Exploring digital remediation in support of personal reflection

Lisa Thomas[a], Pam Briggs[a], Finola Kerrigan[b,*], Andrew Hart[b]

[a] PaCT Lab, Psychology Department, Northumbria University, Northumberland Road, Newcastle upon Tyne, NE1 8ST, UK
[b] Department of Marketing, Birmingham Business School, Ash House, Birmingham, B15 2TT, UK

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ABSTRACT

Increasingly our digital traces are providing new opportunities for self-reflection. In particular, social media (SM) data can be used to support self-reflection, but to what extent is this affected by the form in which SM data is presented? Here, we present three studies where we work with individuals to transform or *remediate* their SM data into a physical book, a photographic triptych and a film. We describe the editorial decisions that take place as part of the remediation process and show how the transformations allow users to reflect on their digital identity in new ways. We discuss our findings in terms of the application of Goffman's (1959) self-presentation theories to the SM context, showing that a fluid rather than bounded interpretation of our social media spaces may be appropriate. We argue that remediation can contribute to the understanding of digital self and consider the design implications for new SM systems designed to support self-reflection.

1. Introduction

New forms of social media (SM), provide the means to generate and share multiple digital identities, but the resulting identity landscape is complex and the data underpinning digital personhood are fragmented, offering little in the sense of a coherent individual life story or presence. New SM can embrace both individual expressions of self as well as other reflections of self that can be difficult to control, often leading to a form of 'context collapse' where private aspects of the digital self may leak out to an inappropriate audience (e.g. Marwick and boyd, 2011a). Increasingly, researchers are recognising that the management of digital identity can present a burden and new solutions are being explored that support people in understanding and shaping their digital selves (e.g. Bae et al., 2014; Gulotta et al., 2017).

Many of us have a digital identity but fail to fully understand how it is represented and interpreted in the digital realm (Belk, 2013). This paper reports on three converging studies that *repurpose* data drawn down from SM platforms, asking whether such transformations can be used to enhance understanding of the digital self. Following Couldry (2008) and De Ridder (2015), we ask what different digital storytelling media offer individuals, SM researchers and designers in terms of the construction, evolution and consumption of the digital self and the processes involved in digital self-management. We discuss the context and process of digital self-formation before considering the spaces where the digital self resides and describing what happens when SM is transformed into new, often tangible and primarily visual forms. We then present the find-

ings from three studies where we work with individuals to transform or remediate their SM into different types of visual storytelling media (a physical book, three photographs presented as a triptych, and a film). We find that this remediation of personal digital data allows users to reflect on their digital identity in new ways. We note that current assumptions about the bounded nature of SM sites are overly simplistic and that there is a need to develop more sophisticated SM use and management practices. We offer a curation framework which can be used guide the design of systems that promote self-reflection and self-presentation and that would support improved digital literacy.

2. Related work

2.1. The digital self

For the individual user, a prime purpose of SM is "*to consume and distribute personal content about the self*" (Ellison et al., 2011:19). Digital selfhood is performed by posting episodic narratives and curating data (i.e. liking, sharing and re-posting) within an infrastructure that reproduces a world 'out there' (Pridmore and Lyon, 2011). Digital selfhood emerges as a response to such online exchanges and is sustained within partitioned digital environments (Vicdan and Ulusoy, 2012). Many SM researchers apply Goffman's (1959) dramaturgical approach (e.g. Kim and Ahn, 2013), arguing that digital self-presentation is analogous to a theatrical performance, directed at a particular audience.

Goffman (1959) argued that people have a 'front stage' whereby they can present an idealised self to others but he supposed that such interactions took place between known individuals and were bounded within a specific context. A challenge in the digital age is that the digital self is dispersed across a range of contexts (platforms) and aspects of our digital selves (in the form of posts or other shared digital content) will reach both intended and unintended audiences. Depictions of the digital self as '*compartmentalised*' (Cupchik, 2011: 325) may not appropriately recognise this digital dispersal. Further, the desire to compartmentalise oneself in SM, by presenting different selves on different platforms, may often fail when 'context collapse' occurs across platforms (Marwick and boyd, 2011a) or over time, when users new to a platform are allowed inadvertent access to posts that leak from another's' past (Kerrigan and Hart, 2016).

