking photographs, like deleting them, could be an act of memory configuration, allowing aspects of an experience to be edited out of memory. The decision not to take a photo or not to be in a photo was part of this exertion of control over how participants would remember or would be remembered in the future. However, the experiencing self could forget or be unable to take photos during the moment and is not always actively engaged in worrying about future remembering.

## **7.5 Retrospective activity**

The previous section discussed ways that participants laid foundations for future remembering by constructing evidence of generally positive and meaningful experiences. However, prospective memory was not only implicated in setting up conditions for future remembering but also in remembering to look back. Within the

data, there seemed to be two key elements that made it more likely that something of an experience would be remembered: having an emotional connection to it and having a photograph of it.

Emotionally charged incidents tend to be better remembered than unemotional ones (Schacter, 2001). The data suggested that strong emotions facilitated transportive connections to the past and the remembering of personal associations with the photographed event. Moreover, participants often chose to talk about photos with a strong emotional connection. Emotion did not, however, guarantee clear memory. It seemed to help participants remember something of the event (i.e. make a surfacing connection) and many instances of transportive connections seemed to involve emotion, yet these were sometimes expressed as impressions rather than, for example, precise, narrative details. For example, when prompted about the sort of memories a photo of an elephant had provoked, Lorraine replied, “Emotions. Just feeling so happy and excited.” Schacter (2002) claimed that emotionally-stimulated memory generally centres around the emotional focus with poor memory for peripheral details (e.g. focusing on the gun during a robbery). Like photos, emotion may have emphasised some aspects of an experience at the expense of others.

Photographs were also no guarantee of producing clear memory. While looking at photographs also increased the likelihood that something of an event was remembered, and while they conveyed some of the visual details that participants could use to infer what must have happened, they could get in the way of remembering elements that were not shown (e.g. Phil’s remembering as a tick box rather than episodic or narrative recall). Surfacing connections could lead to partial remembering, a sort of fuzzy recall in which memories remained conceptual and non-specific (a notion described in Conway, 2009). Thus, photographs could only contribute a starting point for the reconstruction of memory. Jane captured this idea clearly, stating that “the photograph becomes the focal point of the memory system that everything then extends out.” Similarly, Phil talked of remembering the photographed moment as the “starting point” and then “building layers” around that. Photos, then, could act as anchor points that both supported and constrained what

was remembered. Within this, inference, an aspect of remembering that has not received much attention in the literature, might be considered another constructive process alongside scene construction (Hassabis & Maguire, 2007), boundary extension (Intraub et al., 1998), and the shift from field to observer perspective (Nigro & Neisser, 1983; Siedlecki, 2015; Sutton, 2014). Indeed, Intraub and Bodamer (1993) suggest that the boundary extension, where the scene that is remembered is larger than the scene that was perceived at the time of the event, may be a form of inference that makes use of previous experience of other scenes.

Further, there was no guarantee that photographs would be looked at. I have suggested that taking a photo can be seen as an attempt by the experiencing self to influence the remembering self by creating a record of what it thinks is important at the time. The trouble is, our experiencing self may over-inflate the importance of the present moment due to what Schkade and Kahneman (1998) called the focusing illusion: “Nothing in life is quite as important as you think it is while you are thinking about it” (as cited in Kahneman et al., 2006, p. 1909). The remembering self is selective and may even choose to ignore records and photographs altogether in the construction of memory narratives. Whittaker et al. (2012) found that many of their participants had old photographs that they had never looked at. My participants spoke of having done very little with their collections despite intentions to organise, view, and share. Perhaps they were poor predictors of their future needs, or perhaps the reason for taking photos was not necessarily to look at them later. That images were seldom returned to may suggest that it was the taking, the sharing and, sometimes, the having of images, more than actually looking, that held the value for some of my participants.

### **7.5.1 Availability, accessibility, and distributed forgetting**

The apparent potential for photographs to remind participants of events and experiences that they might not have thought about otherwise indicates a perceived function in the prevention of forgetting. Singer and Conway (2008) and Connerton

(2008) each considered the absence of cues as a form of distributed forgetting, a shifting or reconfiguring through external means of the accessibility of memory. Failures to remember when using photos as memory cues can also be explored in relation to the distinction between availability and accessibility. In response to Connerton's (2008) account of the different types of cultural (rather than individual) forgetting, Singer and Conway (2008) provided a useful discussion around the difference between availability—that we have stored information about the past—and accessibility—that we are able to retrieve it. This distinction implies that both remembering and forgetting might be temporary or situation-specific, in the sense that information might be available (a relevant trace may exist within long-term memory) but may not be accessible on a given occasion. Singer and Conway (2008) implied that accessibility is generally the culprit when we forget and this seems to apply equally to distributed remembering. They discussed research in which they used Sensecam images to prompt recall for supposedly forgotten information, showing that what was lacking was a prompt that could surface those elements. In line with Connerton, they asserted that the emphasis of some cues came at the expense of others. A levelling and sharpening of memory came from the selection of photos and other personal documents at both individual and wider, cultural levels.

In this light, organising practices may be particularly important in facilitating future access to photographs. The many unfulfilled intentions of my participants may have made it more difficult to engage with their photos and, unwittingly, this might also have privileged some photos (and, therefore, experiences) over others. Whittaker, Bergman, and Clough's (2010) study into people's ability to find digital images showed that, for their participants, older digital photographs were considerably less accessible than more recent ones. The implication here is that practical issues may privilege photos that are more easily accessed (e.g. the more recent past) over those that are less accessible (e.g. the more distant past). Further, being accessible is not the same as actually being accessed. Any levelling and sharpening effect of taking certain photos and not others may have been reduced by my participants' tendency to neglect their collections.

In relation to technology, Singer and Conway (2008) argued that we are not necessarily shifting towards greater dependence on media for emphasising what should be remembered, but that habits of using media to inform memory are shifting in terms of the skills they require. For example, remembering with media now requires the ability to effectively filter out information that is not currently important. While the photos one looks at may have an effect because they prompt memory for associated narratives and experiences, this, they suggest, does not remove other memories but makes them less consciously accessible (Singer & Conway, 2008).

The idea of accessibility and availability of memory is somewhat at odds with the concept of distributed remembering outlined in this chapter because they imply pre-existing, stored memory. Inference, for example, is neither available nor accessible but still makes up part of what is remembered. This raises the question of what exactly it is that is available or accessible, and how that is reconciled with ideas of reconstruction and inference. A way around this may be to consider availability and accessibility in relation to cues or, more precisely, drawing on Tulving's 1983 notion of synergistic ecphory, the convergence of a cue (be it internal or external) and retrieval information. While inferred information, to continue that example, is neither strictly available nor accessible in the sense that it is generated rather than stored (and, consequently, cannot be forgotten in a traditional sense), it must, by definition, be constructed around information that is both available and accessible.

## **7.6 Long-term alignment**

In my studies, the activity of distributed remembering was, in part, a product of the situations in which it was enacted. Manier's (2004) argument that memory narratives differ according to the context in which they are remembered means that specific expressions of remembering are always incomplete representations of "memory." Both photographs and narratives, then, are snapshots of the past with limited opportunity for interrogation beyond their immediate properties. Understanding memory must therefore involve the examination of multiple instances and patterns of remembering. For example, Studies 1 and 2 illustrated that remembering involved a

combination of prospective and retrospective practices. Among other things, this showed that photographic practices always had implications beyond the immediate outcome and experience, feeding into future remembering activity and building on previous structuring activity.

There were many occasions where participants talked of failed intentions and plans that had not been followed. Both studies also revealed various difficulties in developing consistent and controlled patterns of remembering activity.

Methodologically, considering patterns of activity over time opened up opportunities for exploring the relationship between different practices and the extent to which they cohered into discernible strategies or systems. Further, by understanding the shifting contexts in which practices were performed, the challenges of following through with intentions, plans, and goals became clearer. The following sections consider factors that affected the longer-term alignment of prospective and retrospective practices.

### **7.6.1 Taking photos**

Study 2 provided insight into the kinds of photographs taken by different people and how consistent this was over time. Each participant's collection contained dominant themes of subject matter (landscapes, children, flowers, etc.) and the approach taken to photographing these subjects suggested broad goals for their collections. Some (e.g. Jane, Thomas) seemed to have an overall goal of documenting their lives or the lives of those they loved. Others (e.g. Robert, Henry, John) seemed to be more generally interested in the pursuit of an aesthetic; photographing experiences in a way that was tailored to be visually pleasing rather than to capture a particular experience or prompt memory. However, there were exceptions and inconsistencies, not only when looking across extended periods (Study 2) but also within the same event (Study 1). These seemed to stem from participants often having more than one purpose when taking a photograph and these different purposes did not necessarily align. For example, taking photos could be both memorial and a way of engaging with an experience. Sarvas and Frohlich (2011) wrote of a colleague's nine-year-old

boy who—after using a disposable camera to take photos at a camp—threw it away without developing the film inside. For him, they said, “the value was in the capture, not in the images” (Sarvas & Frohlich, 2011, p. 140). While my participants seemed to value their collections of images, this anecdote points to a potential separation of the value of capturing from the value of viewing. It may, therefore, be unreasonable to assume that every time a participant took a photograph, they were intentionally creating a cue for future remembering.

Across participants, photos were valued according to a combination of aesthetics, personal meaning, and their capacity to represent experience. However, participants could not always articulate a clear explanation of their photographic behaviour. Actions were often spontaneous and impulsive rather than having a clear rationale. For example, Dan seemed unable to go into detail about his motivations or values in relation to remembering. Phil was not sure why he continued to take photos even though he found it disruptive to the experience of events, while Lorraine had taken photographs that seemed to conflict with her articulated moral position. Further, photography was an emotion-laden enterprise. In Kate’s account of different digital cameras, she felt that it did not matter whether she was skilful or not; the first camera would produce good shots and the second would produce poor ones. From a perspective in which only image quality is important, the first camera is obviously desirable. But from Kate’s perspective—one that valued the experience and achievement of producing a good image through skilful performance—it made the enterprise too easy and unrewarding, reducing her motivation to engage in further photographic practices. Conversely, William had overcome a difficulty in engaging with an ongoing project of posting a photograph each day by changing his attitude and accepting occasional failures. Thus, attitudes and emotional responses were important in determining the continuity of practices over time.

### **7.6.2 *Having photos***

In Study 1, participants tended to have large collections that had not been organised or even looked at outside of a few specific social activities. Perhaps, once they had

fulfilled particular, socially-driven needs (e.g. the construction of a slideshow or the inclusion in thank you cards), the function of the collection was to remain accessible in case the photographs were needed again in the future. Limited interaction with large digital collections was also seen in Study 2 mirroring Whittaker et al.'s (2010) findings that photograph archives were rarely constructed or used as intended. This points towards a wider phenomenon. Capturing was, without a social trigger or an established routine, largely independent of organising, sharing, and viewing. While taking photographs seemed, sometimes, to serve a function that was independent from looking at them, having photographs could serve yet another, distinct function. For example, without necessarily looking at them, having photographs seemed to give participants confidence that they would be able to remember an experience at some point in the future.

In Study 2, participants' collections were a mixture of the carefully curated (e.g. Mary, John), the seemingly random or arbitrary (e.g. Ingrid, Ellen, Henry), or a mixture of the two (e.g. Phil, Dan). Although, there were examples of thematic organisation, digital photographs were most often grouped according to default settings (e.g. Dan's iPhoto collection arranged by date). Dan hinted that traditional ways of browsing photographs were becoming too time-consuming and laborious and that, as archives expand, we needed to find new ways of navigating them. However, issues of decontextualisation (Mayer-Schönberger, 2009) were not obvious within my studies.

During interviews, participants mostly moved sequentially through chronologically-ordered folders or actively sought out specific photos. However, the possibilities of online social networking sites have allowed new practices that produce new sorts of collections and archives (Sarvas & Frohlich, 2011). The sustained access by both Sophie and Thomas of other people's Facebook albums, for example, showed a departure from traditional ideas of family albums with a clear gatekeeper. It questioned the very notion of ownership of those photographs and the boundaries of what constituted a particular person's collection. Indeed, it may not always be appropriate to think of photos as belonging to a collection at all. Twitter, Snapchat,

and Instagram, for example, do not produce collections but ephemeral streams of images. In this context, constructing coherent collections of memorial photographs may become increasingly difficult. As Mayer-Schonberger (2009) feared, the dynamism of online, metadata driven collections may decontextualise photographs by placing them alongside others with little or no relation to their original context. Sarvas and Frohlich (2011) suggested that the ephemeral nature of communicative photos, in particular, could lead to a kind of image archive that was not conducive to revisiting and reflection.

### **7.6.3 Unpredictability of memorial value**

Across both studies, more photos had been taken than could later be appreciated. Participants had often photographed scenes because, at the time, the experience felt important enough to be remembered in the future. Later, they valued these experiences differently, presumably because the temporal distance from the original experience had changed their perspective (D'Argembeau & van der Linden, 2004) and because the remembering self is necessarily selective (Kahneman & Riis, 2005).

Despite their apparent objectivity, photographs were subjectively perceived and interpreted according to the context in which they were viewed (Rose, 2012). This interpretation was likely to vary increasingly over time as the context in which photos were seen moved further from that in which they were taken (Mayer-Schonberger, 2009). Once taken, photographs had the potential to be used in memorial, communicative, or creative ways, irrespective of the original intentions of the photographer. That Ingrid's photograph of a piece of bread was taken to show her friend, for example, did not prevent it from later prompting memory of her travels.

The value of photographs, as they were being taken, seemed to be viewed in isolation from the other photographs the participant already had. Yet, as we have seen, it was difficult for participants to predict which cues would be appropriate or effective or, indeed, accessed at different points in the future (a finding echoed by van den Hoven, 2014). In Study 1, for example, both IO and PJ discussed the appeal of taking a large

number of photographs because they did not know which ones would turn out to be valuable later. Indeed, photos could turn out to be more important later than had been envisioned when they were being taken. For example, Mary's photographs of her father were emotionally powerful because he had since passed away. Thus, the unpredictability of what would make an effective cue in the future may have contributed to participants generating so many cues.

#### **7.6.4 External challenges**

At the same time as having multiple, separate goals for their photography, participants sometimes found that what they wanted to achieve conflicted with the qualities, practices, or goals of other components of their distributed systems. Lorraine and her partner disagreed about the display of images in their home. Phil's attempts to construct an organised family archive conflicted with his wife's mixing of work-related and personal photographs. Kate's sense of photographic expertise was in conflict with the automatic settings of her camera. In some cases, an appropriate compromise was found that resolved the issue—Lorraine's DigiFrame showed numerous photos without cluttering the walls of their home. In others, conflict persisted, making it more difficult for the participant to achieve their overall aims: Phil had not managed to organise his archive to his satisfaction; Kate had given up trying to improve her photography.

In Lorraine's case, a technological development had contributed to the solution. In Phil's and Kate's, technology had contributed to the problem. Like Keightley and Pickering (2014), my research found considerable continuity of traditional values. However, the contexts in which participants remembered had changed profoundly over time in relation to developments in digital technology. This may have made it difficult to consistently follow through with long-term goals and intentions.

Importantly, photographs were viewed in contexts that were different from those in which they were taken. When taking a photograph, participants could not always predict where, when, or by whom it might be seen. For example, a photograph of

Lorraine's father and his dog (Figure 7) was taken by a journalist for inclusion in a newspaper, a print of which Lorraine then carried all over the world in her pocket. This fading document was restored by her brother-in-law with the aid of scanning and editing software and was now displayed in large format via the DigiFrame on her wall. It would have been impossible to predict this trajectory at the time of taking the photo, in part because some of the technology required did not yet exist.



**Figure 7: Lorraine's dad and his dog, displayed in the DigiFrame.**

Changes in technological context not only influenced what participants did, but it influenced their comparison of current and previous practices. Phil's desire for a carefully curated collection was based on traditional family albums, yet the scale of his archive created new problems (e.g. defining an event) while technology made it simpler to solve others (e.g. the collation of photographs from different sources). For Jane, the large number of photos in her digital collection made it seem strange that her father had so few photographs from his pre-digital experiences (see also Keightley & Pickering, 2014).

### **7.6.5 Ability to develop and carry out plans**

The complicating factors described above—the combining of purposes, the pursuit of different qualities within photographs, conflict between people and tools, and the changing context in which photography was practised—may all have contributed to inconsistent and unsystematic practices as well as chaotic photograph collections. In any case, the extent to which people are able to create and follow complex, long-term plans is questionable.

Suchman (2007) considered plans as necessarily vague because they cannot deal with the complexity of the situations we find ourselves in at the time of action. We use our plans, she proposed, as broad ideas about the actions we might take, but the actions themselves happen in the moment in response to largely unpredictable variables and conditions. Participants' plans could not take account of the particular situations in which they found themselves. Although they may have decided what to capture and pressed the button on the camera, for example, their decision to do so and their performance of this act was situated within a complex combination of technological, cultural, economic, environmental, and idiosyncratic conditions. Mary's description of the basis on which she might decide to take a photograph of a dancing event included factors that were predictable (colourful scenery, movement of dancers) and unpredictable (the weather, the interactions of other people). Although she could imagine what the event would be like and what kinds of photo opportunities there might be, she could not predict, until she was in the moment, whether she would take any photos.

According to Suchman (2007), when we retrospectively account for our actions, we rationalise them into specific and systematic plans for articulating to others what we did. Plans are always separate from action—they come before it as projections and after it as reconstructions. This does not mean that overall goals are meaningless—they may be relevant and valid even if many constituent acts are incongruous—it is just that they are not directly invoked during what Suchman called “situated action.” Long-term plans evolve around sequences of actions and activities that relate to the ideas that underlie those plans, as well as the social and material conditions in which

the action takes place. It was perhaps for these reasons that consistent activity and well-organised collections seemed to come about where participants had developed habits and routines, rather than just having plans or intentions.

#### **7.6.6 Remembering activity may not need to be consistent or coherent**

Conversely, rigid adherence to a plan, rather than reacting in the moment, might disrupt experience if actions are not sensitive to the situation. Thus, there may be a limit to the benefits of prospectively structuring future remembering activity because planned action may not be appropriate at the point at which it is to be taken. Further, a coherent strategy or a consistent pattern of behaviour was not necessary for rewarding remembering activity. Study 2 showed the value that neglected photos could have decades after they were taken; consider Lorraine's joy at looking through old, physical albums. To some extent, this offered validation for the keeping of thousands of photos even if they had rarely been looked at before the interviews.

As we have seen, while the content of participants' photograph collections was not arbitrary, nor was it very often the product of a coherent strategy or process of optimisation. Collections seemed to be a combination of preconfigured design and spontaneous decision-making. Not all personal photograph archives had been designed to support planned future action. Some, such as Ingrid's or Henry's, had largely come into being through the accumulation of isolated photography practices. For Ingrid, aside from occasional problems finding particular pictures, this did not seem to present a significant problem and was not a particular source of regret. Henry was troubled by being unable to find specific photographs, but a lack of organisation had not led to him disengaging from his collection. Disengagement had, however, happened in other cases either because of a feeling of guilt for neglecting old photos (Lorraine) or because the collection was felt to be too difficult to deal with in its current state (e.g. Kate).

## 7.7 Summary

In this chapter, I have positioned memory as distributed activity that arises in an inseparable blending of internal and external processes. Thinking of remembering as activity helps to avoid the temptation to conceive of memory as a reified “thing” that we carry around inside our heads with static characteristics and continuity of form. It also avoids the conflation of content and function that has troubled memory studies, and the definitional problems relating to the content of a recalled “memory.” Rather than considering memory as isolated from its social and physical environment (which, I argue, it never is), my studies explored how the remembering of my participants was situated in short-term and long-term contexts.

The analysis highlighted ways in which photography not only influenced what was remembered but was part of both the original experience and of the experience of remembering afterwards. Memory weaved its way through photographic acts, not only in the production of cues but in the processes of producing and interacting with them. Thus, memory and photography were not separate but were interdependent, each informing the other as part of the same wider activity. Photographic cues could make participants aware of the existence of an idea and then further facilitate the construction of different kinds of subjective connections to the past. Thus, the creation of cues could be seen as prospective activity that could structure future remembering. As part of this, whether intentionally or otherwise, orchestrating and performing may have been part of prospective strategies of controlling what one remembered and how one would be remembered.

Remembering seemed to require not only recalling the past but remembering to do things as part of the maintenance of distributed systems. From a long-term perspective, remembering involved the combination of prospective practices that structured future remembering (e.g. through the creation of cues) and retrospective practices that made use of cues that had previously been put in place. These prospective and retrospective practices were not always clearly aligned and participants found it difficult to engage in consistent patterns of activity for a number of reasons. For example, participants held conflicting goals and motivations for

taking photographs and these could also conflict with other people or technology that formed part of their distributed systems. Further, in cases where large numbers of photographs had been taken but not looked at or organised, this may have been because participants exaggerated, at the time of taking those photographs, how much they would matter in the future.

Understanding distributed remembering involves more than simply understanding what the components of a distributed system are and how they work together. I have argued that the subjective experience of engaging in distributed practices plays an important role. While cognitive psychology has often understated the relationship between external resources and remembering, literature on distributed cognition has often neglected the importance of subjective aspects of memory. Feelings and emotions affect the meaning we take from memory and the motivation to engage in related practices in the future. Further, for my participants, emotions were important not only for what practices did or did not take place (e.g. through enjoyment or avoidance) but what kinds of connections were made (e.g. transporting or associating). The notion of blended memory aims to highlight the fundamental role played by both distributed activity and the subjective experience of that activity, not as separate things but as interdependent, intertwining, constituent parts of a distributed whole. In the next chapter, I use this conception of blended memory to consider issues of authenticity, accuracy, and autonomy when using digital photography to support remembering.

## **8 Balancing blended memory**

### **8.1 Overview**

In Chapter 7, I characterised practices as prospective (informing future remembering) and retrospective (looking back). I then discussed the relationship between these two perspectives, looking at long-term patterns of activity and the extent to which they seemed to align. I used Kahneman's (2011) distinction between the experiencing and remembering selves to explain why a moment might be considered important enough to photograph but not to look back on, and Suchman's (2007) theory of situated action to consider the extent to which plans and intentions could take account of the conditions in which photographic behaviour was enacted.

In this chapter, I explore further the relationship between the valuing of experience and memory in an attempt to see how orientations toward one or the other might influence approaches to photography and the extent to which different kinds of remembering might be considered authentic. This is located within a discussion of the interaction between inference and recall, paying particular attention to the relationship between distributed practices and subjective experience. In developing these ideas, I consider how the blended view of memory developed in Chapter 7 might productively contribute to the reframing of debates of technological essentialism towards a more productive consideration of actual use and the factors that influence these uses.

### **8.2 On determinism: an argument for considering actual activity**

Ideas of outsourcing knowledge, memory, or thinking to external resources have included strong opinions ranging from utopian views of "Total Recall" and the objective analysis of health and wellbeing (Bell & Gemmell, 2009) to dystopian views of declines in intelligence and critical thinking (Carr, 2010), creativity (Lanier, 2011), identity (Mayer-Schönberger, 2009), and social functioning (Greenfield, 2013). Although the evidence on both sides is weak, these arguments can help us to

consider important aspects of the relationship between memory and technology. In relation to my analysis, I will examine Carr's and Bell and Gemmel's accounts, in particular, to argue that such views of cognition do not satisfactorily take into account the distributed nature of remembering on one hand, or the importance of subjective aspects of remembering on the other.

Gibson (1979) introduced the term "affordances" to indicate the set of perceivable, possible actions available on an object in a particular environment, claiming that they are integral to how we see the world. Norman (1993) differentiated perceived affordances from those that exist but are not perceived. He also included cultural constraints within his definition, proposing that the possibilities for action are, in part, informed by what we have learned through interaction with others. More recent accounts (e.g. Sutcliffe et al., 2011) have emphasised that affordances enable interaction rather than action. In other words, what we can do with an object is not independent of other agents and objects. This can be seen in the way that multiple technologies are used together. For example, the combination of mobile, networked camera phones and social media websites enable immediate, global sharing of photographs. Familiarity with such interconnections then influences behaviour: photographs are taken with the knowledge that they can be uploaded for others to see. As new technologies enter general use, changes in related culture become apparent, reinforcing and stabilising related behaviours. This is what Norman (1993) called "conventions", claiming that they are real constraints due to their power over users. The term convention, however, seems to indicate a slow and stable form of cultural constraint rather than rapidly emerging compulsions or resistances to action. The trend of selfies, for example, demonstrates the speed with which photographic conventions and etiquette can change in relation to technological developments. Arising in 2007, by 2013 selfie was the Oxford Dictionary's word of the year (Frosh, 2016). That same year, at a tribute to Nelson Mandela, three world leaders caused outrage by posing for a selfie (Miltner & Baym, 2015), demonstrating the rapid shift in the boundaries of cultural acceptability of photography practices.

Considering social and cultural elements adds complexity to the conceptualisation of what is possible or likely to happen. For example, Bloomfield et al. (2010), emphasising the relational quality of affordances, viewed them as ongoing, socially-situated accomplishments rather than properties possessed by an object and activated by an actor. They gave the example of a post-box where some of the possibilities “exist only insofar as a particular letter-writing and mailing culture, knowledge, experience and so forth are actively maintained” (Bloomfield et al., 2010, p. 418). Problems of separating material possibilities from personal interpretation and cultural knowledge led Oliver (2005) to call for the term affordance to be abandoned in favour of studying historical and social design and use of technology. Rather than considering qualities of a technology in isolation, it is more important to understand how we are likely to interact with it in particular social, cultural, and economic situations and how the possibilities and practices of one technology can impact on the possibilities and practices of others. As we have seen, economic, cultural, and technological factors are interdependent. Mayer-Schonberger’s (2009) concern at a decrease in selectivity in the information we record, for example, stems from both technological and economic change: developments in technology have reduced the cost and increased the capacity of digital storage, and these developments are, themselves, contingent on economic factors.

Just as the possibilities for interaction with objects are not independent of other objects or social contexts, the cultures that grow around a medium or technology do not exist in isolation. Media scholars, such as McLuhan (2001) and Postman (2016), have described the relationships between different cultures of technology in terms of ecologies. Rather than each new medium replacing an old one, both exist in parallel and are changed by this mutual existence. According to Postman (2016),

Technological change is not additive; it is ecological. I can explain this best by an analogy. What happens if we place a drop of red dye into a beaker of clear water? Do we have clear water plus a spot of red dye? Obviously not. We have a new coloration to every molecule of water. That is what I mean by ecological change. A new medium does not add something; it changes everything. (p. 31)

We should be careful of taking an essentialist perspective where it is the properties of the new technology or medium, rather than the interactions that occur around it, that are considered to change the ecology. While new elements of photographic infrastructure supplement, rather than replace, existing ones (Sarvas & Frohlich, 2011), the cultural practices relating to these new infrastructures also impact on existing cultural practices. Keightley and Pickering (2014) give the slideshow as an example, commenting that film slides are often scanned to digital and then watched sequentially (as they always were) via linear, digital slideshows on a PC or TV.

Just as I have argued that technology should not be viewed in isolation, important issues about thinking and remembering should be considered in context. Carr (2010) expressed a concern that the increasing role of digital technology in remembering is causing a weakening of natural mental ability. This view relies on a perspective in which the mind is considered in isolation. Assessments of cognitive decline are strongly influenced by context. For example, the established view that memory becomes worse with age is often tied to specific or general failures of unaided recall (e.g. Schacter, 2002), yet there are a number of possibilities that do not imply neural degradation. Firstly, age-related stigma makes us notice memory failures more when they happen to older people (Erber, 1989). Further, the more experiences one has, the more one may be susceptible to interference due to similarities between experienced events (Harvey et al., 2016). Kit, Tuokko, and Mateer (2008) also showed that research evidence of age-related decline may have been exaggerated due to “stereotype threat”, in which groups expected to perform poorly in tests are negatively influenced by that expectation. Finally, Sugiura’s (2016) review has raised the possibility that what appears to be age-related decline may actually be part of adaptive processes in which remembering priorities change over time in relation to engagement with social and physical environments. Similarly, what Carr (2010) sees as decline might actually be adaptation in response to changing needs and priorities, or may result from a perspective that neglects the interactive relationship between person and technology, obscuring differences in how people are able to put external resources into use. Rather than worrying about differences to our brains as a result of

engagement with technology, we should, as Clowes (2013) argued, understand the brain within wider distributed systems.

Of course, the properties and functions of technology do affect the strategies that people adopt (Mols et al., 2015). The approach of taking a large number of photos to ensure capturing some of quality was made possible by the expanded storage capacity of digital media. However, such approaches were not inevitable (some participants were highly selective) and were influenced as much by other factors (e.g. idiosyncratic, economic, or cultural) as they were by technology. Indeed, though it has been useful to isolate and identify the factors that influenced photography practices, they are not actually separate. As van Dijck (2008a) wrote, changes to personal photography involve “complex technological, social and cultural transformation” (p. 59). As such, understanding the activity of remembering requires paying attention to both short- and long-term patterns of practices and the contexts in which they take place. For one thing, as Keightley and Pickering (2014) advocated, we must explore how new functions fit with pre-existing patterns of use. They give the example that online photo-sharing, while often not directly involving rich dialogue or interaction, can create a platform for other forms of communication, such as texting, emailing, or face-to-face sharing.

The complexity of practices and the contextual factors that influenced them suggests that photography did not have inherent or essential effects on the memories of my participants. Henkel (2014) found that participants remembered more details about their photographed objects when they had zoomed in to take the picture. This indicates a potentially important difference in the way those people encoded what they saw. Yet, as Henkel acknowledged, this tells an incomplete story because her participants did not look at the photographs that they had taken. My participants suggested that recall for details and associations might be impaired or improved depending on attitudes and practices at the time the photos were taken as well as during subsequent practices (i.e. organising, sharing, and viewing). Looking at photographs could support remembering of details that might otherwise have been forgotten and could be incorporated into narratives that would support remembering

in the future. Even where photos did not seem to aid memory for details, they could increase the likelihood that something of the event was remembered and, thereby, extend what participants were able to think about.

On the other hand, accepting a distributed perspective does not imply that internal processes can simply be replaced with external ones. Such a view would be based on the assumption that the sole function of thinking processes was to contribute to current cognitive output. As the results showed, the experience of remembering mattered to the interpretation and construction of memory narratives, to the structuring of future remembering activity, and to the enhancement, through individual learning, of distributed practices. To this end, it may be useful to consider the distribution of remembering not in terms of components (e.g. tools, media, people) but in terms of the processes of interaction between those components (Palermos, 2014). From this perspective, minds are distributed only in activity, making what is actually done—and the experience of doing it—more important than inherent properties of people or tools.

### **8.3 Authenticity: what is “real” memory?**

#### ***8.3.1 Inference, episodic recall, and semantic recall***

Singer and Conway (2014) raised the possibility that the transition toward greater reliance on external cues may be, in some way, a deterioration of our ability to “really” remember experience. For Bell and Gemmell (2009), on the other hand, problems of the authenticity of remembering were not considered, since they conceived of memory, more or less, as information about the past and valued it in terms of accuracy. Yet photographs were not simply accepted by my participants as true. They were used as evidence around which memories were constructed. This kind of remembering involved inferences that relied on both perceptions of truth within photographs and the construction of personalised meaning and association.

Barthes (1981) defined photography as unmediated, in the sense that “there was a certainty that such a thing had existed: not a question of exactitude but of reality” (p.

80). This certainty was based on an indexical relationship in which light, reflecting off the objects being photographed, directly reacted with photographic chemicals. While some have claimed that digital photography, having dispensed with chemical reactions in favour of computerised processing, is not indexical but mediated (e.g. Mitchell, 1994), the extent to which this change has affected common understandings of photography and reality is probably minimal (Murray, 2008). For my participants, both analogue and digital photographs could show what had *actually* been present in an experienced scene (Fagin et al., 2013) and provided opportunities to see more detail than had been possible in real time (Berger, 2008; Sontag, 1977). Photographs and the stories they prompted allowed participants to remember things that they could not recall otherwise. AE's stories about events at her wedding that she did not directly witness, for example, were accepted as having actually happened. She was, in effect, learning about her past and this knowledge could then contribute to what she could recall in the future. Photographs allowed participants to go back and encode details of an experience "for the first time" (Harvey et al., 2016, p. 16). In many cases, this encoding was not simply of the details in the photograph but of a particular, personalised understanding of that information.

Inference was an important part of the way that participants remembered life experiences when looking at photographs. It seems surprising, then, that inference has not been clearly defined in the literature in relation to its role in autobiographical remembering. Some scholars have positioned inference as less legitimate than recall but have not drawn a clear distinction between the two. For example, Henkel (2012) characterised memory that is based on inference as distinct from "actual memory" (p. 784). In her study, photographs of elements such as a broken vase were placed alongside passages of text. Participants had difficulty distinguishing what they inferred from what was actually stated (e.g. many incorrectly believed that they had read that the vase had broken). In other words, inferences were often assumed by these participants to have been "remembered", suggesting that Henkel had taken up a troublesome position in distinguishing between actual memory and inference. What they *actually* remembered was, at least in part, made up of inferences.

Wells et al. (2014) also distinguished inference from real memory (i.e. recall) in their exploration of early childhood memories. Finding that adults' accounts of their earliest memories were implausibly detailed compared to those of children, they suggested that additional detail was added over time, often through reference to external sources, such as people or photographs. They suggested that adults come to have complex memories of early childhood events through "nonconscious and conscious inferences" that function as "contextual scaffolding" for the construction of memory (Wells et al., 2014, p. 1258). Thus, the output of remembering is a combination of inferred and "remembered" information in which inferences enable remembrances and vice versa. Wells and colleagues' implied position that inferred details are not "really" remembered is problematised by their acknowledgement that all memory contains inferences and that all memory is filled in automatically via constructive processes.

In cognitive psychology, real memory has primarily been positioned in opposition to false memory (e.g. Bernstein & Loftus, 2009; Strange, Hayne, & Garry, 2008) or confabulation (Jacoby et al., 1989). However, as Singer and Conway (2014) pointed out, the effects of reconstruction and distortion mean that all memory is false to some extent. Further, accuracy in episodic recall is difficult to ascertain because it is relative to the subjective experience of reality (Koriat et al., 2000). In any case, Conway (2005) has suggested that there is such a thing as excessive accuracy in relation to what was experienced. Sticking too rigidly to the perspective held at the time of an experience risks disrupting coherence with beliefs held at the time of remembering. Accuracy, then, should not be the only determinant of whether something is "really remembered" or not.

Episodic recall, as defined by Tulving (1972), is experienced as individual, personalised, and private, whereas what is semantically recalled is impersonal and can be externalised. Episodic memory has been described as feeling more real than semantic memory in the sense that it is accompanied by subjective, phenomenological characteristics that make it *feel* as if it is situated in one's past reality (Wheeler et al., 1997). The capacity for this feeling—autonoetic

consciousness—has been linked with the sense of connection between a person and their reality, making their sense of themselves stronger (Markowitsch & Staniloiu, 2011) and allowing for a temporally extended, subjective sense of self (Prebble et al., 2013). The feeling of remembering is critical to our ability to make sense of the world (Johnson et al., 1988) and allows us to distinguish memory from imagination (Johnson & Raye, 1981). Jacoby et al. (1989) suggested that the attribution of memory, through subjective feelings, to past experience relates to the satisfaction that we are able to remember without overreliance on external scaffolding. The way we feel as we remember allows us to distinguish what we know from first-hand experience and what we are told.

Neither semantic recall nor inference involve subjective re-experience or auto-noetic consciousness. Yet it seems likely that inference felt different from semantic recall for my participants. Perhaps, when recalling, participants felt certain of what had happened, whereas when they were inferring, the feeling of certainty was replaced by a feeling of probability as they worked out what had probably happened. It is interesting, in light of this suggestion, to reconcile inference with Tulving's (1985) popular "remember / know" distinction, which seeks to determine whether someone knows that something happened (indicating semantic memory) or can remember it happening (indicating episodic memory). If the construction of inferential connections could be distinguished from recall by an accompanying sense of probability rather than certainty, perhaps Tulving's distinction might usefully be extended to, for example, "remember / know / think." As discussed, however, many instances of remembering involve a combination of these features.

As with Wells et al. (2014), the accounts of my participants combined recall and inference. In Study 2, narratives were constructed through different combinations of subjectively experienced connections with the past. Each connection worked in combination with others (e.g. surfacing could lead to inference, inference could lead to association, etc.). The four kinds of connections were important in different ways. Surfacing connections enabled an event, person, place, or idea to be remembered to some extent. Associative connections allowed participants to make information

personally meaningful and relate it to other ideas, narratives, or to themselves. For example, Kate associated photos of a foreign city with particular experiences as well as with a formative period of her life. Inferential connections allowed participants to remember more about an event than they could otherwise and, indeed, to learn about aspects of the event that they had not witnessed. Transporting connections allowed people to feel that they had been present at the event and to reinforce emotional connections with it. The boundary between these different kinds of connections was not always clear. Indeed, it seems problematic to define any instance as only involving one kind of remembering. Renoult et al. (2012), for example, found that episodic and semantic recall interact in ways that produce what those authors called “potentially intermediate forms of memory” (p. 550). It may be that episodic and semantic recall are best understood as aspects of the experience of remembering rather than as distinct systems or inherent qualities of recalled memories. As I found in my studies, memory narratives are expressions of remembering that have been informed by both episodic and semantic recall, along with inference. Sometimes, these took the form of generalised or summary memories (Conway, 2009), such as when a photograph or set of photographs represented a place or time period rather than a specific event.