Whilst theory is rich in this space there is limited empirical insight into how people can better understand and 'manage' their multiple selves. Researchers have examined self-presentation through personal websites (Papacharissi, 2002; Schau and Gilly, 2003) with a more recent focus on SM (Livingstone, 2008; Marwick and boyd, 2011b, 2014; Sauter, 2014) but few capture the different ways that self-reflection is supported by the specific forms of SM. Yet it is clear that people use a range of digital narrative devices to tell their own 'story' (Couldry, 2008) and it is also clear that different SM systems favour particular storytelling approaches. Here, we wish to understand more about how these digital forms can shape users' personal stories (De Ridder, 2015) and what new self-learning is gained from new presentation formats.

2.2. Spaces for the digital self

Schau and Gilly (2003) demonstrate that people actively use signs, symbols, objects, and places in their personal Web spaces, to differentiate between selves (e.g. family oriented, intellectual, career driven, attractive, out going, etc.) whilst attempting to convey an idealised self. Personal photographs take an important role here, becoming a vehicle for the performance of self both in the home (Taylor et al., 2007) and when shared in SM (Van House, 2009). Digital storytelling as a methodology allows researchers to capture these multiple selves within a single story, allowing new insight into issues such as longitudinal adjustment to social norms; self censorship; the construction of the self as content; and the unexpectedness and uncontrollability of SM interaction. This unexpectedness distinguishes the digital self from Goffman's (1959) more controlled notions of self management.

SM platforms allow multifunctional communication at scale, through text, photographs, instant messenger, direct messages and videos (boyd and Ellison, 2008). Facebook, as the largest SM platform, offers three different functions for its users: (1) a performance region for managing and sharing recent data; (2) an exhibition region for longer term presentation of self image; and (3) a personal region to archive meaningful facets of life (Zhao et al., 2013). Those authors argue that individuals are likely to be more adept at the first function, managing their content as a performance focused on presenting themselves 'as they are now' on SM, implying that they would 'edit out' content that might conflict with the current, curated version of the digital self.

Hogan (2010) also perceives SM spaces as a mix of situational and curatorial self-presentation perspectives. Hogan distinguishes between *performance* spaces, where actors engage each other online, and *exhibition* spaces, where individuals submit and share artefacts. In describing SM as a form of personal museum, Hogan steers away from the notion of SM as predominantly an interaction space towards recognition of the increasing role of SM as life repositories or curated information stores that can take on a personal narrative of their own (Van House, 2009; Lindley et al., 2013; Odom et al., 2012a; Peesapati and Schwanda, 2010). Zhao and Lindley (2014), explored SM's *curated* elements, asking participants to create digital keepsakes by 'clipping' valued SM content to an online note taking tool. Despite being asked to save content from multiple SM accounts to construct their digital story, Zhao and Lind-

ley's (2014) participants drew heavily on Facebook, partly as it offered many more valued photographs than rival SM sites.

2.3. Social media and self-reflection

Self-reflection is a core human activity that occurs naturally and is often associated with the processes of life review and reminiscence (Butler, 1963). It is also expressly encouraged in some forms of professional practice (Korthagen and Vasalos, 2005). Increasingly, researchers are recognising that self-reflection is important for personal growth and that the processes of self-reflection can be supported by digital data (Kalnikaitė and Whittaker, 2011). Within HCI, we see studies on self-reflection associated with two different domains of enquiry. Firstly, people now have the ability to quantify aspects of self (heart rate, sleep patterns, mobility data etc) via a raft of mobile applications that allow people to reflect upon their own lifestyle choices and consequences. A number of studies in 'personal informatics' or 'quantified self' have explored the ways in which such data can be used (Li et al., 2011). Secondly, the digital data associated with everyday SM can also be used for personal reflection. Sometimes this occurs naturally and is associated with the curation of personal SM data (Lindley et al., 2013) but more recently, we have seen the development of new services and applications that re-present personal data in order to encourage reflection. For example, Facebook's A Look Back[1] service was launched in 2014 to compile highlights of a user's profile in filmic form. Individual's Facebook content; photographs, events, liked posts, shared photographs and statuses are collated and transformed into a two minute video for the account holder to watch. Similarly, services like TimeHop[2] and On This Day[3] encourage reflection on past SM posts.