Carr’s (2010) worry that excessive use of external resources leads to less authentic forms of remembering seems to relate to a supposed impairment of particular processes, such as reflection and critical thinking. Yet it could be argued that these are enabled by the surfacing of ideas. It is, for example, possible to think deeply about facts that have been looked up via Google or about experiences that one has been reminded of by looking at a photograph. Even such relatively superficial kinds of remembering can act as stimuli for subsequent deep thinking. Take Jane’s account of the way that a photograph could act as a focal point around which memory could be pieced together, indicating the possibility that associative connections combined inference and recall to produce a broader understanding of how one remembered idea connected to another. Neither transportive nor associative connections were simply created by photographs. Participants used photographic images as anchor points around which they constructed narratives that included happenings before and after

the moment that was captured as well as other associated events and ideas. An exception was Phil's account of sometimes remembering the photograph rather than the experience. His concern around superficial, tick box remembering was that it did not provide a basis for making other connections with the past.

Mary and William both conveyed an intuitive sense of the authenticity of remembering that was more complex than episodic / semantic, inference / recall, or internal / external. For Mary, associated details and stories were important for situating memory in a wider context that made it "more real." For William, there seemed to be a minimum level of remembering that made a memory feel real. Conversely, as Phil suggested, only remembering the image of a photograph or the elements it showed was experienced as less authentic than recall that was filled out with associations, related details, or sensory information. For these participants, a fuller memory was a more authentic one, suggesting that authenticity could be enhanced by inference.

### ***8.3.2 Authentic experiences of remembering***

Another way in which memory may feel authentic relates to the fluency with which it is produced. For example, my participants sometimes seemed to value memory differently depending on whether it felt as if it required prompting with an external source. Jacoby et al. (1989) described fluency of processing as critical to reality monitoring (i.e. attributing thoughts to memory rather than imagination or external information) and Winkielman et al. (1998) showed it to be critical in self-evaluations of the overall memory system. In distributed cognition literature, fluency is positioned as having implications for the perceived legitimacy of using external resources in remembering. Palermos (2015) suggested that the impression that we possess knowledge may be an illusion based on the ease of accessibility of information and Clark and Chalmers (1998), in presenting their extended mind hypothesis, argued that we count externally held knowledge as our own when we are confident of easily producing an account of it. Empirically, HCI researchers Kalnikaitė and Whittaker (2007) found that participants would decide whether to use

an external memory aid based on the efficiency with which it could be accessed and that this could be a more important consideration than accuracy. In his unpublished doctoral thesis, Ward (2013a) showed that the speed of looking up information on Google was associated with feelings of ownership of that knowledge. Introducing a delay to one group disrupted their “feeling of knowing” by highlighting the “externalised nature of their information retrieval” (Ward, 2013a, p. 74). Thus, quick access or fluency may lead people to blur the distinction between externally supported and unsupported memory by creating a seamless remembering experience.

Accounts of distributed remembering often neglect the subjective experience of remembering. In their original depiction of extended cognition, Clark and Chalmer’s (1998) did not seem to consider what kind of remembering was involved in looking up information (e.g. in a notebook) or what it is like to remember in this way. This is understandable for the kind of semantic memory being discussed; the address of a museum, for example, can be accessed and used without reflection, interpretation, or personalisation. However, by contrasting Bell’s MyLifeBits project (Bell and Gemmell, 2009) with Berry et al.’s (2007) study of Mrs. B., a woman with amnesia who records scenes from her day with a Sensecam, Dib (2013) highlighted the importance of subjective experience in externally supported autobiographical memory. While Bell is looking to increase the objectivity and productivity of his memory, Mrs. B. wants “a normal life in which she can share the past with loved ones” (p. 47). Without obvious evidence of personalised association, it not clear if photos cue Mrs. B.’s recall or actually generate new memories of the images.

Bell’s system has been influenced by Bush’s (1973) concept of the Memex, a machine that stored and retrieved all of an individual’s information in highly efficient ways. Van Dijck (2008c) claimed that both Bush and Bell modelled their machines on the human brain, forgetting that the “brain interacts with a machine, and vice versa” (p. 117). In attempting to create objective evidence of the entirety of experience, rather than supporting constructive processes, they have not taken into account the important contributions of emotional connections and processes that rely on subjective experience, such as reality and source monitoring. Consider Kate’s

photograph of the cat covered in streamers (Figure 5). Rather than accepting it as a true record of what happened, Kate could recall the experience of staging the photo. Indeed, her unhappy associations with that time might even have been strengthened by her memory of this orchestration. In contrast, Mrs. B., if she did not recall the subjective meaning behind such an image, would be likely to misinterpret it.

Personalisation and subjective meaning-making are what makes memory *autobiographical*, rather than *biographical*. Neither Bell's nor Mrs. B.'s lifelogging systems get around the necessity of subjectively giving external memory cues meaning (Petrelli et al., 2009) and the more cues there are, the more challenging this may become since the personalised construction of memory involves selection and attention (Sellen et al., 2007). The question of how much should be remembered is complicated both by the different reasons for remembering and the different circumstances of individuals. For example, it would seem that some balance of recorded detail and ambiguity might be desirable within external memory support, but this balance must be appropriate for the needs of the situation. Mrs. B. might benefit from access to a large number of photographs when attempting to remember her day (though she may not be able to meaningfully engage with many of them, Lee & Dey, 2007). Others, as highlighted in Study 1, may find that too many photographs are impractical or overly constraining.

#### **8.4 Disruption of experience**

The previous section portrayed authenticity as a subjective notion best understood in terms of the qualities of interaction between people and external resources. Across my studies, photography was seen as both disrupting and extending practices and processes of remembering. Lorraine and Phil both feared that excessive availability of photographs might disrupt more effortful, but ultimately more rewarding, ways of remembering. On the other hand, Thomas and Jane sought comprehensive collections of experience in the apparent hope that recording more would lead to the ability to remember more. For both Thomas and Jane, however, this was tempered by a sentiment that focusing on the recording could disrupt the experience being

recorded. Thus, while having records was seen as positive, having to create them could be problematic.

Just as the authenticity of remembering was dependent on subjective experiences and perspectives, the authenticity of the experience of life events was dependent on participants' understanding of the relationship between themselves, reality, and technology. In taking a photograph, participants often sought to preserve "a moment" or "capture a memory." Yet taking photographs changed what the photographers did, what they saw, and how they thought about the experience. This led to concerns about the disruption of experience for oneself and for others (e.g. JI's concern that photography could get in the way of her family experiencing the wedding or KA's concern about photographing a private moment). Indeed, capturing also seemed to have changed the behaviour of those being photographed and, perhaps, introduced significant changes to the event itself (e.g. in requiring people to stop what they were doing, move into particular formations, and pose). People both experienced and photographed something different from that which they had decided to record.



**Figure 8: A photo of photographic practice (Study 1).**

More than simply influencing behaviour, some aspects of the wedding in Study 1 seemed to have been constructed around photographic opportunities—the bridal couple's entrance via the staircase, the presence of a professional photographer, etc. Other aspects were more subtly influenced, such as the positioning of people to allow

clear shots or the pacing of events to allow photos to be taken. Participants' collections included images of people posing, staged situations, other people taking photographs and looking at them on their camera. Photographic practices had become a part of the visual record of the wedding (as demonstrated by Figure 8).

Despite this, photography was not always seen as a legitimate part of the experience of the wedding—the professional photographer, KA, seemed to approach her role as an outsider to the event. This idea echoed the finding of Mols et al. (2015) that some capturing strategies removed photographers from the social aspect of an experience. Interestingly, it may have been the conception of photography as outside of experience that could make it seem disruptive. For some participants, there appeared to be a trade-off in which greater emphasis was placed on experiencing or recording. For example, although it was important for Lorraine to look back on the past, it was crucial that she was able to experience the present by limiting the attention she paid to taking photographs. On the other hand, Henry's compulsion to record seemed to privilege future remembering over present experience. Even in these contrasting cases, a balance of experiencing and recording seemed to be important: without experience, there would be nothing to remember; without records to look back on, the value of experience could be lost.

#### **8.4.1 Attention**

For my participants, paying attention to the taking of a photograph may have increased or decreased their investment in the experience, resulting in stronger or weaker encoding. According to Craik and Lockhart's (1972) "levels of processing" theory, deeper or more complex processing of a stimulus results in stronger encoding. There have been many criticisms of this theory, including that it has been primarily tested in relation to the abstract processing of words, it does not provide a clearly defined index of depth of processing, and encoding is only one element of predicting future recall (Craik, 2002). Nevertheless, as Craik (2002) pointed out, the relationship between perception, attention and memory has been supported by many researchers over the years (e.g. Bartlett, 1932; Hasselmo et al., 2007; James, 1890).

Mols et al. (2015), drawing on Engeström et al.'s (1990) activity theory, asserted that capturing is a dual task that involves paying attention to both an experience and its recording. In Henkel's (2014) first experiment, where participants did not zoom, she wrote that "taking a photo of the object may have diverted participants' attention from the object to the camera" (p. 4). Similarly, Craik et al. (1996) found that divided attention during the encoding of an experience impaired recall and Koriat et al. (2000) suggested that it is likely to impair source monitoring, meaning that the sense of disrupted experience described by some participants may have been associated with subsequent impoverished remembering. Where Henkel's (2014) participants did zoom in on the objects they were photographing, however, their recognition of details improved not only for those objects but for the rest of the scene as well. This was taken to mean they were paying closer attention to the scene in general. Of course, zooming did not always lead to remembering more details, and not zooming did not always impair remembering. Equally, while photographing and zooming seemed to have an effect on the remembering of the details of objects, it is not clear what effect, if any, it had on the remembering of experience. What Henkel's study highlighted is that the way people used their cameras related to how they paid attention to the environment and, therefore, what was subsequently available for remembering.

A possibility raised by Mols et al. (2015) is that it may not only be the amount of attention required to take a photograph but the focus of that attention that changes the way an experience is perceived. By exploring different capturing strategies, they found that paying close attention to recording could "intensify" sensory and emotional aspects of an experience but also disrupt the flow of activity by concentrating on the processes of photography. On the other hand, they speculated that for those whose use of cameras was practised and transparent, taking photographs might have led to a less disrupted but also less intensely felt experience, leaving the consequences for later remembering somewhat unclear.

Perhaps it was not acts of photography that were disruptive or otherwise, but the way those acts were experienced. Habitual, intuitive, and automatic practices are less disruptive to other actions and to the experiencing of an event than effortful ones (Kahneman, 2011). It is possible that for those practised in photography, taking a photo required less attention and was, therefore, experienced as less intrusive. Perhaps Lorraine and AE found taking photographs disruptive because their attention was divided between experiencing and recording while Robert, Henry, and John experienced photographic actions as natural and unintrusive because they did not need to pay attention to the operation of the camera. For them, the skills they had developed and the configurations of their cameras may have led to what is called “transparency-in-use”, where tools are used automatically and unconsciously, allowing the user to focus on the task rather than the technology (Clowes, 2013). An important point of contrast, however, is that Ingrid valued the limitations of analogue photography and the effort it required because it forced her to be selective and to take more care with her photographs. For her, it seemed to benefit remembering because she was more intimately involved in her photography practices.

For Mols et al. (2015), taking too many photos or being overly focused on technical quality could be disruptive, but effortful and selective capturing strategies could enhance the emotive aspects of the experience. This might explain why Lorraine and Phil felt that having to pay attention to taking photos could get in the way of experiencing, whereas Ingrid claimed that being selective and careful made the resulting photographs more memorable. A further complication is that photography could be a disruptive yet intentional, positive force, increasing the salience of an event and the likelihood of future remembering (e.g. William and Nick had both turned negative events into positive narratives through taking photographs).

#### **8.4.2 Purpose**

It is also possible that there was an important difference between attempting to record an experience and taking a photograph for creative reasons. Perhaps, if participants wanted to create an aesthetically-pleasing picture, then paying attention

to the process of taking the photograph was seen as having value. At the same time, if they wanted to generate a cue to support future remembering, then paying attention to the process of taking the photograph might be seen as intrusive to the encoding of the experience. These different purposes and outcomes may not have been mutually exclusive. Distinctions between the different purposes of taking photographs (memorial, creative, or communicative), established in Study 1, were not clear-cut. For example, significant creativity was evident in attempts to capture the reality of a scene and some participants felt that careful attention, skill, judgement, and composition affected the extent to which a photo could satisfactorily portray reality. The impression of objectivity was sometimes brought about by design, such as through Robert selecting camera angles to create a cleaner picture that represented how he felt that he had perceived things in real time. Nick, on the other hand, felt that real photos were candid ones in which attention paid to posing or composition was minimised.

The value of photographs, then, related to both a literal representation of a past scene and to the photographer's expression of subjective experience. For my participants, the tension between these two "authenticities" (Arnheim, 1993) was realised through the negotiation of personal meaning, perceived objectivity, and aesthetic values. There are some authors who have considered the relationship between photograph and reality as independent of human interference (Bazin [Bazin & Gray, 1960], for example, attributed only minor influence to the role of photographer in determining what aspect of objective truth was captured by the camera). However, the contribution of orchestration and performance could be seen in my participants' accounts of subjective, idiosyncratic, and creative photography. While photographs could be used *as if* they were objective, the choices made by the photographer to create one particular image from infinite possibilities was always a subjective act (Berger, 2008; Sontag, 1977).

An increase in automatic cameras points to the possibility of experience that is less disrupted yet from which many photographs are produced. The central premise of Microsoft's Sensecam, for example, is that the need to remember to take photos is

removed and attention is not drawn away from experience. Harvey et al. (2015) proposed that automatic photography might leave biological memory free to encode meaningful and complementary cues, including photographs that we would not choose to take. Yet automatic photography is not entirely undisruptive, nor are automatic photographs entirely unorchestrated. An intriguing illustration of this is Bilaal's (2016) 3rdi project in which he grafted a camera to the back of his head "to objectively capture my past as it slips behind me ... by the complete removal of my hand and eye from the photographic process" (About Project, para. 5). Yet if Bilaal was aware of the camera as he moved, then he could not reasonably claim that he was not manipulating the images. Mary's garden surveillance camera may, in fact, have been more objective because it stayed in a fixed position no matter what she did, capturing her only when she happened to be in its view. We cannot discount, however, that Mary's knowledge that she was being recorded affected how she behaved, particularly since she had come to understand some of the implications of looking at her footage.

#### **8.4.3 *Authentic experience and non-witnessed events***

Ji's concern about a photograph being posted to Facebook during the wedding suggests that she did not see it as appropriate for people who were not in attendance to have a vicarious experience of this event. Afterwards, however, she had taken part in the organisation of photographs for a slideshow that was specifically produced for people who had not been at the wedding. In addition to this, she had also posted a large number of photos on Flickr for wider distribution. It seems that, for her, it was acceptable for others to be able to use photographs to construct memories of the wedding after it was over, but not for them to access the experience as it happened.

Lorraine's objection to her sister-in-law's habit of stopping the action to take a photograph may have indicated a misunderstanding of a difference between experiencing and remembering perspectives. Note the change of tense in the following statement between "it hasn't really happened" and "it's happening":

*Lorraine: She seems to describe it as if it hasn't really happened unless she's got a record of it. And I don't like that, I think it's happening because it's happening.*

Perhaps her sister-in-law was legitimising not the experience but the memory. Further, this may have been a form of social legitimisation, enabling others to construct memory of non-witnessed events or, as Bate (2010) called them, “artificial memories ... that we have not necessarily experienced, or were experienced in a different way” (p. 251). Interestingly, it is not an event itself that these others would witness but a photograph of it, yet from this they could construct a memory of both the photo and the event. This was the case for AE who could now remember—without any obvious sense of artificiality—both the experience of coming to know about her friend “dancing with all sorts of people” and the knowledge itself. Presumably, it is this potential for others to remember non-witnessed events that causes people to be concerned about old photographs appearing on social media sites. For example, Thomas was concerned about a friend posting photographs, taken years earlier, on Facebook—a potentially large and unknown audience might be able to construct memories of what he had considered to be relatively private experiences.

## **8.5 Oversight, coherence, and selectivity**

Photograph collections can stimulate broader insights than individual photos, such as understandings of the kinds of events one has been involved in or the development of one's appearance over time. However, large amounts of recorded information might also lead to problems with making coherent sense of the past. For some, such as Bell and Gemmell (2009), it is difficult to see why more information should not lead to more clarity and insight. Yet, as Mayer-Schönberger (2009) has argued, increased storage capacity can reduce the incentive to think about the types of information that would most usefully be captured and stored. Previous limitations forced us to be selective about what was important (Singer & Conway, 2014). In their critique of lifelogging, Sellen and Whittaker (2010) also raised concerns that creating a comprehensive archive of representations of experience may undermine important constructive processes of remembering.

Participants did not always know which photographs would become significant, which may have led them to capture more information than they needed.

Redundancy may have seemed a small price to pay for capturing significant elements of the past. However, as van Dijck (2008c) has pointed out, the risk of adding to an already large store of information is the dilution of what is already there. Similarly, Gennip et al. (2015) warned of “cue hoarding” which they suggested could lead to “too many cues with too little relevance” (p. 3444).

### **8.5.1 Ambiguity, identity, and forgetting**

Certain kinds of remembering may benefit from a measure of ambiguity in the external resources that support them, allowing sufficient flexibility in the way that the past is reconstructed. Berger (1992), referring to the perceived potency of black and white photographs, claimed that “sharper and more isolated” (p. 192) stimuli result in greater remembering. Similar ideas have been suggested by empirical research on a variety of media (e.g. Chalfen [1987] on home video and photography or van den Hoven & Eggen’s [2009] comparison of different combinations of text, photos, or video). This insight is worth considering in relation to comprehensive photographic archives. For example, while van den Hoven (2014) suggested that photos “leave room for imagination, interpretation and flexibility in the selection of what story to tell and how” (p. 380), perhaps this flexibility is reduced in large collections of images. Aipperspach et al. (2010), for example, claimed that the extent of the information stored in MyLifeBits (Bell’s lifelogging system) impedes reflection because there is not enough room for ambiguity or subjective judgement.

Large numbers of photographs of an event such as JI and AE’s wedding may reduce the need for, and also the possibility of, interpretation. According to Mayer-Schönberger (2009), the ability to reinterpret the past is reduced by overly detailed records. As such, we can be constrained by evidence of behaviours or events that would more usefully be forgotten. Drawing on the case of AJ, an individual with hyperthymesia or the inability to forget, Michaelian (2011b) supported the idea that

retaining access to information that is no longer necessary can excessively orient us towards the past. There is, he suggested, a “virtuous form of forgetting” (Michaelian, 2011b, p. 406) between the extremes of too much forgetting and too much remembering. Similarly, Conway (2005) argued that to maintain a coherent sense of self, we need to align our past and our present by continuously reconstructing our memories. This involves forgetting evidence of ourselves behaving in ways that contradict who we want to be (Schacter, 2001). Perhaps exposure to (or even awareness of) particular photos impedes our development by reminding us of events we would prefer to forget.

The existence of shared photographs, in particular, could have consequences for social interaction and negotiation of meaning making. Thomas complained that pictures of him, taken many years ago and recently posted by a friend on Facebook, provided evidence of a past that he no longer wanted to be associated with. These “digital shadows” reduced his sense of control over what was remembered and forgotten, as well as over the values and perspectives by which he might be judged (Burkell, 2016). Indeed, this issue suggests that there may always be ambiguity and the possibility of different interpretations of recorded information, but that in lifelogs or large photographic collections the ambiguity is less apparent. As Burkell (2016) noted, digital records can be pieced together in different ways that create very different views of the past, each conveying only a limited (and potentially misleading) facet of what happened.

Photos reminded participants of aspects of the past and could, therefore, prevent them from being forgotten. It was for this reason that JI regretted the existence of a photo that showed her mum looking stressed at the wedding and that Ingrid had locked away troublesome photos of her grandfather. These were concepts and images that they would prefer to allow to fade into oblivion and, for this reason, participants sometimes deleted, hid, or avoided troublesome photographs. Sas and Whittaker (2013), in studying what happened to digital artefacts after romantic breakups, claimed that people tended to keep reminders of positive experiences while actively trying to ignore negative associations. Indeed, Harvey et al. (2015) raised the idea

that using cues to remember positive experiences could inhibit the memory of negative ones. On the other hand, Schachter (2002) claimed that the troublesome persistence of negative memories is partly determined by how experience is evaluated. Jane, Ingrid, Mary, and Nick, for example, all seemed to cope differently with the presence of photographs with potentially negative associations. Jane avoided Facebook because she did not want to feel like her friends were having a better life than she was. Ingrid threw out or avoided photos that made her think about unpleasant issues (e.g. her grandfather's involvement in World War I). Mary saw photos of ex-boyfriends in a historic context that allowed her to view them without distress, although looking at photos of her deceased father produced visible emotion. Nick liked being able to look back on a difficult time in which his daughter was ill because she had since recovered and that experience was a legitimate part of his family's past.

The examples given above of deleting, hiding, and avoiding photographs suggest a purposeful controlling of an idealised version of the past and a disciplined kind of remembering, enacted through practices of selection. This mirrored, to some extent, the aesthetic idealism that seemed to underpin many capturing practices. However, in many cases, participants simply did not look at photographs due to the time and effort it would require. In both studies, while participants generally considered looking at photos to be valuable and enjoyable, they seemed to spend very little time actually doing it compared to the time spent taking them. Many capturing practices in my studies seemed to be motivated by the act of taking a photograph, or the fact of having it, rather than by a desire for lasting engagement with the resulting images.

For Ingrid, it was not necessarily having a photo but taking it that helped her remember (echoing van Dijck [2008b]). Other participants, such as Jane, took photographs for the reassurance of having them. Participants may also have recorded superfluous information because they felt that it would allow more flexibility in what they could look back on. A number of participants seemed to have photographed copiously with, as PJ described it, a "low positive yield" as a way of ensuring that some valuable photographs were taken. The downside seemed to be the time and

effort involved in organising large photograph collections. While participants may have envisaged particular kinds of archives (e.g. Phil wanted a highly organised one, Jane wanted one where different activities were proportionately represented), having too many photos could get in the way of organisation and engagement (see Whittaker et al. [2010] for a similar finding).

### **8.5.2 Risk averse remembering**

Having a lot of photographs could feel useful and reassuring, and it could support the remembering of specific events or details that might otherwise have been forgotten. For Jane, taking photographs was a way of attempting to manage the relentless passing of time. However, as Beloff (1985), writing about pre-digital photography, warned, by trying to manage experience by turning it into images, we risk overwhelming ourselves as “the images themselves become a flood” (p. 20). The wedding study, in particular, showed how taking a lot of photographs could lead to issues with engaging with those photographs afterwards. Like Thomas in Study 2, the accounts of AE, JI, and IO suggested practices of skimming through large collections of photographs. Of course, this may have been representative of a wider shift in engagement with digital interfaces. Perhaps, as Zylinska (2016) suggested, digital photographs are transitioning from individual objects to streams of data “to be dipped or cut into occasionally” (p. 8).

Keightley and Pickering (2014) mentioned a “higher level of discards” (p. 581) as one of the prominent developments associated with digital photography, yet there was a general unwillingness among my participants to delete them. Alongside a tendency to take a lot of photographs, this seemed to reflect a risk averse attitude to remembering: participants were often reluctant to do without photos even when they were concerned about the disruptive potential of capturing practices or the challenges of organising large collections. Even Ingrid, who actively avoided looking at certain photos, was sometimes unwilling to delete or throw them out. Sas and Whittaker (2013) found similar behaviour after romantic break-ups, suggesting that such behaviour was motivated by loss aversion, in which the perceived value of an object

is greater when giving it up than when acquiring it (Tversky & Kahneman, 1991). In the previous chapter, I argued that a given moment often seems most important while it is happening. The value of most photographs should, therefore, be greatest at the point at which they are taken. It seems, however, that a photograph's value increases again if it is at risk of disappearing. Some participants claimed that they would not remember an experience without the associated photos, suggesting that it was not just the photos that were at risk but the access they could provide to memory. This risk averse attitude might have been reinforced by occasions when photographs turned out to have unexpected memorial value, such as Ingrid's bread photograph (Figure 4) or Mary's photograph of her dad taken in the year before he died.

### **8.5.3 Biases of blended memory**

In theory, lifelogging should mitigate the levelling and sharpening of memory (where elements that are captured are privileged above those that are not) because all experience is covered equally. Further, by conceiving of experience as items of objective data, Bell seems to attribute them all with equal value. Gurrin et al. (2008) conducted an in-depth content analysis of a lifelog and found that automatically captured images were of much lower quality and contained fewer meaningful elements than purposefully captured photographs. Lifelogs seem to privilege objectivity over aesthetics and personal meaning. A lack of selectivity and orchestration may lead to a paucity of differentiated significance and a flattening of experience where everything is equally important and also, therefore, equally unimportant. This, along with the persistence of unnecessary information about the past, could create problems for heuristic processes of memory. Schacter (2002), for example, has claimed that our inability to remember detailed trivial facts may be the key to our ability to generalise and recognise patterns that allow us to organise our view of the world.

It would be impractical to remember the past exactly as we experienced it. Instead, experience is compressed and simplified through memory (Kahneman, 2011; Wells et al., 2014). Similarly, reviewing extensive footage of the past is impractical since

we do not have time (Clowes, 2013; Dib, 2013) and we could not make coherent sense of it all (Aipperspach et al., 2011). As Clowes (2013) put it, lifelogging is really an attempt at total capture since total recall cannot be achieved. Selectivity is unavoidable—lifeloggers must employ search filters, watch the past in fast-forward, or use algorithms to artificially select important moments. Bell primarily views his Sensecam images in fast-forward (Dib, 2013) and this process of review is, presumably, also recorded as an experience, creating a recursive loop. In critiquing Bell's attempts to record the entirety of his experience, Dib uses Borges' (1998) metaphor of the one-to-one map of the world (in which cartographers created ever more detailed maps until one became the same size as the territory it represented) to make the point that a function of memory is to emphasise what is important without getting in the way of our experience of the present.

However, automatic cameras raise interesting possibilities for self-understanding. Just as Mary claimed to have noticed patterns of behaviour through her surveillance photos, Lindley and Randall (2009) found that families who were asked to wear a Sensecam for a week described important insights into their behavioural patterns. By watching footage in fast-forward, they noticed how much time they spent driving, eating, or playing with their children. Similarly, Bell claims that by algorithmically analysing large amounts of personal data, he can discern patterns of behaviour, the status of his health, etc. and then predict outcomes and effect positive change (Bell & Gemmell, 2009). It seems he is not passively consuming autobiographical information but using it to understand and shape his life.

Such algorithms are not objective. They are based on association and inference and can be seen as an attempt to make meaningful connections on behalf of the user. They can surface previously unknown aspects of the past and produce evidence upon which further inference or association can be based. However, the extent to which such practices are likely to reveal valid and useful insights remains questionable. Dib (2013), for example, cautioned against the use of algorithms that attempt to draw meaning from noise. In any case, there remains a role for the subjective, situated application of meaning. Even a system that could take account of affective and

sensory responses at the time of an event would have to be able to reinterpret them in relation to subsequent experiences and reflections. Take, for example, the photographs of Mary's father. The information encoded at the time they were taken would need to be balanced with the grief leading up to and following his death to determine how this experience should be treated within remembering.

## **8.6 Autonomy, dependence, and the locus of control**

The algorithmic division of lifelog content into meaningful episodes (e.g. Doherty & Smeaton, 2010) can be seen as an attempt to replace existing memory functionality. Such attempts seem to align with the principle of parity (Clark & Chalmers, 1998) by which external processes are considered to be cognitive if they perform an equivalent function to biological ones (Michaelian & Sutton, 2013). The complementarity principle (Sutton, 2010), on the other hand, proposes that the cognitive contributions of different parts of a system can be qualitatively different and that, in fact, differences can lead to a more effective overall system.<sup>7</sup> Following Sutton (2010), Smart et al. (2016) claimed that we recruit external resources because they have functionality that complements our thinking. At the same time, if automatic processes take over roles previously controlled by our brains, then our brains should do something else useful (Clark, 1997; Sutton, 2010), such as remembering the location of information, rather than the information itself (Sparrow et al., 2011).

It might be argued that the distinction between parity and complementarity is a matter of perspective, related to perceptions of autonomy and the locus of control. For example, Bell argued that facts need not be stored in the brain if they can be

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<sup>7</sup> Note that Clark (1997) also claimed that external resources are “best seen as alien but *complementary* to the brain's style of storage and computation” (emphasis in original, p. 220) but did not clearly articulate this in Clark and Chalmers' (1998) extended mind hypothesis as part of the criteria for deciding whether the use of external resources constitutes cognition.

easily accessed via tools, such as smartphones (as cited in Dib, 2013). This can be seen as the brain interacting with the smartphone to enhance memory or it can be seen as technology replacing functions previously performed by the brain. The difference between these perspectives can reflect a profound difference in philosophical positions. For Carr (2010), an individual self, independent of the tools being used, should exert effortful control over thinking and remembering. Therefore, outsourcing some of that control to technology constitutes replacement rather than enhancement. For Bell and Gemmell (2009), the combination of objectively truthful and accurate records with appropriately designed algorithms produces an enhanced self in which there is no clear distinction between autonomous machine and autonomous human.

For my participants, perceptions of autonomy and control were important in determining both the outcome and the experience of distributed remembering. Kate's sense of autonomy was reduced by feelings of diminished expertise and responsibility. She felt incompetent in the "digital age" and feared that she would become increasingly lost in a technologically-mediated society she neither understood nor endorsed. Henry, Robert, and Nick felt that their expertise involved an understanding of how to get the best out of their technology and used cameras as part of their ways of understanding the world. As Nick said, taking photos was "second nature" and "part of life."

Though neither Sutton's complementarity principle nor Clark and Chalmer's parity principle specifically address conflict between elements of a system, the complementarity principle prompts careful thought about the relationship between people and technology rather than focusing only on the nature of the components and their functionality or output. For example, if Kate were happy for the automatic settings of her camera to ensure that a reasonable image was produced, she and her camera might be considered an effective distributed system. Yet with the same components and the same output, Kate and her camera were in conflict and, as a result, her engagement in photography practices suffered.

As Tribble (2005) pointed out, distributed cognition does not imply a loss of individual agency. She discussed how, in 16<sup>th</sup> century repertory theatre, the cue-scripts and plots held information that could be used to structure the remembering and performance of the actors so that they neither had to recall all of their lines and actions unaided nor refer extensively to external information in a way that could stifle their performance. Similarly, Wherton and Monk (2010) gave the example of the relative independence that people with dementia can achieve through being externally prompted to maintain continuity in daily tasks. Perhaps Kate felt unable to use technology to support her autonomy because she attributed it with its own, independent agency rather than considering it as something that was used within her distributed system. Here, we return to the problem raised earlier in the chapter in relation to essentialist positions, such as that of Carr (2010): if we believe that technology does things to us then it becomes more difficult to appreciate the role of interaction between people, technology, and wider contextual factors.

It is also worth remembering that people are never entirely autonomous and that we must act within the constraints imposed by the things we are connected to. Just as external resources and technologies can compensate for some of the loss of autonomy in people with dementia and can enhance the autonomy of 16<sup>th</sup> century actors, taking photographs, and indeed forgetting, hiding, or avoiding them, could help my participants exert some control over their remembering and forgetting. At the same time, however, by becoming coupled with technology or by developing collaborative partnerships with people, other constraints were placed on their autonomy. In developing effective practices of distributed remembering, participants could become locked into particular ways of working. Established patterns of use of cameras, photos, and applications were non-trivial. In some cases, they were important facilitators of interpersonal connections (e.g. the relationship between Thomas and his grannies or between Henry and his former wife). Participants had become accomplished at their particular ways of working with technology (e.g. Thomas and OneDrive, William and BlipPhoto, Lorraine and her DigiFrame) and while they could perform effectively with these tools, they may not have been able to remember effectively if these distributions were uncoupled (Ward, 2013a). Henry's

issues in finding photographs after his divorce or Lorraine's ignorance of where her photographs were stored or how they were organised were evidence of reliance on particular distributed practices.

Distributions of practices were bound together not just by functionality but by subjective experience. People became attached to particular ways of interacting with photography. Kate and Ingrid valued the experience of analogue photography and of holding material images in their hands. Lorraine was anxious about her DigiFrame breaking because it would disrupt a rewarding way of looking at photos. William was attached to the social and technical processes of BlipPhoto and would not leave that community even when it was at risk of being discontinued.

## **8.7 Learning to remember**

Autonomy is also affected by the extent to which the distributed system is understood and how much a person feels able to influence the way it works. By simplifying the role of the user, technology can enhance the fluency with which certain tasks are performed, leading to transparency-in-use. However, while the technology itself may become transparent to the user by functioning autonomously or by being used automatically, its workings can become obscured (Clowes, 2013), compromising our ability to judge its reliability. The case of calculators provides a useful analogy. People can calculate effectively with a calculator but their understanding of the calculation is reduced. Of course, being able to calculate without a calculator may not be an important skill, at least in our current cognitive ecology (Sutton, 2010), and by reducing cognitive demand in one area there may be enhanced capacity in another (Sparrow & Chatman, 2013; Ward, 2013b). However, while retaining the skill of calculation may not be vital, it may be important to develop a new skill to use alongside distributed calculation, of estimating an answer against which the calculation can be compared, thereby avoiding an uncritical dependence on the technology.

There may also be important reasons not to outsource some aspects of remembering. In some respects, although they work together, biological and external components of a distributed system are fundamentally, qualitatively different. For example, while preservation of the past often constitutes the entire function of external memory resources (Michaelian, 2012), it is incidental in relation to episodic and semantic recall as part of the capacity to predict the future (Conway, 2009; Nairne & Pandeirada, 2008). Similarly, the feeling of familiarity associated with episodic recall has been shown to play an important role in reality monitoring (Johnson & Raye, 1981) and is, therefore, potentially critical in establishing whether what external devices and artefacts tell us about the past is grounded in reality. Further, subjective interpretation is essential in personalising external information and making meaningful associations between different experiences. Perhaps most importantly, the way we remember now contributes to our ability to remember in the future. As we use external resources to support remembering, we practise the integration of particular processes into our thinking. Returning to Sutton's (2010) principle of complementarity, this means that it is important to consider not just how different processes complement each other during the task at hand but across the longer-term functioning of the remembering system, recognising that changes to thinking last beyond any given interaction between brain, body, and world.

At this point, it is worth examining the classic, content-based distinction between declarative and procedural memory (Tulving & Schacter, 1992). Declarative memory, consisting of semantic and episodic memory, can be consciously recalled, whereas procedural memory is expressed through performance and does not allow conscious access to any remembered content (Squire & Zola, 1996). Yet remembering, rather than being something that we are inherently able to do, can be seen as consisting of learned processes. Fivush and Nelson (2004) conducted research on how children learn to tell autobiographical stories (e.g. dating memories in chronological time and framing narratives around elements told to them by their parents). Results showed that the way we remember is influenced by the manner and context in which we learn to do it, just as when learning to play a sport or a musical instrument. Alongside Bartlett's (1932) analogy of the tennis backhand (see Chapter

7), describing remembering as procedural and, potentially, increasingly skilful, there is evidence to suggest that neural mechanisms supporting memory may develop not in relation to age but to activities, such as crawling or speaking (Richmond & Nelson, 2007). Thus, it can be argued that declarative remembering involves procedural remembering.

As Nestojko et al. (2013) asserted, the integration of tools and technologies within remembering, in particular, is clear evidence of procedural learning. Dahlbäck et al. (2013) added further support for this notion, claiming that the ability to remember combines a range of internal capacities (e.g. knowledge, skills, cultural values) and external resources. My participants had *practised* particular ways of distributed remembering and had, in some cases, developed considerable skill in their practices. The experience of those practices is likely to have been important to the further development of ways of distributed remembering. Conversely, both studies contained a number of examples of unfulfilling experiences leading participants to disengage from particular practices.

An important consideration here is that competence was also distributed, meaning that it was not simply reliant on individual skill. In taking a photograph, for example, competence was distributed across the participant and their camera (and, perhaps, those “performing” in front of the camera). The combination determined the outcome. By extension, being a good photographer might, from a distributed perspective, include the ability to select and access good cameras. On the other hand, the development of distributed competence involved the capacity to adapt to using different tools in different situations. For example, while Kate felt dependent on her camera and struggled to learn to use new interfaces for looking at photos, Henry was versatile in his use of a range of cameras, viewing interfaces, and media. According to Michaelian and Sutton (2013), remembering involves the ability to engage with “a range of different collective memory networks” (p. 8). As well as being able to adapt to new situations, this ability is dependent on the active structuring of environment to create “a resilient distributed memory system” (Michaelian & Sutton, 2013, p. 13), for example by choosing tools that are likely to remain available. There may be the

need for a balance between remaining versatile and becoming skilled at particular practices; between the benefits of a resilient system and the constraints of becoming reliant on particular ways of working. While habits could be effective in bringing consistency (Dan and John were both able to develop and maintain well-ordered archives and William had developed a habit of carefully selecting each photograph he took), they could also bring inertia and be an obstacle to adaptation (Ingrid had not adapted to digital photography despite the increasing cost and difficulty in analogue development).

How competence in taking, organising, sharing, or viewing photographs relates to competence at remembering remains a challenging question. Here, we might look to the impressive feats of remembering in 16<sup>th</sup> century repertory theatre. These skills were not just about memorisation and recall but about the discipline of strategic use of cues (Sutton, 2010). In practising this discipline, actors learned to distribute their remembering more effectively and, at the same time, they structured their environment to facilitate future performance (Tribble, 2005). In more modest ways, my participants had developed practices that led to increased engagement with photographs or that supported future remembering. Lorraine's introduction of the DigiFrame increased the incidence of reviewing and sharing her images, thereby connecting capturing with subsequent use. Jane talked of getting better at remembering to charge her camera, thereby allowing her to take more control over what was photographed. Thomas had adopted a cloud-based system that made his photographs more secure and facilitated organisation and sharing. Ingrid suppressed her exposure to photographs that might cause her to remember negative experiences.