These services which involve remediation and allow for reflection, reveal the value in time-delayed electronic communication. Online application FutureMe[4] encourages content to be posted after a specified time, which has demonstrated instances of 'profound reminiscence' for users, as well as unsettling encounters with past content and personal challenges (Odom, 2015). One FutureMe user sent his parents a future message telling them that he was gay, creating a self-imposed deadline for the same conversation face-to-face. Another time-delayed media sharing system, 'Postulater', allows e-mail exchanges between friends and family for six weeks, requiring a specified time for the release of photos and videos (Hawkins et al., 2015). Postulater users felt vulnerable, as reactions to their future messages were unknown. Finally, systems like the 'Ripening Room' (Bae et al., 2014) that encourage a delay between writing and sharing posts can prove fruitful in countering experiences of regret (Wang et al., 2011) and bullying (Marwick and boyd, 2011c).

Also relevant in this space is the work on designing for remembering. In recognising the fallibility of memory, we can begin to see how systems designed to encourage a revisitation of personal data can be flawed. Information may not always be presented in the way it was captured, and is deemed less manageable than organising a physical collection of keepsakes (van den Hoven and Whittaker, 2012). An overreliance on digital material has been highlighted elsewhere (Van House and Churchill, 2008), resulting in shifts in how we conceptualise our memories and experience recollection.

Bolter and Grusin (1999: 5) point out "older electronic and print media seek to reaffirm their status within our culture as digital media challenge that status." As new forms of content gain popularity, there is still value in older methods. Work on 'material speculation' has explored how the digital sits alongside more traditional forms – e.g. creating an experience of viewing digital media using a traditional wooden chest to store photographs (Wakkary et al., 2015) thereby *repurposing* digital

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[1] https://www.facebook.com/lookback.
[2] http://timehop.com/.
[3] https://www.facebook.com/onthisday/.
[4] www.futureme.org.

data in a way that differs from its original source. In remediation theory, this notion of *repurposing* (Hogan, 2010; Schoenebeck et al., 2016) offers an important construct in our work, and we are particularly mindful of work on personal photography remediation and the changing role for personal photography in digital storytelling. As Vivienne and Burgess (2013: 283) observe: "*The material practices that surround personal images in digital storytelling – their selection, editing, transformation and distribution – are mediated by the realities of socially networked identity.*" We note, however, that theories of remediation are more typically applied to the ways in which physical entities (photographs, letters) take on new meaning when digitised. Here we look at the process in reverse, exploring the new meanings that come from taking a fluid, extended digital presence and reducing this to a bounded film or a tangible book or triptych of photographs.

2.4. Research gap

There is an ongoing need to theorise about the nature of digital selfhood, and to inform design processes that might support future SM users in understanding their digital selfhood and managing their digital interactions. Following Goffman (1959), the performance of self is central, but we recognise that the *medium* for this performance is also critical, recognising that "*people start to see the reasons why any particular person has chosen any particular medium as a social act*" (Madianou and Miller, 2013: 183). Thus, we delve further into the *affordances* of particular forms of SM asking how transformations away from the original form might be used to reveal new insights about the digital self. Specifically, we ask: How can remediating users' digital data assist them in understanding their digital identities?

3. Study design and methodology

This paper reports on three converging studies which explore what happens when personal digital data undergoes a physical transformation into one of three different forms: (1) a printed book ('MySocialBook'), sourced entirely from Facebook data and curated by the Facebook account holder; (2) a triptych consisting of three printed and framed photographs, sourced from Facebook or Instagram and curated by the account holder and (3) a film, sourced from a range of SM accounts including Facebook, Instagram, Twitter, YouTube and curated by a professional filmmaker. These three formats were chosen to explore how the remediation of social media might change reflective practice around digital personhood. All three forms were aligned as they provided a simpler and more tangible digital self-construction that should better support reflection (Odom et al., 2012b). These forms have been assessed individually in other publications. Kerrigan and Hart (2016) develop the concept of multiple temporal selves (where different types of data represent different selves from different life stages). This film study revealed the problem of social media leakage; where older selves may find their way to unintended audiences as use of a platform changes over time. Thomas and Briggs (2016) highlight the reminiscence function of SM data transformed into a MySocialBook, and show how this data transformation gives new groups access to old social media data.

Table 1 outlines the purpose and nature of the data and the remediation method in each of these studies, while Table 2 summarises key details of recruitment, participant demographics and the data collected. The three forms also differed in interesting ways, as described below. Overall we recruited 26 participants, and the research was conducted by the two research teams between May 2014 and June 2015.