## **8.8 Summary**

In this chapter, I have considered perceptions of the relationship between people and technology through a number of lenses: the authenticity of different kinds of remembering; the trade-off between experiencing, recording, and future remembering; the role of selectivity in making sense of the past; and issues of autonomy and control. In the final section, I have characterised distributed

remembering as something that is learned and that involves skilful performance, though this too is a trade-off between specialised skill at particular ways of working and the ability to adapt to new distributions.

In taking photographs, participants altered their behaviour and thus the experience being recorded. This is still true of automatic capturing practices, such as those of Bell's MyLifeBits system. Thus, Bell's claim that his system remembers accurately (Bell & Gemmell, 2009) should first of all be considered in relation to *what* it remembers accurately and whether it matters that the resulting record reflects a life changed by recording. Further, taking photographs can change the way that attention is paid to experience and, therefore, affect the way that experience is remembered. It is possible that having to pay close attention to the task of taking photographs can both disrupt and intensify experience. On the other hand, skilled photography, in which little attention need be paid to the camera, might also reduce the attention that is paid to the scene.

Photography cannot objectively capture an experience, but it can convincingly convey details of events that actually happened, even if it may not always look like what we saw. This allows the photograph to be used as evidence in the construction of inferential connections which can be used to scaffold further remembering, including transportive and associative connections. In using photographs, inference and recall combined into a more complex, integrated activity of remembering. While I have argued that both inference and recall should be considered authentic forms of remembering, the way they interact is important because it has implications for the personalised meaning that is made of information about the past. Photos, for example, cannot be accessed as memories but must be used as prompts or anchor points for the subjective construction of memory.

While more things can be potentially remembered with more photos, it does not necessarily follow that more things *are* remembered, or that there is no cost to the qualities of the experience of remembering. Episodic recall is likely to remain important because of its association with important psychological functions (e.g.

social functioning, identity, and decision-making) and this may be a limiting factor for the meaningful use that can be made of extensive records of the past. Some external information is crucial to support remembering, yet too much information may be overly constraining or impractical. The ability to forget is important to identity development and to making coherent sense of one's past. Further, trust in external information, such as that shown in a photograph, is critical to distributed remembering (Clowes, 2013). Without being confident of the information we are accessing, we are limited in the use we can make of it. This is another reason why episodic recall remains important—the feeling of familiarity allows us to evaluate whether information is grounded in reality or not. A danger of increasingly advanced systems taking control of remembering activities is that, without also performing judgements (e.g. reality and source monitoring) independently of those systems, we cannot know the extent to which they are working in our subjective interests or make sense in relation to our current perspective. By contrasting Bell and Mrs. B., I have shown that Bell and Gemmell's (2009) utopian view actually relies on an engaged and healthy brain. In neither case can the role of biological memory simply be replaced by technology.

In examining these issues, I have argued that the technologies involved in digital photography do not have inherently positive or negative effects on remembering. While Bell seems to have forgotten that external devices must combine with the activity of our brains (Bell & Gemmell, 2009), Carr (2010) seems to have forgotten the reverse: that our brains must combine with external resources (Smart et al., 2016). Considering Sutton's (2010) complementarity principle highlights that it is the combination of people and tools that determines long-term patterns or remembering activity. Further, these combinations are situated in particular conditions and contexts. My participants used technology in ways that were selective and unselective, critical and uncritical; their remembering was both enhanced and constrained depending on their actual uses of that technology, their experiences and attitudes to using it, and the perception of the relationship between people and technology. Claims of positive or negative effects are ultimately a matter of perception. Autonomy, for example, depends on how agency is attributed and

whether technology is seen as imitating and then surpassing existing memory functions or as enhancing them.

Remembering can be seen as a skilled performance, one in which the experience of remembering contributes to the motivation and decision-making involved in the development of that skill. In my studies, participants needed to learn how to work with tools and other people and developed effective practices, combinations of tools, and partnerships. The relationships between these components were like memory itself—they did not come into existence and then remain stable, but were ongoing accomplishments developed through use. Distributed remembering requires procedural learning—putting together components into a remembering system, operating certain tools, and facilitating and maintaining the smooth operation of the whole. Yet even when participants used technology in complementary ways to enhance their capabilities, they could lock themselves into these ways and make it more difficult to adapt to changed circumstances. People and tools are bound together and this can lead to reliance on particular distributions and practices. Concerns about autonomy can be reduced by understanding how a distributed system works, as well as being able to adapt to different situations and, therefore, be less dependent on any particular configuration of technology.

## **9 Conclusions, Reflections, and Opportunities**

In this final chapter, I summarise the outcomes from this research and highlight the most important conclusions. In doing so, I clarify the contribution that this research makes and explain how I have answered my research questions. Next, I take the opportunity to reflect on what I have learned in carrying out this research, before pointing the way to what I consider to be productive avenues for future research.

### **9.1 Summary of research**

In Study 1, the practices of capturing, organising, sharing and viewing photographs were motivated by memorial, communicative or creative concerns. These practices were influenced by overlapping technological, cultural, environmental, economic, and idiosyncratic factors. Study 2 considered the situated and personal ways in which participants distributed their practices and explored long-term patterns of activity, including the challenges of changing contexts, spontaneous acts, and the formation of routines and habits. It also examined different ways of valuing photographs, in terms of objectivity, aesthetics, and personal meaning, and the tension between recording and experiencing events.

In addition, a number of cueing processes were interpreted from the way that participants of Study 1 used photography and photographs in the construction of memory accounts in the interviews. Study 2 reformed those cueing processes into the construction of subjective connections as a way of understanding how participants seemed to experience different ways of piecing together accounts of the past.

In the discussion, these different ideas were formulated into a theory of blended memory. This theory conceives of memory as distributed, situated, and emergent remembering activity that is made up of an inseparable blend of internal and external processes and involves the integration of prospective, procedural and autobiographical remembering. Blended memory theory was then used to consider

issues of technological essentialism, the authenticity and disruption of experience and memory, the overall coherence of distributed remembering, the locus of autonomy and control when using technology as external memory support, and the potential to learn and adapt to ways of distributed remembering.

## **9.2 Answering the research questions**

### ***9.2.1 Research question 1: What is important in determining how people remember with photography?***

Photographs were used as cues for recall, information around which memory could be constructed, and evidence for working out what had happened during an event. It seemed that the photographs themselves could also be remembered instead of an experience, but it was not clear whether this was related to particular practices or beliefs. The practices through which participants had previously engaged with photographs determined what photos were available and constituted experiences that could be remembered. Thus, remembering related not just to encoding and retrieval (e.g. Tulving, 1983) but also to a range of practices and activities.

A key conclusion from Study 1 was that selection was critical to engagement with remembering through photography practices. In Study 2, selectivity was implicated in prospectively structuring future remembering and retrospectively engaging with available photographs. This was complicated by different motivations for taking, organising, and sharing photographs and different ways of valuing them (as objective evidence of the past, as aesthetically-pleasing images, and as personally meaningful objects). Taking too many photographs was seen by some as disruptive to experience and having too many was seen as potentially disruptive to future engagement with photographs (and, therefore, to certain kinds of future remembering). Perceptions of competence with tools related to whether taking photographs was considered to be a legitimate part of experience. However, using tools without having to pay attention to them could have both positive and negative effects. For some, effortful photography seemed to enhance or intensify their experience, while others found that paying attention to the camera was disruptive.

The ability of participants to determine how they remembered was limited by complications relating to overlapping and sometimes conflicting purposes, motivations, beliefs, and attitudes. However, the capacity of participants to learn ways of distributed remembering allowed them to adapt to changes in infrastructure, relationships, etc. Habits could be helpful by supporting consistent approaches to photography practices but it is possible that they might also impede adaptation to new practices. Distributed remembering seemed to involve becoming practised at and, therefore, embedded in, particular ways of distributed remembering, and remaining adaptable to different circumstances at the same time.

### **9.2.2 *Research question 2: What roles do photography practices play in remembering?***

Capturing practices influenced future remembering by becoming part of the experience being recorded. They also oriented the way that attention was paid to experience through both the requirements of composition and the knowledge that the scene had been recorded. Other practices facilitated remembering through the surfacing of related ideas about the past that could then lead to the construction of other kinds of subjective connections. Ultimately, practices of capturing, organising, sharing, and viewing photographs helped participants to connect the past, present, and future through both prospective (forward-looking) and retrospective (backward-looking) activity.

Yet the relationship between the different photography practices was complex and did not support remembering in a straightforward way. In Study 1, for example, unselective capturing practices resulted in large collections that created challenges for organising, sharing, and viewing. The photographs that had been taken provided stimuli for what might be remembered, but engagement with these pictures seemed to be dependent on a social trigger, such as sending thank you cards or constructing a slideshow. Study 2 highlighted that the experience of practices was important. Engagement with particular practices was influenced by previous practices (for example, if using a particular camera had previously been enjoyable, it was more

likely to be used in the future). However, participants may often have had multiple purposes for taking a photo and their different motivations and values could be in conflict. Examples included attempting to record and experience at the same time or attempting to capture both objective evidence and an aesthetically-pleasing version of a scene. Such concerns appeared to be mediated by beliefs about photography and reality. Perspectives that included photography as part of experience may have felt less disruptive to the participant than perspectives that viewed photography as separate from experience.

### ***9.2.3 Research question 3: To what extent do features of technology determine how people remember?***

A number of participants engaged in similar approaches to photography that related to particular technological developments. An example was the approach of taking a large number of photographs to increase the likelihood that important moments were captured or that aesthetically-pleasing photographs were produced. Technology was important in determining what practices were possible and when. Different practices of capturing, organising, sharing, and viewing often happened almost simultaneously. Digital photos could be shared much sooner than analogue photographs or could be reviewed on screen immediately after capture. Other practices that have traditionally overlapped, such as viewing photos while sorting them or showing them to other people, could be separated through digital technology as photographs were downloaded onto laptops or uploaded to social media without being looked at.

Changes in practice were not an inevitable result of changes in technology. Study 1 showed that technology did not determine behaviour in isolation but was part of a mix of overlapping and interdependent considerations that included culture, environment, economics, and idiosyncrasies. Similarly, positive and negative perceptions about technological change were determined largely by factors external to the technology. Study 2 showed that the particular situations in which technology was used had a significant influence on practices and that the impact of such external

factors was mediated through the attitudes and beliefs of the people involved. Not only were tools differently employed by different participants, properties of technology and photographs were understood differently, showing the importance of attitudes in relation to functionality. The different beliefs about whether photography could disrupt experience were evidence of this. Different attitudes produced different practices, photographs, and experiences. Technology was either enabling or disabling according to the participant's beliefs around it and their ability to engage with it. The combined competence of person and tool affected the ease with which practices could be effectively performed with respect to an immediate purpose (e.g. taking an aesthetically-pleasing photograph). However, the feeling that expertise was contributed by the tool rather than the person could lead to issues of control and autonomy in which the technology was seen as determining what was done.

#### **9.2.4 Overall research question: How do people use photography to remember experience?**

The emphasis in this thesis on the combination of distributed remembering and subjective experience has meant that, rather than asking how photography affects memory, I have focused on how people use photography as part of their remembering. From the blended memory perspective, the ability to remember is contingent on successful distributed practices in particular circumstances and across different situations. As such, a person's skill at bringing about appropriate circumstances should be part of the assessment of their ability to remember. This is likely to benefit from a mix of specialised practices and the ability to adaptively recruit external resources in varying conditions.

Remembering the past is not the only function of memory, nor is it the primary goal. Memory exists to inform action by helping to predict the possible consequences of simulated actions. Thus, forgetting and distortion are not necessarily problems or flaws. They allow us to more effectively construct identities and avoid becoming "stuck" in the past. It may be that an excess of photographs could interfere with these important memory processes. However, the taking of photographs does not necessarily result in the surfacing of related elements of the past because photos are

not always viewed and may not always be taken for the express purpose of viewing. It seems unlikely, therefore, that having large quantities of photographs is necessarily harmful to episodic recall or related psychological processes, but practices that are unselective and experiences in which attention is divided may disrupt important aspects of future remembering.

In structuring what was available for prompting memory, photography could be seen as a way of attempting to exert some control over memory. For example, participants could structure their remembering by creating, emphasising, or suppressing photographs. This held opportunities and risks since the use of photos to surface particular aspects of the past could privilege the photographed over the unphotographed. At the same time, technology was seen by some participants as exerting control over their practices and even their memory. Whether technology was seen as enhancing or impairing the autonomy and abilities of the person using it depended on their beliefs about technology and their perceptions of the relationship between it and themselves. While it can have positive or negative effects, technology is not inherently helpful or disruptive in relation to remembering and these effects are dependent on much more than the properties of tools or media.

In blended memory, prospective practices structure future practices and retrospective practices make sense of previous practices from the current perspective. The discrepancy between prospective and retrospective practices is explained by the unpredictability of shifting contexts and by the difficulty of predicting the future importance of the current moment (explained in Chapter 7 in terms of the different perspectives of the experiencing and remembering self). Further issues in how people tried to remember through photography related to the situated nature of distributed remembering, in that the conditions in which practices were undertaken could not be effectively factored into plans nor fully accounted for in retrospective accounts.

### **9.3 Contribution and implications of the research**

The conception of memory presented in this thesis departs from models established in cognitive psychology through its emphasis on distributed cognition, yet it also

distinguishes itself from common distributed cognition models by its equal emphasis on the contribution of the experience of remembering to the distributed memory system. A potential contribution of this work is to push forward the theory of distributed cognition by examining it in relation to the subjective experience of people who form parts of distributed systems. This is helped by taking a longer-term view of remembering in which attitudes, beliefs, and motivations play important roles in how remembering is distributed. In looking beyond the immediate output of distributed systems, the experience of remembering becomes important in processes of learning distributed practices, the choice to engage in particular practices in the future, and the selection of tools and people with whom to collaborate in remembering. If the distributed activity of remembering can be structured and practised, this opens up many avenues for memory research. However, the emphasis on subjective experience urges us to be cautious in how we go about structuring and practising remembering. Further, the extent to which people are able to structure their remembering intentionally and systematically is questionable given the complexity of the factors that influence situated activity.

The term I have introduced, *blended memory*, is intended to convey that remembering is more than the sum of brains and external resources, and that the interactions between them and the subjective experience of those interactions are critical to short- and long-term remembering. In this view, there is no fixed memory content; information—however it is accessed—is used in dynamic, situated, and constructive processes as remembering is manifested through behaviour, articulation, and subjective experience. The theory of *blended memory* is intended to open up new opportunities not only for distributed cognition or human computer interaction but also for cognitive psychology.

Following Tulving (1979), I see this research as another iteration in the process of developing our understanding of memory. Hutchins (1995, p. xiii) differentiated between cognition as a “solitary mental activity” and cognition as “an activity undertaken in social settings.” It is the former that has mostly been studied in cognitive psychology, leading to an understanding of remembering that pays little

attention to the cognitive ecologies in which we remember. Thinking of remembering as distributed activity can enhance our understanding of important theories. Considering the episodic / semantic distinction (Tulving, 1972) in terms of processes that make up part of a wider remembering activity, for example, allows for more diverse conceptions of the integration of episodic and semantic recall. It is then possible to integrate further processes, such as inference, so that models of remembering become more realistic and complex. Views of processes such as episodic or semantic recall or inference, as discrete and as more or less legitimate forms of remembering can obscure the ways that they structure and support each other. Similarly, existing models of memory might be extended, with the help of the perspective of blended memory, to improve our understanding of memory from short- and long-term perspectives.

## **9.4 Reflections**

### **9.4.1 Epistemological issues**

I have found researching memory to be treacherous. Alongside methodological challenges, the process of learning about memory has, at times, destabilised my understandings of knowledge and reality. It has been difficult to reconcile the apparent stability of day-to-day life with the nebulous and amorphous foundation on which it is based. My epistemological stance has shifted during this research from one in which knowledge, while socially constructed, was stable and carried around in the head to one in which knowledge is distributed, situated, and emergent, existing only in activity. An implication of this shift is that I have had to reconsider aspects of my approach along the way. For example, it was not until late in the analysis of Study 1 that I realised that I was not directly studying the memory and practices of participants but the accounts of memory constructed during the interviews.

Perhaps more importantly, the writing of this thesis has involved remembering what I have done, what I have found, and what I have thought. In accordance with Suchman's (2007) theory, what I have produced here is not an account of my research as it happened but a post-hoc rationalisation of it; a systematic account that

does not do full justice to the activity that unfolded in the particular situations of the interviews, analysis, writing, etc. Further, as Kahneman (2011) would argue, the words here represent my remembering self's version of events: selective, compressed, and biased towards subjectively salient moments. After Conway (2005), it is a mixture of correspondence (what actually happened) and coherence (what I believe about myself, the past, and the world). The extent to which this thesis can be trusted as an account of the research that *actually* took place is, therefore, limited, just as the extent to which any account of the past can be trusted is limited. This is a shortcoming not just of this thesis but of the reporting of all research. Fortunately, the thesis can still be trusted as an account of my understanding of memory that is grounded in my research process. Whether or not it was produced exactly as I propose here, my expression of the findings and the contribution to knowledge is something that I believe in. It is the current articulation and, therefore, the current reality of my research. However, these issues highlight the importance of reflexivity to the trustworthiness of this work, and this section is intended to give the reader a sense of that process.

#### **9.4.2 Retrospective accounts**

Although the events and practices I had intended to explore happened without my intervention, the research data were generated by instances of remembering that were brought into existence through the interviews. The theories of Suchman (2007), Kahneman (2011), and Conway (2005) all suggest that these accounts will be distorted and simplified. Further, according to Suchman's (2007) thesis, participants may have made sense of what they had previously done only when called upon to do so. Rather than having actually existed, the plans and goals they expressed may have arisen out of retrospective sense-making and their actual activity may have been less coherent and systematic than they suggested.

The issue of post-hoc rationalisation is another layer of the challenge already discussed: that a participant's account of what happened is somewhat different from what actually happened. While Suchman (2007) suggested that the reasons people give for having done something are different from why they actually did it, it seems

reasonable to assume that the given reasons reflect their current beliefs about their behaviour. Similarly, participants' accounts of the subjective experience of remembering or photography practices may reflect their beliefs about those experiences rather than the actual experiences. However, it is not practical to dismiss all knowledge that is based on retrospective accounts. For one thing, we have no better way of accessing certain things. The photography practices relating to the wedding, for example, were inaccessible to me other than through the photographs and the accounts produced during interview. Further, while I have cast doubt on the accuracy and reliability of retrospective accounts, our ability to function in the world is evidence that they are not entirely unreliable since they form the basis of much of our knowledge (Ong, 2015). Indeed, some inaccuracy does not imply total inaccuracy: my participants' accounts can be understood as being coherent with their beliefs while also corresponding, to at least some extent, with what had actually happened (Conway, 2005).

Complicating understanding of those accounts is the uncertainty of how clearly participants understood their motivations for engaging in practices or could predict what would be important. Dan, for example, did not clearly articulate his beliefs, preferences, or experiences. The following example is typical of the way he spoke about his memories, experiences, and ideas about remembering:

*Tim: Do you remember the experience that the photograph is of?*

*Dan: Actually yes, I would say probably yes in most cases, yes, yes, it tends to be a fairly — yes, I would say that I do, yes, yes.*

At other times, participants claimed to know things that may not have been knowable. For example, Phil claimed that:

*Phil: Once you have a photo, you remember it from the photo. Whereas other things, where you don't have the images, you remember it in a different way.*

Participants could not know exactly how they remembered, they could only describe their beliefs, practices, and experiences. The above extracts clearly demonstrate that transcripts did not contain objective truth but were subjectively negotiated.

In addition, as indicated by Pause et al. (2013), interviews often invite participants to describe only those memories that they can remember to the exclusion of those they cannot. In other words, it may be inevitable that my studies were more focused on how photography relates to remembering than how it relates to forgetting. This may have been less problematic in Study 1 as this focused on a single, shared, and relatively recent event. It might have been easier for participants to talk about moments they remembered but had not photographed, allowing me some insight into events at the wedding that were mentioned by some participants but not others. A related issue is that, while some photographs in Study 2 appeared to have been taken for a communicative purpose (e.g. Ingrid's bread or Thomas' WhatsApp photos), the fact that we were looking at them in the interview—long after they had been taken—meant that we could only look at those communicative photos that had become memorial. Ephemeral photos were, by definition, not present in these collections.

Considering all of these issues, my analysis is limited in respect to the extent it takes into account participants' actual practices, different ways of forgetting, and the complexities of their motivations and beliefs about memory and photography. Rather than being comprehensive, my data constituted a particular, selective set of information. As Polkinghorne (2007) asserted, it is not possible within the constraints of an interview to capture the full complexity of experienced meaning or, indeed, for participants to be aware of this full complexity. Further, Suchman's (2007) theory casts doubt on the idea that I have heard about all the important contextual, situational, or influencing factors because retrospective accounts are unable to incorporate all of these.

Despite these limitations, similar approaches have been successfully applied to a large body of useful research, including Keightley and Pickering (2014), Durrant et al. (2009), Drazin and Frohlich (2007), Petrelli and Whittaker (2010), and many

more. Whether my participants' accounts are sufficiently indicative of actual activity to inform a useful theory will need to be tested through further research, perhaps including methods that do not rely on retrospective accounts. Complementing interviews with ethnographic data, for example, might reveal discrepancies between observation and self-report. This approach should not be used to validate what participants have said (i.e. triangulation) but to consider different views of the area of enquiry (Barbour, 2001; Keightley, 2010). This distinction can be illustrated by returning to a potential conflict, raised in Chapter 4, between what participants said and what could be seen in their photographs.

In Study 1, there was a discrepancy between the claim, made by multiple participants, that a particular photographer had only taken one photograph worth keeping and the evidence in the metadata that several of her photographs had been flagged by JI and AE for sharing in the slideshow. In this case, should I confer more authority to the narrative that was independently corroborated by multiple participants or to the evidence attached to the photographs? Rather than focus on what was true, it was more interesting to consider how such conflict came about. In this particular case, the inclusion of the photographs in the slideshow was strong evidence that a number of her photographs were appreciated. However, it was easy to imagine how a general lack of aesthetic quality in her collection, in contrast to one particular photo that had come to take on iconic status within the wedding, might have been exaggerated and then repeated. This was, perhaps, an example of the "social contagion" that comes from talking about things with other people (Roediger et al., 2001). Rather than concluding that transcripts or photographs (or, in this case, photographic metadata) should be given more weight, each element's value is contingent on the situation as much as it is on the nature of the evidence. More importantly, the contrast between them can be exploited to enhance understanding of how the past is reconstructed through social and material distribution.

### **9.4.3 The influence of the interview method on my findings**

Using memory “as both a method and object of research” (Keightley, 2010, p. 67) required me to consider and acknowledge my part in generating data. Importantly, my interviews involved the social construction of retrospective accounts. The shared interview in Study 1 demonstrated how the narrative of one participant was modified by the other in the process of constructing a consensual version of events. In light of this, my interview style takes on particular importance. In all interviews, though the participants played the lead roles in remembering their experiences and practices, I influenced their accounts through asking questions, prompting, listening, etc.

It is important to acknowledge the researcher’s active part in data generation, but that in itself is not enough. The researcher should use their influence to help participants articulate concerns relevant to the research question without coercing them.

However, I came to believe during Study 1 that I had, on occasion, been too active and had risked directing the conversation towards my preconceived ideas of what was important:

*Tim: And are there exceptions where it is a bit of a dud photo actually, but you like it because it shows someone in a certain light, or are they all pretty much well taken shots?*

This question indicates an attempt to draw out a preconception about the different qualities of photographs that are valued rather than encouraging the participant to express their own insights and frame them in their own terms. Fortunately, in such cases, the participants often disagreed or reframed my questions. Thus, the primary risk seems to be that I have missed out on insights that might have been generated by more open questions rather than that participants have reflected my own ideas back to me. Following Cousin (2009), my style of interviewing became more passive in Study 2. I was more judicious in my prompting which allowed the participant greater freedom to talk about what they were most interested in, while still reigning them in when necessary and facilitating the flow of conversation in appropriate directions.

As well as the interaction between researcher and participant, the interview setting was important because it constituted part of the ecology of remembering. My findings may have been affected by differences between the settings and conditions of Studies 1 and 2 (e.g. interviewing in my office or the participant's; viewing photos on my computer or participants' devices; collecting their photos or re-photographing them as viewed on the participant's devices or media). These variances could have affected conversations, influenced which photos and topics were spoken about, and contributed to my participants' subjective experiences of remembering. Study 1 provides a clear example—by viewing photos on my computer, rather than on the participants' own media, I privileged digital forms over other forms, such as printed thank you cards. This meant that our interactions in the interview revolved around a particular kind of distributed remembering (using digital photos on my computer) and I lost the opportunity to see the participants' engaging with their own media.

#### ***9.4.4 The influence of the interviews on my participants***

In designing the first study, I thought that there would be limited risk to my participants. It seemed unlikely that asking people about their photographs, particularly in relation to a happy event such as a wedding, would evoke negative emotions or problematic memories. In Study 2, I presumed that participants would select photos and events that they were comfortable talking about. However, participants did not always know which photograph they are about to turn to, or even what photographs they had in their collection. They did not necessarily know how they would react to an image, particularly if it had been years since they had seen it. Moreover, it transpired that my research actually relied on emotive reactions, some of which were negative. The subjective experience of remembering and emotional connection with the past became important themes in my analysis.

Interviews can have lasting effects. Asking participants about important, personal experiences colours the way they will come to remember those experiences in the future. Asking them to examine their understanding of photography and memory can affect how they experience other events, both past and future. Whether these changes

are positive or negative, they are important and participants may not have appreciated these issues when agreeing to take part in the research. A number of participants commented, after I stopped recording, that they had not previously thought about some of the issues covered and reflected on potential changes to their practice in light of thoughts that occurred to them during the interview. Thus, the interview transcripts are located at a point of transition of understanding of the participants' own remembering practices. As an aside, the frequent articulation of these reflections after the recording had stopped also demonstrates a limitation of relying on transcripts as data.

Consent for a study like this cannot be fully informed because participants cannot know beforehand the transformative effect that thinking about remembering can have. Similar research in the future might benefit from a discussion with prospective participants about the potential implications of taking part. The transformative potential of the interviews also highlights both the dynamic reconstruction of memory and the importance of considering the interview to be a historically-situated account of remembering, rather than a representative view of the general remembering of that participant (Keightley, 2010). As Keightley (2010) suggested, the analysis and, consequently, the findings should be seen as being based on situated reconstructions rather than objective evidence. It was for this reason that I decided against asking participants to review their transcripts or my findings. I was concerned that, having done the interview and having thought about these issues, they may have lost the perspective with which they entered the project. If participants disagreed with my analysis of their accounts or claimed that I had misrepresented what they had said, it would be difficult to know if this was due to inaccuracy on my part, misremembering on theirs, or a change of perspective. While I believe that there is value in "member checking" (Mays & Pope, 2000), using participant views as a stimulus for considering whether the researcher has neglected, overemphasised, or distorted certain points, the focus of this particular research is a close examination of the situated, distributed and emergent workings of memory. Therefore, I decided that it was more important to retain clarity around which instance of remembering I was examining.

#### **9.4.5 Issues of analysis**

I have positioned different aspects of how we remember as not only overlapping but interdependent. Within the analysis, it has been difficult to distinguish between different contextual factors, motivations, values, experiences, practices, etc. For example, unselective capturing was linked to increasing storage capacity and was, therefore, influenced by a combination of technological and economic factors, yet might also indicate a cultural trend of high volume photography. The fact that only some participants engaged in such practices also suggests an idiosyncratic component. Practices were also problematic. Comments on a photograph posted to a social media space seemed to constitute both an organising practice (annotation) and a sharing practice (discourse). Viewing took place as part of many other practices, such as during the organisation and sharing of photographs presented in the slideshow of the wedding. Indeed, it might be that more viewing of photographs was done as part of other practices than for the express purpose of looking at them.

The extent of this overlap was a challenge to using framework analysis for this research: it was too easy to apply many codes to an excerpt, thereby reducing the analytic value of the coding. This might indicate a deficiency with the developing frameworks. The framework generated in Study 1, for example, could highlight that culture was involved in a particular practice but it could not explain culture's unique contribution to that practice. The integrated nature of the resulting theory of blended memory suggests that attempting to categorise different aspects of remembering may have been less productive than focusing on the relationships between them. I attempted to draw out relationships between codes more in Study 2, contextualising each aspect of remembering. This involved the developing framework more as an aid to exploring and structuring ideas that could be extended through writing. Thus, framework analysis was useful in helping me clarify the components of remembering, but it was in the discursive writing of the results sections that I was able to develop a rich understanding of the ways that these components related to each other. Framework analysis was therefore valuable in combination with the

writing process rather than as a comprehensive analytical method. In departing from framework analysis during the writing process, I found support from Keightley (2010) for whom a “formulaic process would not allow the variety and specificity of remembering to be appropriately addressed” (p. 66).

Importantly, the process I followed is consistent with my position on distributed cognition. Huff (1999) positioned thinking and writing as cyclical yet separate processes: “how can I know what I think until I see what I write”; “how can I improve what I write until I clarify what I think” (p. 7). I see writing as a part of thinking rather than as an expression of it. Not knowing what I think until I see it written comes about because, very often, I do not think it until I am writing.

A final note on the analysis concerns the use of language. By linking phrases such as “it must have” and “it would have” to inference rather than recall, I might be accused of using linguistic phrases to determine mental states or processes. This would be problematic for a number of reasons, such as the idiosyncrasies of individual patterns of speech or the different handling of grammar by different languages (Werning & Cheng, in press). Rather than use grammatical rules in my analysis, inference was determined by my interpretation that the participant was deducing some aspect of the past from the information shown in the photograph rather than knowing it a priori. To some extent, this interpretation was based on the phrasing of sentences, but it was understood on the basis of interpreted meaning rather than consistency with a grammatical rule. Thus, the same process could presumably be applied to different people or different languages with different kinds of phrases.

#### **9.4.6 *Transferability***

In Chapter 5, I identified contextual factors that influenced the photography and remembering of my participants. These factors, however, reside within other, more hidden contexts, such as being wealthy enough to own a camera or operating within a wider image culture. My participants might be considered part of an articulate and privileged population with easy access to technology (many owned multiple

cameras, computers, and mobile devices). An important finding is that lifestyle and personal circumstances are likely to have affected the use of photography and there may be significant differences between their activities and contexts and those of people with different socioeconomic conditions. Participants have also grown up in particular cultures of photography and memory that will certainly have influenced not only their practices but their beliefs about those practices. Jane, for example, associated her desire for photographs of the day of the birth of her son with her father's compulsion to record, itself an indicator of a particular culture. By referring to a book she had read at school, she also indicated the influence of broader culture on her beliefs around memory and photography. Thus, it is not just the demographics of my participants that determines how closely these findings might relate to other populations. The surrounding cultural and economic landscape has a profound but difficult to discern influence on the accounts of the participants.

Even within a similar population, my sample may not have been representative. One potential issue with Study 1, for example, is that all participants were women. This might have produced particularly skewed results. Tannen (1992), for example, found that, when recounting memory narratives, women tended to present many more details of specific experiences, whereas men tended to talk in more general and impersonal terms.

The extent to which the wedding, with its specific photographic culture, should be used to predict photography-related behaviour at other events is also limited. It was, in part, chosen for convenience: the couple were willing to have their wedding studied in this manner and to expose their friends and family to requests to be interviewed. However, weddings are occasions at which a range of different people witness broadly the same happenings and at which they take and share many photographs. This creates a useful opportunity to study the variance of photography practices across different participants. While Study 1 involved only six participants, the critical yet varying roles they played within the wedding produced a useful diversity if not a good representation of all practices, motivations, etc. I interviewed the bridal couple (JI and AE), the professional photographer (KA), the best woman

(IO), a guest who was an avid photographer (YS), and another guest who, according to her own admission, was a poor photographer (PJ). Thus, despite the homogenous nature of the sample, my participants represented a significant diversity of beliefs, attitudes, and practices.

Study 2 aimed to look at a range of different events for each participant. The diversity of activity even within this relatively narrow sample suggests that it would be challenging to recruit a representative sample of the wider population. While important perspectives may have been missed, I tried to look beyond the specific activity of each of my participants and consider what was important across their accounts. From this, I have produced what I hope are interesting considerations to be explored further in other contexts.

The interviews explored specific and historically-situated remembering by a small group of people. The diversity of practices, beliefs, and opinions of my participants allowed for the development of a framework in which to locate important considerations of remembering with photography, but my approach did not lend itself to generalising about how people commonly approach photography or remembering. The individual differences between participants were such that generating explanations that made sense across all interviews involved continuous reframing. The situated nature of the practices of distributed remembering meant that generalisation could only provide a basis from which a situated understanding should then be built. Based on my approach, it is not appropriate for me to make claims about the frequency of activity, attitudes, or inclusiveness of all important considerations of distributed remembering. Given the limitations of the sample (outlined above), the exploratory nature of my research, and the fast pace of change in the cultural and technological landscape in which people engage in photography, the findings should be considered as culturally and historically specific. However, they contain insights into some common and unique aspects of my participants' remembering activity that I have used to generate a theory to explain what is important to remembering with technology more generally. The process of abstracting theoretical concepts such that they can be considered across research

settings is a form of analytic generalisation (Firestone, 1993; Polit & Beck, 2010). Thus, it is primarily in the discussion that I have raised both questions and ideas that might most usefully be tested in other research settings.

Although I did not address differences between photographs and other media in relation to distributed remembering, some of my findings are likely to be particular to photography. Among my participants, the taking of photographs was part of the rituals and culture of particular experiences (e.g. weddings, holidays, and family gatherings). Photographs were particularly easy to produce and distribute, leading to participants capturing and sharing large numbers of them. At the same time, they were often seen as both objective holders of truth and subjective and creative vehicles for the construction of meaning. Photographs were also important aesthetic objects, prominently displayed in both digital and material forms in the home as well as on computers and mobile phones. In contrast to video, the photograph's static form allowed for more ambiguity in the reconstruction of the past.

While photography has proved to be a very useful lens for considering distributed remembering, the theory of blended memory that I have produced is able to encompass more than just photography, as it takes into consideration interactions with other tools, media, and people. Yet it is worth considering the extent to which my focus on photography as a topic for exploration emphasised the role of photography in remembering. An important finding of my research is that photographs could structure what was remembered by creating opportunities for surfacing related ideas. This, however, could result in closing off other avenues of thought not related to the particular photos under consideration. While this levelling and sharpening effect seems likely to apply to any kind of cue, its relationship to photographs may seem particularly prominent in this thesis because the conversations in my interviews were about photography. Photo-elicitation also emphasised the role of photography because it could lead to conversations about photographs, rather than about the experiences they represented, further privileging what was shown in the images over what was not. In my interviews, participants often wandered from the central line of enquiry—how their photographs and

practices related to the processes of remembering—to simple discussions of their photographs in terms of composition, quality, etc. Thus, this thesis does not accurately represent the role of photography in the overall activity of remembering. To do so would require methods that allowed participants to choose what to discuss from the entirety of their ways of remembering.

## **9.5 Future research**

This research has raised a number of questions that might serve as productive avenues for further exploration. Primarily, the theory of blended memory requires examination across different contexts and with different media. If it is found to be useful, then it might inform developments in established theories of remembering in both cognitive psychology and distributed cognition.

On the subject of photography, research into whether photos can interfere with the remembering of their referent experiences is surprisingly lacking and so a number of potentially fruitful avenues for research emerged from my findings. Study 2 highlighted a tension between recording and experiencing that warrants further examination. Little is known about how the feeling of a disrupted experience relates to future recall, for example, or how poor encoding during an experience might be compensated for by external memory cues. Given the increasing amount of time we spend recording our experiences, understanding the conditions in which experience feels as if it is disrupted or intensified by the practices of recording could be beneficial to studies of technology design, wellbeing, tourism, etc. Similarly, it may also be worth exploring whether particular sorts of practices can support or suppress the construction of different kinds of subjective connections. Perhaps, for example, large photograph collections support different kinds of remembering from smaller ones (see Agroudy et al. [2016] for a proposed experiment testing the effects on episodic recall of reviewing lifelog images).

Sellen and Whittaker (2010) called for “synergy not substitution” (p. 77) in the development of lifelogging systems that enhance important functions of memory

rather than simply increasing access to information about the past. A complementary approach to distributed remembering—where technology is designed to enhance rather than replace existing processes—allows us to take into account important aspects of autobiographical remembering when considering technologically-supported memory. These aspects may include episodic recall, which is important in supporting psychological functions of identity, goal monitoring, and social functioning, and source and reality monitoring. At the same time, not taking photos might result in missed opportunities for making surfacing connections about life events. The exploration of how a lack of photographs or records of an event influences the remembering of that event could also be illuminating.

## **9.6 In closing**

Since starting this research, much has changed about my understanding of both memory and photography. Where I had initially believed that photography and, in particular, the high volume of photographs associated with digital photography must have powerful effects on our memory, my understanding of the interaction between photography and memory is now more complex. Firstly, the technologies of digital photography do not cause particular effects; they enable particular practices, in combination with cultural, economic, and environmental factors, that are understood according to the attitudes and experiences of people and the situations in which they operate. Secondly, there is no pre-existing “memory” for photography to affect. Instead, memory is produced through remembering activity that can include practices of photography. Photography, then, is not separate from remembering or, indeed, from the experiences that we remember. It is this realisation that makes the particular, situated ways in which we use and experience photography an important area for memory research.

Memory did not become blended with the arrival of digital photography. As Donald (2010) reminded us, we have used external resources within our remembering since we began painting the walls of caves. Advances in technology, and the related cultures and practices that have emerged around these changes, have simply highlighted important questions about our use of external resources in remembering.

The problems raised by those such as Carr (2010) are not inherent to technology but stem from limited models of memory and thinking. Similarly, claims such as those of Bell and Gemmell (2009) that technology can remember for us should be reframed to position tools and sources of information as playing a part in the interactions that generate memory. In other words, tools are recruited as part of dynamic, distributed systems, contributing to the possibilities of remembering and to processes of learning how to remember. Sutton's (2010) complementarity principle provides a way of considering technology not as something that supplants existing ways of thinking but as something that should enrich and extend our cognitive capacities.