In study 1, the aim was for participants to review a self-curated, semi-automated artefact; a printed book compiling their Facebook data. The study was conducted over two sessions in the lab at Northumbria University in the UK. In Session 1 participants were told that they would design and print their own Facebook scrapbook using MySocialBook[5] and
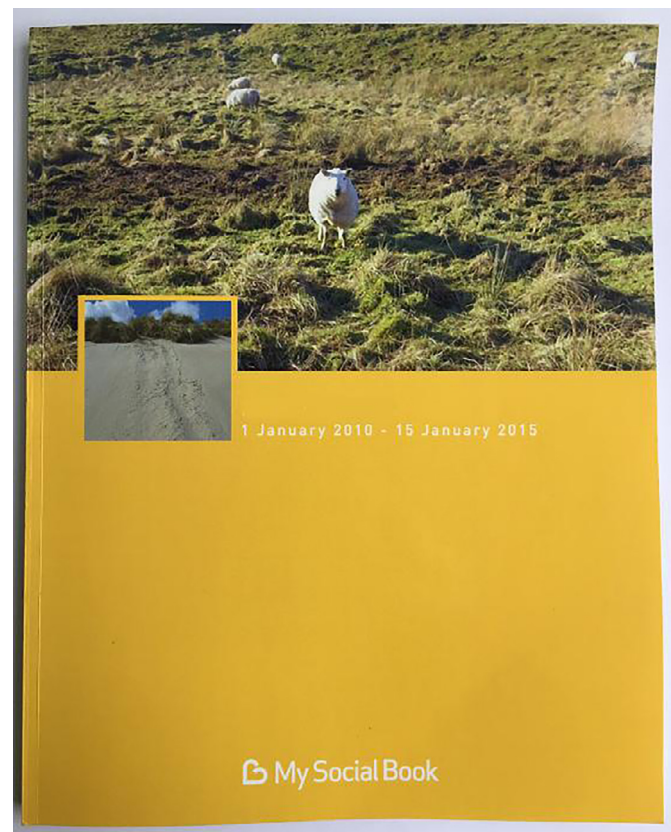
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[5] www.mysocialbook.com.

Fig. 1. The cover of a completed MySocialBook.

were asked to sign into the site using their Facebook credentials. This is a publically accessible website, with no affiliation to the academic institutions involved in this research. The purpose of this study was to allow participants to reflect on Social Media content that they post. As Facebook is a popular Social Media platform, it was appropriate to focus on remediating this data They were guided through the design process and encouraged to maximise the personal connection to the book using website features to facilitate curation, the only restriction being a price limit of £30 per book. Participants were then shown a preview of how their book would look and refined their selections until happy. Session 1 lasted approximately 45 min.

Once their MySocialBook was printed, participants were invited to participate in Session 2, where they were presented with their book and asked to browse for approximately ten minutes before being interviewed about it. They were encouraged to annotate their MySocialBook, noting anything that they liked, disliked, or thought could be improved. An example of a completed MySocialBook can be seen in Fig. 1. Examples of the book annotations can be seen in Fig. 2.). Session 2 lasted approximately 60 min.

3.2. Procedure 2: triptychs

We aimed to encourage self-curation of SM data in the form of photographs. Again, there were two sessions. We first invited participants to review photographs they had taken and uploaded to SM selecting three that 'told a story'. They sent in these three photographs and any associated photo captions/ hashtags from their SM accounts (Facebook or Instagram were recommended) via e-mail. The researcher printed the three images, and mounted them in a triptych frame (Fig. 3). Participants were invited to a second session where they collected the triptych and participated in a face-to-face interview.

Table 1
Summary of remediation studies.

Study	Purpose	Data source	Remediation method
MySocial Book	To allow participants to reflect on SM content they post. As Facebook is a popular SM platform, it was appropriate to focus on remediating this data in this format	Users' Facebook content	Users set parameters for the content from their Facebook accounts to be included/ excluded including timeline and types of content, then auto generated into a book format, printed and bound (largely automated selection of material included)
Triptych	To allow users to reflect on their use of photographs in enacting their digital identities	Users own digital photographs from Facebook or Instagram	Personal selection by users, then framed as triptych by researchers (entirely self selected material to be included)
Film	To unify the disparate elements of the digital self allowing participants to reflect on a more holistic digital identity	Users own SM data from a range of sources including Facebook, Twitter, Instagram, YouTube, blogs, etc.	Six filmmakers worked with six participants to access their SM data and develop narratives (collaborative selection of material to be included)

Table 2
Recruitment, participant details and nature of data in studies.