In a similar sense, the work presented here complements, rather than supersedes, that of memory researchers such as Tulving, Conway, and Schacter, to whom I owe a considerable debt. It recognises the strengths and values of cognitive psychology research and builds on these but in a different direction. Where theories of episodic and semantic memory have illuminated the role of memory and its importance to our own ability to function, my contribution here extends this understanding to include complex interactions with the external environment. By adopting a different approach from those of Henkel (2013), Koutstaal et al. (1999) or Sacchi et al. (2007), for example, I have taken into account the interplay between different practices over time, rather than the effects of single interactions under controlled conditions. Both approaches are valid and, together, both contribute to a greater understanding of memory. At the same time, I have built on theories of distributed cognition by drawing attention to the importance of subjective experience in shaping the attitudes, beliefs, and learning that are critical to engagement with the practices of distributed systems. By engaging with both cognitive psychology and distributed cognition, I have blended not only theories of memory but disciplines with the aim of creating a theory that enhances, rather than replaces, what has gone before.



## 10 References

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## Appendix 1. Participant information for Study 1

This study will be primarily conducted by Tim Fawns as part of his PhD, with support from his supervisors, Hamish Macleod and Ethel Quayle.

- Tim: [email address]
- Hamish: [email address]
- Ethel: [email address]

Tim's PhD looks at the way changes in technology influence what we capture, review and share about our experiences and how this, in turn, affects what we remember about our lives. This study aims to explore the reasons that lead people to take, organise and share photos in particular ways. Examples of questions of interest are:

- How do features of the technology influence what we take and what we show to other people?
- What things do we not feel comfortable photographing and why?
- Does it depend on who we are with?
- Do we know why we take each photo or what to do with them once the event is over?

Almost anyone would make an interesting participant in this study. For example, even if you didn't take any photos during the event, didn't receive any after the event and didn't ever look at anyone else's photos of the event, I would be interested to find out how you think about photographs of such social events. Each interview will be a fairly informal chat while looking at some photos of the event, and should take up to an hour. I will record each interview so that I can transcribe it.

I am looking to interview a number of people who attended the same event. If you agree to take part, I will ask about the following:

- the approximate number of photos you took at the event;
- what you did with photos during or after the event (e.g. nothing, copied them to disc for others, uploaded to Facebook, texted, printed, etc.);
- if you have looked back at the photos, and how (e.g. on paper, on a computer, online, alone, with others, etc.).

As well as the interviews, I would like you to provide me with access to your full set of photos of the event (not just the ones that you took but also the photos given to you by others) so that I can look for patterns in the types of things that were photographed. All guests will be notified about the study and if you or someone else who was at the event is not happy for any photo to be used, you can ask for it to be withdrawn from the study at any time. If, in the future, I wish to include any of your photos in any publication, I will ask for your written permission first. I am happy to speak to you if you would like help with the technicalities of providing the research team with access to your photos.

Anyone who participates in this study will remain anonymous. Only Tim and his PhD supervisors (listed at the top of this document) will have access to your interview transcripts or to the photos from the event. Excerpts from the interview transcripts may be published. These will not be attributed to you, but a pseudonym will be used. Your interview recordings and transcripts and the photos you provide will be stored in a secure folder on the University of Edinburgh network until the end of 2018 (2 years after Tim's PhD completion), at which point they will be destroyed.

If you change your mind about the study, you are free to withdraw your agreement to participate at any time before, during or after the interview. If you have any questions, please feel free to ask. Thank you,

Tim.



## **Appendix 2. Participant information for Study 2**

In a study that will form part of my PhD research, I hope to develop an understanding of how the ways people take photos, organise them and share them with others relate to remembering events. To do this, I want to explore what is important in photo-related behaviours by asking questions such as: when we're taking photos, do we know what we will look at later? When we are looking back, do we remember why we took the photos we did?

To discuss these questions, among others, I would like to interview you at your home or a place of your choosing in which you feel comfortable and in which you can access a range of your photographs. If you would prefer, I can arrange a meeting room at the University. The interview should take about an hour in total. To take part, you will need to have access to some (at least 10, but the more the better) personal photographs. They do not all have to have been taken by yourself (though you must have taken at least one of them), the important thing is that they mean something to you and relate to your past experience in some way.

In summary, to take part in the study, you must have:

- at least 10 photos
- have taken at least one of these photos

During the interview, we will look at some of your photos and talk about how you came to have them, what you have done with them, what's interesting about them and what they mean to you. You do not need to do anything to prepare for the interview other than to make sure we are able to access at least some of your personal photos at the location of the interview. Beyond this, I would prefer you to try not to think about or do anything with the photos prior to the interview. I realise that asking you not to think about something is a bit like asking to think about it, but the less rehearsed your thinking is, the better for my research.

### **About me**

I am a part-time PhD student in the Moray House School of Education, and I am also a member of staff at the [university] in the capacity of a Fellow in Clinical Education in the Centre for Medical Education. I would like to make it clear that the selection of photographs and stories you tell in the interview is up to you. If you would find it uncomfortable to talk about issues to do with the University, there is no need to do so. I am interested in the way you remember your personal rather than your professional life, although you may choose to talk about issues relating to your work. I would also like to assure you that anything you say will be confidential (unless it is incriminating, in which case I am obliged by law to report it).

### **Your photos**

As well as being a prompt for discussion, photos are useful to me as the researcher in helping me make sense of what you say in the interview, and to readers of my research as examples of the sorts of photos that have informed my analysis. As such, I would like to take some photos of your photos, media and devices as part of my data and, possibly, include some of these in my thesis, conference presentations and subsequent publications. I will ask for written permission before any photographs are included in publications or presentations. However, if you are uncomfortable with any photos being included in the data or in publications, please let me know during the interview. You can still talk about them in the

interview, but I will not keep copies of them. I will go through this with you at the start of the interview as part of the process of asking you for consent to take part in the study.

### **Anonymity**

Everything you say in interview will be anonymised. You do not need to say anything that might be uncomfortable, and you are free to withdraw your participation at any point during the interview or prior to publication of the research. Your professional status or location within the University are not relevant to this study and will, therefore, be anonymised in the reporting of this study. Your data will be stored in a secure place on the University network.

### **How long will it take?**

The total time commitment for the interview is expected to be about 1 hour. If you have any questions, please contact me at [email address] or my supervisors, Hamish Macleod [email address] and Ethel Quayle [email address].

### **Recruitment letter for Study 2**

[note, as part of a purposive strategy, this version was tailored towards engaged users of photography]

I am currently looking for volunteers to be interviewed for a study that will form part of my PhD research (see below). At the moment, I am particularly keen to speak to people who have embraced digital photography. If you don't fit into this category but are interested in the research, please get in touch anyway because I may need more participants once I have interviewed a few more people. Also, I am always happy to speak about this topic whether I end up interviewing you or not.

In my study, I aim to develop an understanding of the ways that people take photos, organise them and share them with others and how these relate to remembering events. To do this, I want to explore what is important in photo-related behaviours by asking questions such as: when we're taking photos, do we know what we will look at later? When we are looking back, do we remember why we took the photos we did?

To discuss these questions, among others, I would like to interview you at your home (preferably) or a place of your choosing in which you feel comfortable and in which you can access a range of your photographs. If you would prefer, I can arrange a meeting room at the University. The interview should take about an hour in total. To take part, you will need to have access to some (at least 10, but the more the better) personal photographs. They do not all have to have been taken by yourself, the important thing is that they mean something to you and relate to your past experience in some way.

During the interview, we will look at some of your photos and talk about how you came to have them, what you have done with them, what's interesting about them and what they mean to you. You do not need to do anything to prepare for the interview other than to make sure we are able to access at least some of your personal photos at the location of the interview. Beyond this, I would prefer you to try not to think about or do anything with the photos prior to the interview. I realise that asking you \*not\* to think about something is a bit like asking you to think about it, but the less rehearsed your thinking is, the better for my research.

If you have any questions, please contact me at [email address].

### Appendix 3. Consent form (Studies 1 and 2)

**Principal Investigator:** Tim Fawns  
Moray House School of Education  
University of Edinburgh, Edinburgh, EH8 8AQ  
**telephone:** [...]  
**email:** [...]

- 
- I confirm that I have been given and have read and understood the information sheet for the above study and have asked and received answers to any questions raised.
  
  - I understand that my participation is entirely voluntary and that I am free to withdraw at any time without giving a reason and without my rights being affected in any way.
  
  - I understand that I am free to refuse to answer any question.
  
  - I understand that I am free to withdraw any or all photos from inclusion in the study at any time .
  
  - I understand that the researchers will hold all information and data collected securely and in confidence. Excerpts from your interview may be included in publications, but these will not be associated with my name or any identifying characteristics.
  
  - I understand that no photo owned by me or showing me can be published unless I have given written permission.
  
  - I agree to take part in the above study.

---

*Name of participant* *Signature* *Date*

---

*Name of researcher* *Signature* *Date*



## Appendix 4. Study 1 interview schedule

The following script, while not followed verbatim, indicates the style and approach I took to these interviews. The questions I actually asked were based on the previous responses of the participant and on issues of interest that arose during interview. As such, the following is a rough outline of the main issues I hoped to cover.

Looking at the photos as a whole, can you tell me:

- Which ones you took
- Which were taken by others
- Do you know what type of cameras were used?
- Do you think you're missing photos of anything?
- Would you like more photos?
- Are you aware of sources of other photos?
- Do you distinguish your photos from other people's? Which do you consider yours and not yours? why?
- How have you shared these photos with others or how have others shared them with you
- Any technical problems?
- Did you check photos during the event, upload them...
- Did you put them online or do you have some still on your computer/camera?
- Which photos are the most meaningful to you and why? Did you do anything different with these photos?

Now let's go through them one by one. Please stop me when there's something interesting to say about a photo. Can you tell me:

- What is this photo of?
- The purpose of this photo (why it was taken)?
- The value of the photo (what it means and how important it is relative to the others)?



## **Appendix 5. Study 2 interview schedule**

The following shows the kinds of questions I asked in Study 2. As with Study 1, these changed across the course of the study as my focus changed and as I came to realise which questions were most helpful in eliciting relevant responses.

### **Taking photos**

- What cameras have you used? What is different or interesting about them? What sort of photos do you take with each?
- When you take photos, do you generally know why you are taking them? What do you think you will do with them? Is that the same or different from what you have actually done with photos before?
- What sort of photos do you seem to take? What factors does it depend on? Has this changed over time?

### **Looking at photos**

- Do you ever look through these photos? When?
- What do you notice about your photos (collectively or as individual photos)?
- Which are your favourite photos and why? Which ones are most valuable to you?
- What would you like to be different about your photo collection?
- What formats or devices do you like to look at photos on? What is different or interesting about these?

### **Organising, editing annotating**

- What have you done with these photos?
- How do you typically organise your photos? When do you do this?
- How well organised are they? How easy is it to find photos? Do you know where all your photos are? Are there duplicates or different versions?

### **Sharing and talking about photos**

- How and when do you share photos with other people? Do you talk about them? Which ways are most rewarding and why?

### **Photos and memory**

- How do you think memory works? How would you describe your memory?
- What is it important to remember?
- How do you think photography can help us remember?
- How is that the same or different from what you actually do?
- Did some photos jog your memory more than others? What sort of photos are the best for remembering? Do you know why?



## Appendix 6. Transcription styles

### Study 1: an example of my own transcription

**TF:** That's interesting. But do you like collecting photos that other people took of those events?

**AE:** I like looking at them but I don't think I've ever gone back to photos more than, like, you know, a few months after the event so I'm not someone to sit down with a photo album and reminisce really. Although I think the wedding ones are different because it's a different scale of event. I probably will end up going back to them over years but ...

**TF:** I suppose you would have had to go back through them when you were doing the thank you cards.

**AE:** Yeah, well I guess - we got the photos from [KA] really quickly so our first look at them was when we took them [overseas] with us and put them on the... the week after the wedding was the family event because the kids hadn't been at our wedding and at that event we put like the first cut of [KA]'s photos - just all of them without having sorted them at all - on the projector and just projected them which was really great fun actually.

### Study 2: an example transcript produced by transcription service

**R:** Alright. So I think I picked three sets, Facebook account, hard drive and the old photo albums, teenage years.

**I:** And can you say a little bit about why you picked those?

**R:** It was actually a stretch to come up with three because most of my photos are on the hard drive and the photo albums, so I was glad when you said Facebook because that's the only other place. I only have, sort of, two or three photos up outside of those places and, yeah, I didn't think there would be enough photos to select a couple from hanging up on the wall, so I decided to go with those.

**I:** Okay, great. And did you think of, while you were doing that, did you think of photos that you have that you'd forgotten about?

**R:** Yeah, there was a box of pictures that contains all my 20's in it somewhere and it's completely disorganised and, kind of, depressing to look at, so there is that box as well.



## Appendix 7. Process of analysis

In each study, I went through the process below. For each step, I have included some examples. Note that these steps overlapped, for example, in that charting and mapping helped me to refine my process of indexing.

1. I developed an **initial framework** from the literature in relation to the aims of the particular study.

2. Immediately after each interview, I wrote a **participant memo** noting down my initial thoughts and a brief summary about that participant in relation to their practices, attitudes, etc.

3. After each interview had been transcribed, I read through it, familiarising myself with the data, and wrote initial, pre-indexing **familiarisation memos**. These would be useful later in the coding process to remind me of initial thoughts I had had without the constraints of having to apply codes.

4. I imported each transcript into Dedoose and went through each one **indexing**. I applied codes from the framework and added new codes where there were important ideas that were not covered by the framework.

5. As I progressed through the process of indexing, I would sometimes stop and select codes that I felt were important, as well as those that needed to be refined, and pulled up the list of excerpts that had been associated with them. By **charting** these themes, I was able to see whether interesting patterns and ideas were emerging or whether the codes were being consistently applied.

6. The **mapping** stage involved the creation of diagrams and notes about emerging theory. I used a range of tools for this, including Bubbl.us, Scapple, Powerpoint, and Photoshop.

**Table 5: Study 1 initial framework**

Capturing practices	Taking photos
Organising practices	Downloading onto computers, uploading to websites, deleting, editing, annotating, sorting
Sharing practices	Showing photos to others either face-to-face or remotely
Reviewing practices	Looking at photos
Technological factors	that influenced photo-related practices
Cultural factors	that influenced photo-related practices

Four key practices were defined from the literature: capturing (i.e. taking photos), organising (downloading onto computers, uploading to websites, deleting, editing, annotating, sorting), reviewing (looking at photos), and sharing (showing photos to others either face-to-face or remotely). These aligned with Keightley and Pickering’s (2014) practices of photo-taking, photo-storing, photo-viewing, photo-sharing, and consistently appear in similar categories within much of the relevant Human Computer Interaction (HCI) literature (e.g. Lindley et al. 2009; Petrelli, Bowen, and Whittaker, 2014; Sarvas and Frolich, 2011). The two broad contextual categories—technological and cultural—were interpreted as major themes from a review of HCI literature and formed a starting point for exploring the drivers and obstacles to behaviour.

**Table 6: Study 2 initial framework**

Practices and distributions	Different combinations of people and tools
Patterns, strategies, and systems	Consistencies and approaches over time
Motivations and values	Why people engaged in practices and what they looked for in photographs
Contextual and situational factors	General and specific barriers and drivers to behaviour
Ways of remembering	Ways that photography informed memory narratives

This was developed from the final framework from Study 1 but taking into account the aims of Study 2 to discern longer-term strategies and patterns of activity.

**Participant memo: William**

Had an approach that featured rules and constraints, discipline and habits. Of these were a number of practices that had been informed by constraints that were no longer applicable, such as the selectivity that emerged from the financial expense of analogue film and processing. Other practices were made possible by the removal of constraints or new functionality, e.g. photo sites made uploading a photo each day possible. Wanted unique collections or collections that had a particular, specific vibe, hence a rule that a photo should only be placed in one collection. E.g. a photo entered in a competition was excluded from Blipphoto on that basis.

He saw collections as more than the sum of the individual photos because they had been carefully selected and constructed into a kind of story. Despite possibility of the loss of particular systems or interfaces, he chose to continue his discipline / habits. E.g. he stuck with Blipphoto despite their economic instability because of an “investment of selectivity.” Taking the photo / day gave a sense of achievement and could rescue an otherwise unsatisfying day.

Considered a balance of aesthetic quality and personalised meaning to be important. Easy access to viewing his photos was important and different physical locations required different functions of photography.

## Familiarisation memos

<p>Kate: I put it in this, I bought this binder and put these photos in there at the time. I think I carried them around in a box for a while and then just felt like that time in my life deserved some, sort of, recognition. So I think, maybe not at the time, but maybe about the time I was about 20, I decided to put all the pictures from that time into some albums.</p>	<p><b>Tim Fawns</b> Physically put stuff into an album to raise the status of these memories, legitimise them? <b>Value</b></p>
<p>Tim: And would you have got those albums out for people or would you have...</p>	<p><b>Tim Fawns</b> Private photos and memories</p>
<p>Kate: No.</p>	
<p>Tim: ...just hidden them away or would you have looked through them?</p>	<p><b>FAWNS Tim</b> privacy</p>
<p>Kate: I've looked through them several times over the years but I've never shown them to anyone else, maybe a partner has seen them at some point but, no, they were just for my own use really, my own memories and unless I saw... I wouldn't feel like sharing them unless I saw some of these people, then I would want to see the pictures I had of them when they were kids.</p>	<p><b>FAWNS Tim</b> memorial purpose (retrospective)</p> <p><b>Tim Fawns</b> would only share with people in the pictures</p>

**Text** (repeated for readability):

*Kate: I put it in this, I bought this binder and put these photos in there at the time. I think I carried them around in a box for a while and then just felt like that time in my life deserved some, sort of, recognition. So I think, maybe not at the time, but maybe about the time I was about 20, I decided to put all the pictures from that time into some albums.*

*Tim: And would you have got those albums out for people or would you have...*

*Kate: No.*

*Tim: ...just hidden them away or would you have looked through them?*

*Kate: I've looked through them several times over the years but I've never shown them to anyone else, maybe a partner has seen them at some point but, no, they were just for my own use really, my own memories and unless I saw... I wouldn't feel like sharing them unless I saw some of these people, then I would want to see the pictures I had of them when they were kids.*

**Memos:**

1. Physically put stuff into an album to raise the status of these memories, legitimise them? **Value**
2. **Private** photos and memories
3. privacy
4. memorial purpose (retrospective)
5. would only share with people in the pictures

# Indexing

The screenshot shows the Dedoose interface for document '04-mary.docx'. The main text area contains a transcript of a conversation about photography. A 'Quick Code' pop-up window is open, displaying a hierarchical list of codes: Engagement (with sub-codes: materiality - medium, Motivations - values, consciousness - thought about..., emotion - emotive), enjoyment, investment, effort, ownership, selectivity, and learning / adaptation. On the right, the 'Selection Info' panel shows the document ID '04-mary.docx (3301-3501)' and a list of codes: disruption and Engagement. Below that, the 'Codes' panel shows a tree view of codes: Engagement, Contexts, Credibility, Activity, Exceptions, prompt, and socio-tech distribution. The bottom of the interface shows a selection range of (3495-3500).