Study	Recruitment method	Details of participants	Data collected
MySocial Book	Via Facebook, Twitter, university mailing lists, local organisations	7 males/7 female UK based adult participants, 25–69 years old M_{age} = 41.5 years,	Photographs of participant's annotated books, interviews with participants about the books
Triptych	Recruitment posters, posts on Facebook and Twitter, and snowball sampling explaining the study and informing the participants that they would receive a photo frame containing the three chosen photographs	3 male/ 3 female UK based adult participants. M_{age} = 27.5 years, age range: 23–33	User triptych and interview about the choice and order of images, the selection process, and the story behind the images
Film	Call circulated on social networks, via professional filmmaker groups and organisations to invite applications outlining their choice of participant and the SM platforms from which data would be drawn.	1: male (40 s) SM user/ female filmmaker	Interviews with filmmakers and users before, during and after the filmmaking process Review of films created from SM data
		2: male (20 s) SM user/ male filmmaker	
		3: male (40 s) SM user/ female filmmaker	
		4: female (30 s) SM user/ male filmmaker	
		5: female (20 s) SM user/ female filmmaker	
		6: male (60 s) SM user/ male filmmaker	

3.3. Procedure 3: films

Studies one and two focused on data presented on either one SM platform (MySocialBook) or one form of SM data (photographs) respectively. This third study involved a wider range of data from a variety of SM platforms, allowing greater focus on the dispersed digital selves of our users. We engaged two groups of participants, professional filmmakers and their subjects (Table 1) who were SM users. There were three broad stages to this study. Firstly, a call was circulated to invite professional filmmakers to propose a subject for a film that would be comprised entirely of SM data. They were given the explicit condition that filmmakers would need to have full access to all of their subject's SM data. Six were selected from 26 entries based on the filmmakers' experience, their interpretation of the brief, including the types of narratives proposed in their entry, as well as the overall interest of the subject, alongside their SM presence and activity (i.e. active on at least three types of SM). Each criterion was graded between one (weakest) and five (strongest) providing a total average mark for each competition entry. The highest six averages were chosen. Secondly, the filmmakers extracted the subjects' longitudinal SM data to construct a film. They worked with existing SM data to develop a narrative of self. This involved a substantial research and planning process prior to production, whereby the filmmakers sifted through all of their subjects' SM data to extract key themes to construct a narrative. In four of the six films, participants collaborated with filmmakers on material to be included, in two cases, the participants wished to leave decisions on what would be included to the filmmaker. Thirdly, both the filmmakers and their subjects were interviewed about the process and the presentation of digital self at various points in the project up to the completion and viewing of the final films. Although the identities of the film subjects and filmmakers are in the public domain, we do not attribute quotations cited in this paper to specific participants in order to prevent the reader from

attributing specific information to our participants. The film, MySocialBook and Triptych studies were carried out in accordance with the recommendations of University of Birmingham and Northumbria University Ethics Committees, with informed consent from all participants, including permission to publish social media content.

3.4. Data analysis

All interviews were audio recorded, transcribed, and a thematic analysis was conducted. As the data gathered were predominantly in the form of "free-flowing text" (Ryan and Russell Bernard, 2000: 771), they were analysed by finding meaning in large segments of the texts rather than in isolated words, hence coding the data (Ryan and Russell Bernard, 2000). Theory was derived inductively, where the themes emerged from the data as a result of open coding. Two members of the four-person research team coded each data corpus. Following each stage of coding; (i) familiarization with data (reading and re-reading transcripts); (ii) generating initial codes (constant comparison between data); (iii) searching for themes (identified when patterns and repetition emerged in the data); (iv) reviewing themes (checking themes against extracts and overall data set); and finally, (v) explicit naming of themes (Braun and Clarke, 2006), discussion took place between the research team members regarding the emergent themes. Themes were loosely identified as concepts, but the naming of these emerged after data analysis. This was an iterative process where we moved from descriptive codes to thematic codes. Once final themes were agreed, each transcript was re-examined for final write up. Reliability coding was conducted between two members of the research project team in each study, with initial coding undertaken by one researcher and shadow coding to safeguard against definitional drift (Gibbs, 2008) by a second researcher, with coding finally cross-referenced for compatibility across studies by the authors. The focus of this analysis was on how the participants
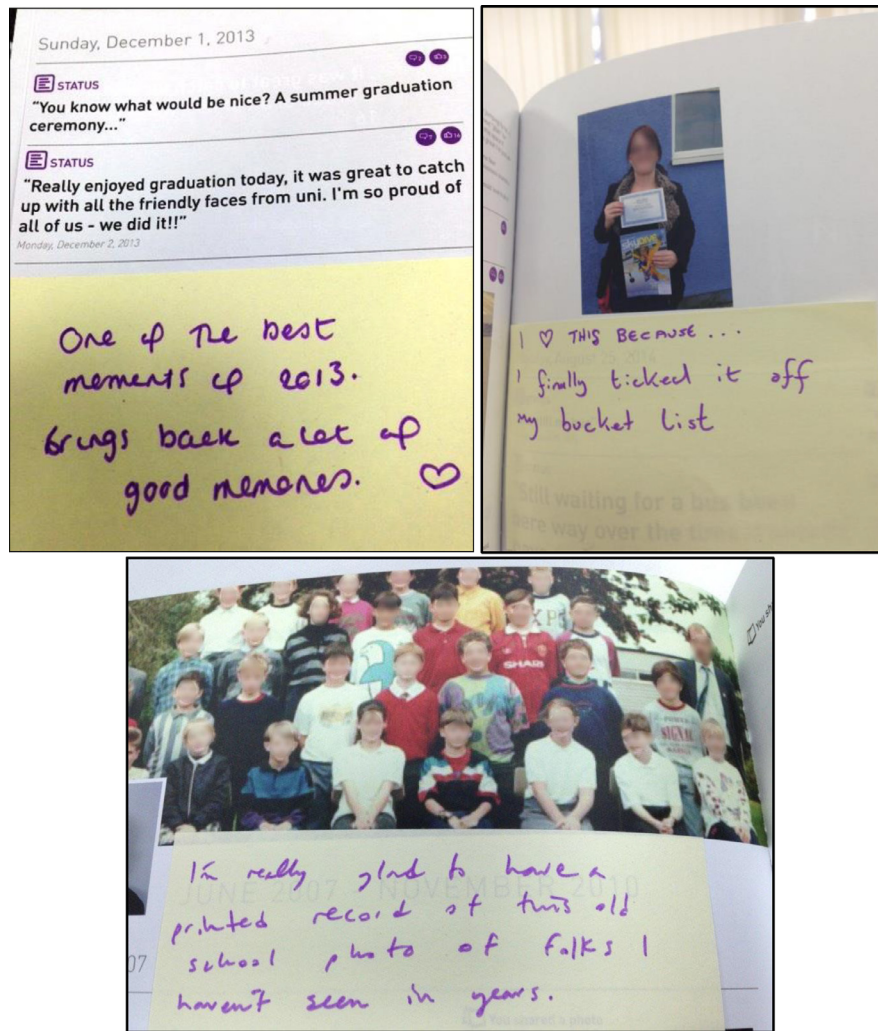
Fig. 2. MySocialBook participant annotations.

Fig. 3. Triptych photo frame example.

responded to their digital selves as presented in the different formats and what they learned from this process regarding the nature of their SM usage and performance of self. This was the analytical approach from the outset, and our findings represent the analysis of our complete data set. This led to the development of our key findings in establishing a dynamic curation framework, which represented the nature of our participants' response to their digital selves and is outlined below.

4. Findings and analysis

We found that storytelling in these different formats (film, book, photographs) supports different forms of self-reflection and sense making in a large, personal SM digital dataset. We found that remediation was underpinned by four value-judgements: (i) participants eliminated *inappropriate content* that would not be suitable for sharing, effectively reducing the noise in the data, (ii) they considered the *archival value* of the remaining data, understanding the importance of curating content for later use and, (iii) they assessed the *narrative content* of the data in terms of its value in the storytelling process and (iv) they then assessed the appeal and usefulness of the material in its *remediated form*. At the end of the sessions, we asked participants to engage in a process of *ideation*; a counter-factual process of imagining how future remediation systems might best support the different facets of self-representation.

4.1. Inappropriate content

Participants had to sift through an overwhelming amount of personal data, encompassing vast collections of photographs, videos, status updates, shared links and personal messages generated as part of the 'performance' of SM. For most participants, their first task involved reducing 'noise' and eliminating disliked content, to produce something that was more valued and reminiscent of significant events, i.e. material that would be more suitable for consideration as part of the 'exhibition space' in Hogan's (2010) terms:

'Looking at this I just think, "I post some crap to Facebook"' (Danielle, MySocialBook).