## Indexing in Dedoose

The screenshot shows the 'Text Excerpt: 15-Nick.docx (30475-30968)' view. The main text area contains an excerpt: 'I really don't like... posing for photos, people just standing there and waiting to take a photo. I want it to be random, I want it to be natural. I mean, I appreciate the fact that in the older days photos were like something really out of the ordinary, so if you would take a photo, you would go to the photographer to stand, wear your good clothes, and I have a lot of nice photos from that era from my ancestors, but nowadays it's so easy, you can easily... I prefer to capture the natural life.' On the right, the 'Attached Codes' panel shows three codes: context - tec..., orchestration, and intrusion. Below that, the 'Codes' panel shows a tree view of codes: Engagement, Contexts, Credibility, Activity, Exceptions, prompt, and socio-tech distribution. At the bottom, there are navigation buttons: Delete Excerpt, Excerpt 1199 of 1208, Previous, Next, Memos: 0, and View In Context.

## Reviewing and modifying the indexing of an excerpt in Dedoose

## Charting

The following are screenshots of the charting process in Dedoose

**Chart Selection Reviewer**  
Selection: system - systematic

**Matching Excerpts: 48** **Matching Resources: 12**

Resource **15-Nick.docx** Added **12/16/2015** Username **s0793898** # Codes **5**  
 R: As with all systems, that's the system that works for me. I suppose somebody else might have a different system, organising per subject or per...to be honest, I tried that and it didn't work at all, or per something else. For me it works very, very well, and I can go back and find whatever I need,

Resource **15-Nick.docx** Added **12/16/2015** Username **s0793898** # Codes **2**  
 R: it sounds like you don't need to do too much organising of your photos.  
 R: Not really, just...sometimes it happens but it rarely it's the case, it's more about...this random moment in the street...

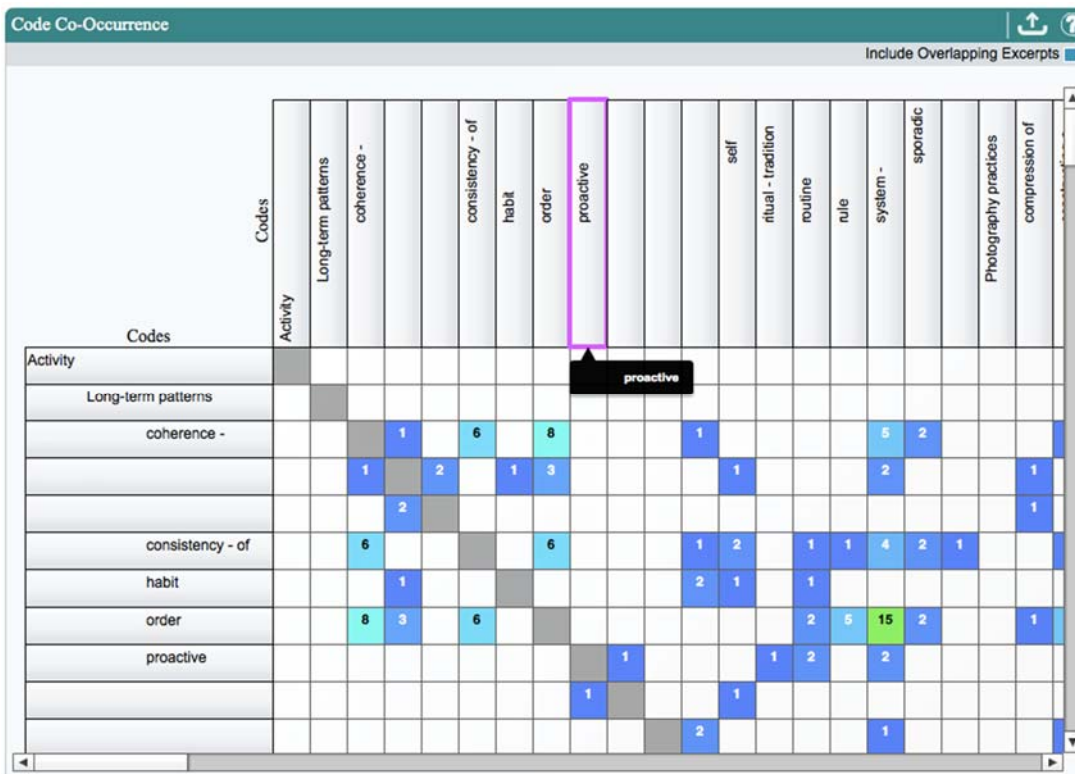
Resource **15-Nick.docx** Added **12/16/2015** Username **s0793898** # Codes **5**  
 I: How do these particular photos end up in there rather than other photos you have? How do you decide what to photograph and what to preserve within this model, because presumably there are plenty of moments that happen that don't get photographed?  
 ...

Resource **13-phil.doc** Added **12/13/2015** Username **s0793898** # Codes **3**  
 I'm an organised person for sort of memorising to do things, but I need structure, like a week to week task list. So it's, things tend to be in a box for organisation, but a lot of random stuff comes round as well. I'm fairly creative, so as much as I like to have things organised, I've got both s

Resource **13-phil.doc** Added **12/13/2015** Username **s0793898** # Codes **6**  
 And do all those photos end up here?  
 R: I try to, yeah. I try to, the ones that have got relevance. Because [my wife's] a teacher, so her phone camera will have lots of stuff from her classroom, of like, her displays, and things like that. Which I've got some in here, but I was trying to keep the

Export Excerpts    Make Active Set    Add To Active Set    Remove From Active Set

### Charting the code “systematic”



### Exploring code co-occurrence

## Exports to Microsoft Word

The following shows a section of an export from Dedoose to Microsoft Word of excerpts indexed as “aesthetics”.

Excerpt - Document: 04-mary.docx, Position: 2114-2298

*And you can see that the quality of the photographs isn't particularly good, but it's not really about the quality of the photograph, it's about the memory in my head and what it does.*

Excerpt - Document: 04-mary.docx, Position: 8434-8532

*Again, it's a useless photograph, but...*

*I: So a man on a hill.*

*R: On top of a hill, that's right.*

Excerpt - Document: 04-mary.docx, Position: 17452-17825

*When I moved house, I had a clear out. I went through packets, you know the old packets that you had photographs in? I went through and if there were photographs in there that I was clearly never going to do anything with, yes, I threw them out, the ones that have got a thumb across and various others...*

The following is an early example from Study 1, edited to include my notes to help me refine the framework and my application of codes.

### **Code: Remembering [through photography]**

Where a practice or a photo led to remembering and event. This is different from “remembering a practice” (where someone remembers an act of photography rather than an event). This is important but I’m not sure why yet.

**Notes:** “I may even have captured somebody asking somebody else to marry them” - the capturing, rather than the reviewing is what reinforced the memory of a proposal.

Excerpt - ae.doc, Position: 1967-2025

*Different pictures tweaked different memories for people. yes*

Excerpt - ae.doc, Position: 11233-11615

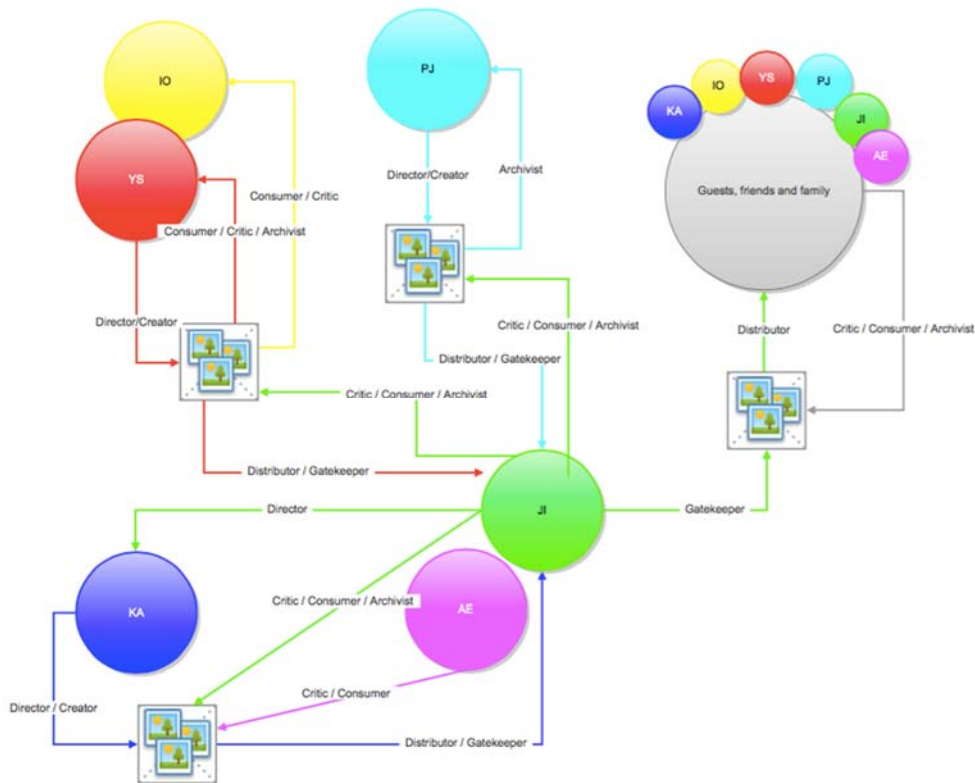
*it's not something that I find hugely important or hugely interesting. I'm much more interested in stories and stuff and I'd much - for me you don't really get those from.. **photos can bring back memories** and stuff like that but seeing them without the story behind them I don't find particularly interesting so I guess I don't tend to make much effort to send them to anyone else. engagement*

Excerpt - pj.doc, Position: 2518-2803

*I remember taking these ones of them [], from there to there, and I would have taken these three as well.. I remember taking that one of AE's Dad..yeah.. so I suspect all of these, of when the speeches and so on were occurring.. ehm.. up to .. up to here, certainly, those were all me.*

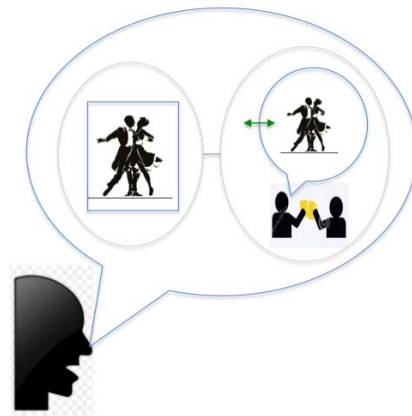
*this isn't really remembering in the sense I intended here (remembering **through photography** rather than remembering photography - this remembering arose as part of interview). Awareness of photos or perhaps “Remembering a practice”?*

## Mapping

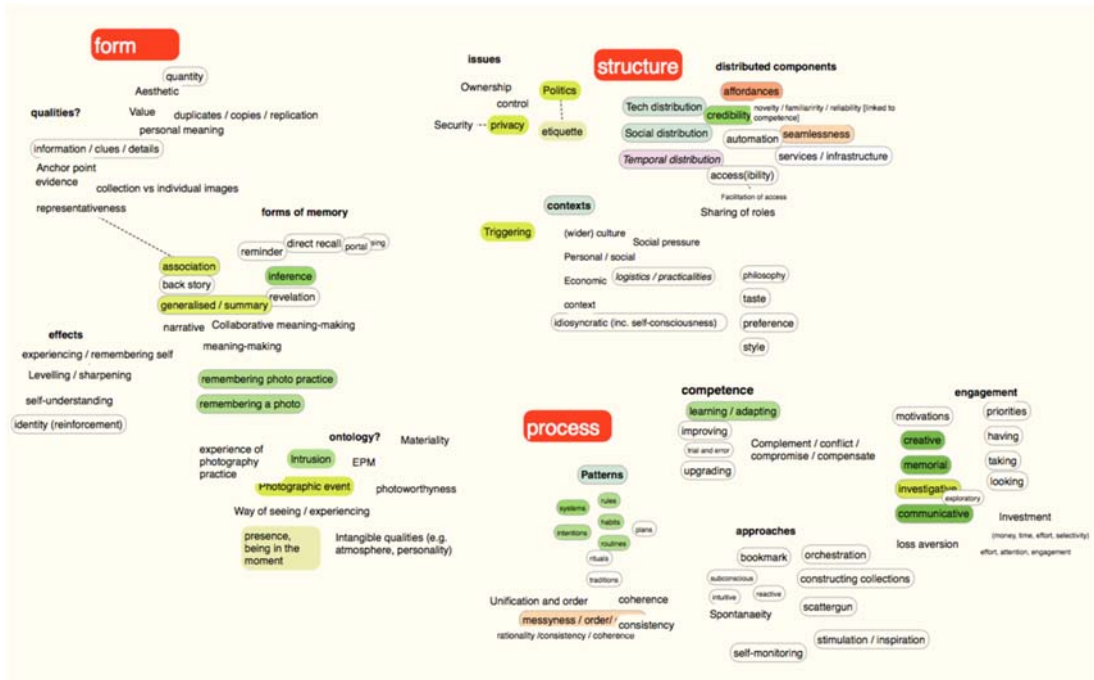


**Mapping photo trajectories in Study 1**

“There's one somewhere ... there's a really funny one of [JI]'s parents where everyone was Ceilidhing and apparently - this was one of the stories we got at the party - JI's parents decided they wanted to waltz [laughs] so we've got a picture of them waltzing round the outside and everyone else Ceilidh dancing.” (AE).

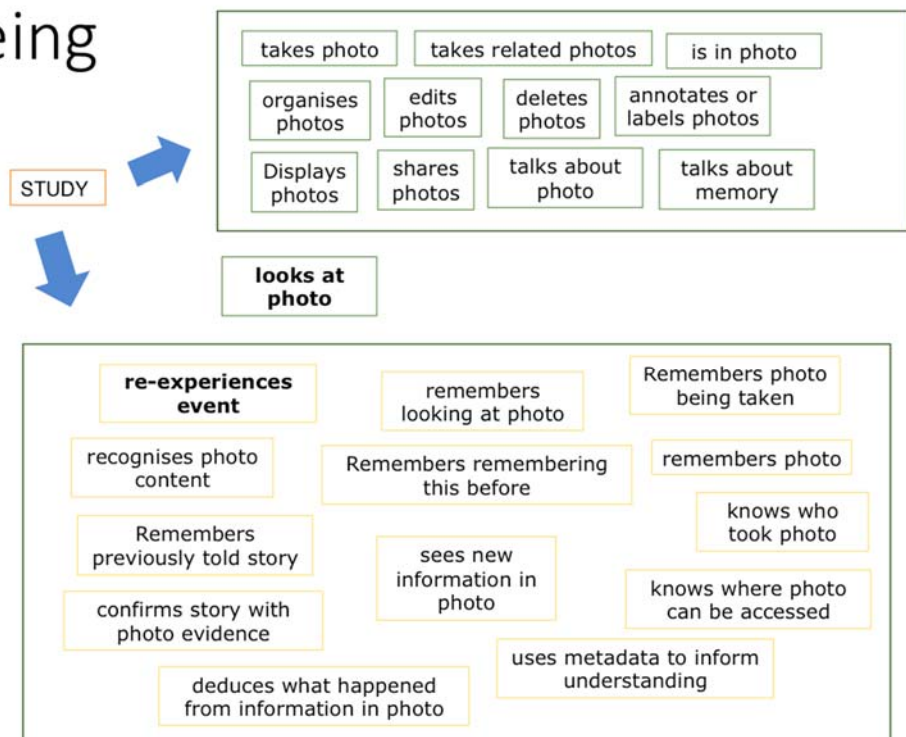


**Diagram of how participants constructed narratives during interview**



An example of mapping in Study 2

## Cueing



Rethinking cueing in Study 2



## Appendix 8. Publications and presentations relating to this research

### **Journal publications**

- Fawns, T. (2014). Photography and the disruption of memory and meaning. *Ubiquity*, 3(1-2), 3-14.
- Fawns, T. (2014). Lessons from personal photography: The digital disruption of selectivity and reflection. *TechTrends*, 59(1), 50-55.

### **Edited books**

- Fawns, T. (Ed.). (2013). *Memory and meaning: Digital differences*. Oxford: Inter-Disciplinary Press.

### **Book chapters**

- Fawns, T. (2013). Blended memory: The changing balance of technologically-mediated semantic and episodic memory. In T. Fawns (Ed.), *Memory and meaning: Digital differences* (pp. 75-98). Oxford: Inter-Disciplinary Press.
- Fawns, T. (2013). Introduction: Finding digital memory. In T. Fawns (Ed.), *Memory and meaning: Digital differences* (pp. i-vii). Oxford: Inter-Disciplinary Press.

### **e-Book Chapters**

- Fawns, T., Macleod, H., and Quayle, E. (2012). Social and technological influences on engagement with personal memory objects: a media roles perspective. *Remembering Digitally*. Oxford: Inter-Disciplinary Press. Available at <http://www.interdisciplinarypress.net/online-store/ebooks/digital-humanities/remembering-digitally>
- Fawns, T. (2012). Blended memory: The changing balance of technologically-mediated semantic and episodic memory. *Navigating landscapes of mediated memory*. Oxford: Inter-Disciplinary Press. Available at: <http://www.interdisciplinarypress.net/online-store/ebooks/digital-humanities/navigating-landscapes-of-mediated-memory>

### **Conference Presentations**

- Fawns, T. (2013). Digital disruption and blended memory: selectivity, creativity, engagement and reflection. *IT Futures Conference*, University of Edinburgh.
- Fawns, T. (2013). Recording vs remembering: Digital photography practices and memory engagement. *Interweaving: Connecting educational research within, between and across perspectives*, Edinburgh.
- Fawns, T., Bayne, S., Ross, J., Nicol, S., Quayle, E., Macleod, H. & Howie, K. (2012). Socially reconstructing history: The Social History Timestream application. *International Conference on New Media, Memories and Histories*, Singapore.
- Fawns, T., Macleod, H. & Quayle, E. (2012). Social and technological influences on engagement with personal memory objects: a media roles perspective. *Digital Memories: 4th Global Conference*, Prague.
- Quayle, E. & Fawns, T. (2011). Technology and Research: Affordances and Challenges. *psych 2011*, Dublin.
- Fawns, T. (2011). Blended Memory: the Changing Balance of Technologically-mediated Semantic and Episodic Memory. *Digital Memories: 3rd Global Conference*, Prague.

### **Other invited presentations**

- Photography and memory. DICE research group. University of Edinburgh, 2015.
- Researching blended memory. History, Classics and Archaeology Research Methods seminar, University of Edinburgh, 2014 + 2015.
- Social and Technological Influences on Engagement with Personal Memory Objects: A Media Roles Perspective. Blended Memory: Remembering with Digital Artefacts. University of Edinburgh, 2012.

### ***Included published work***

The following pages contain copies of the publications (reprinted with the publishers' permission) that are relevant to this thesis.