'I think normally with scrapbooks you just want to remember fond memories and the things you're proud of doing and stuff, and most of my Facebook updates I'm not especially proud of' (Joseph, MySocialBook).

We saw a desire to edit material that might support notions of the 'idealised self', although we should recognise that participants were also motivated to protect others in editing any material that might prove uncomfortable viewing or material that might be considered insensitive:

I did see that there was some related content to someone who, without going in to too much detail, is an ex-husband of a friend, and I don't really want to see that' (Sarah, MySocialBook).

'One of my ex-girlfriends isn't out [concerning her sexuality], so anything that would put anybody else at risk I want to try and avoid. So if anybody didn't want to be included then I wouldn't want to include them, because I wouldn't want to upset them.' (anonymous)

Such concerns echo the sentiments of Vivienne and Burgess (2013) who discuss the privacy implications for self and others associated with the digital remediation of physical photographs and who note the way this leads to complex "*manipulations, abstractions, substitutions and re-enactments of personal photographs*" (p. 24) in support of creative self-representation.

The persistence of unwanted data on certain platforms is a known issue for SM and has led to the rise of new 'ephemeral data' exchanges via platforms like Snapchat, Gryphn and Wickr that celebrate the fact that they make data disappear (Shein, 2013). However, it is interesting to note that the nature of inappropriate data was more closely contested in the film study, where both subjects and filmmakers would give priority to the integrity or creative facets of the final film over personal feelings:

'I just said to [the filmmaker] 'please go for it, I'm really interested to see your perspective on things'. I honestly thought the less impact I had the better.' (anonymous)

'I do campaigns all the time and those campaigns get reported by the media but I have no control how they report it. So in a sense this project is similar, I will speak what I believe and will give the available information and I trust and hope people will deal with it fairly and objectively. (anonymous)

'I do like to check what I do is factually accurate and not negligent in anyway … And given social media … it's so easy these days to say things from hear' say, and inadvertently perhaps put something out there that is not the whole truth … And one can think of instances in [anon] work where one might find something out about him, put it in a film, and it might have a knock on effect that would be harmful not just to him but to other people, and obviously one doesn't want to put other people at risk' (anonymous).

Again, we see that the repurposing of SM acts as a trigger for such reflections. We have seen something similar in the 'slow technology' movement, where remediation can trigger a more thoughtful approach to the selection of material (Odom, 2015) and lead to greater levels of introspection around both ownership and nature of content (Tsai et al., 2014).

4.2. Archival value

Participants recognised that material could, in Hogan's (2010) terms, not be suitable for either performance or public exhibition. This is a theme recently elaborated by Schoenebeck et al. (2016) who found that young adults could recognise the personal value of embarrassing content in their Facebook profile. Our participants were also aware of the role of such material for future reflection:

'I wouldn't want to remove it all, because it is part of a sequence of events that I went through'. (Sarah, MySocialBook)

'It's important to me, yes [posts about mental health]. But I'm not saying that somebody who's having a struggle at that particular time in their life necessarily wants to remember it two years later'. (Sarah, MySocialBook)

'I can't remember things as well as I used to years ago so you're putting it all down aren't you…I think it's to do with remembering'. (Lillian, MySocialBook)

Goffman's work is less comfortable as a framework for understanding such private forms of contemplation. Instead, we find work in relation to prompted reminiscence to be more helpful (Westerhof and Bohlmeijer, 2014), noting that people of all ages are able to gain personal reward from a process of life review, but also recognising the value of such a process in making sense of one's identity.

'That was Mexico, we were sitting on the ferry to go to the island, and that was a pelican, just on the boat, and I thought, "I'm going to try and get that" and I didn't think I had got it, but I had. Oh, yes. This is really bringing a lot of memories back. Very nice.' (Lillian, MySocialBook).

'I moved to Tynemouth. I was in a very long term relationship before this, and I lived in Newcastle before and moved back home for him. So this kind of signifies a new chapter when I moved there, because we broke up after seven years'. (Erin, Triptych).

Participants from all three studies were interested in major life events; graduations, birthdays, weddings, and anniversaries. Previous work has indicated these types of events can be easily identified within SM and often used as a framework to guide storytelling and life review (Westerhof and Bohlmeijer, 2014). However, the process of reviewing archived material can be shocking, since users often forget that SM data is public. In the film study, Alice was surprised that her personal world would feature so heavily in the film:

'When I received the initial script … I felt strange because I hadn't realised she would be using things I'd written on my blog, I thought it would be more photos and status updates, which tend to be less personal… The blog posts she'd chosen were heartfelt poems and observations. I had actually forgotten I'd written them and it was an unsettling feeling knowing they'd be resurfaced again, despite having changed a lot since I wrote them and probably wouldn't have written them now. It was a realisation that I tend to think of things I post online as having a shelf life, today's news tomorrow chip paper. So reading it again now and knowing it would be re-published felt weird.' (Alice)

This captures the tension that many of our participants experienced at this stage – between an immediate benefit coupled with the realisation that SM gives permanence to such creations and that they are not as private as they might seem. Again, we see the tensions emerging between the performative aspects of SM and the exhibition value of that same material (Hogan, 2010).

4.3. Narrative value

Participants took their time to make very deliberate selections of the material that could tell a story or reflect a unique aspect of self. This

involved considerations of form, content and structure but, for the first time, we start to see a differentiation between the demands made of different formats as participants were cognisant that, at the end of the project, they would receive something both tangible and public. This drove a desire for more careful crafting of material that would represent specific aspects of self. Here, the MySocialBook participants sometimes struggled with tone, some wanting a funny or more playful tone that would capture the performative aspects of identity, with others wanting to capture something of their longer term social context, whilst for the triptychs, narrative was key and participants strongly considered which photographs to use to tell their story:

'I think this becomes more meaningful because that's an old school photograph from 20 plus years ago and me connecting with a friend from back then that was in my class. This feels more like something worth preserving than me making a comment about Kim Kardashian or whatever' (Joseph, MySocialBook).

'I thought of it as a timeline maybe. I guess that's the easiest thing if you're presented with a whole load of pictures and you're like, "Okay, so how can I think about any stories or things that relate to that without choosing ones that are really close together?" If you want to draw in a few, the nice way is to think about what's my personal journey' (Max, triptych).

With film, we saw a tension between creating an accurate representation versus a compelling narrative. The subjects were generally more concerned with the former; seeing the film as an opportunity to produce a more holistic perspective and/or correct any wrong impressions and misrepresentations:

'So there's the intellectual me, there's the party girl, there's fitness, there's just lots of different me's, and I like the fact that I'm all of those things and I would never want to be portrayed as just one … But if they're interspersed with other stuff then it's fine, as it's a fair portrayal of who I am' (anonymous).

'People always say I sound very forthright and very uncompromising on [SM], but when they meet me they're always like 'oh you're such a gentle soul … What I'm hoping is that it will be great to focus on certain outlooks on life, whether that's social, environmental, or political, and that it is nuanced and quite balanced, and it's not too controversial or out there, and perhaps provides a more rounded perspective of certain issues and debates … So hopefully a more representative self and a more rounded self' (anonymous).

'It is a way counteracting misrepresentation or partial representation of my work via mainstream media … These false representations have lead to a deluge of hate mail and death threats' (anonymous).

While the filmmakers were more concerned with the latter; narrative was key, but they struggled to find the most engaging story arc from SM data:

"There were certain themes that start emerging, so for [our participant] every year Diwali would happen … there's also the Mauritius part and his mother still lives there. I was also keen to grab stuff that was a little bit of a political debate that was a] understandable and b] concise enough because a lot of it was not concise and a bit hard to follow'.

Again, we see the importance of a digital storytelling framework and the way a particular transformation (into film) demands a strong narrative thread, perhaps at the expense of recognising the simultaneous performance of different selves.

4.4. The remediated form

Our participants exhibited mixed reactions in response to their re-designed and remediated SM content. On the one hand, there was a sense of dismay that the mundane had been elevated by the transformation:

'This is so weird, just elevating throwaway comments to something that's worth preserving like it's a famous quote or something. It's bizarre'. (Joseph, MySocialBook).

However, a more common response was a genuine delight at the new artefact:

'There is maybe a notion that it's just by making something more individual and less - there is only one of this thing that that somehow increases its value' (Charlie, MySocialBook).

The framed picture I think now is suddenly symbolised as something special. If you want to change these it's effort because you have to print them out, yes, which is – I think in the digital age, suddenly printed pictures, it's not as if they're obsolete or anything, it's just that they have that much more pertinence (Max, Triptych).

As the range and nature of material drawn upon for remediation was much greater in the case of the film subjects, they were quick to question the extent to which the identities captured on film were congruent with their own sense of self. Putting the digital storytelling into another's hands meant that the film gained new power as a tool for reflecting on the role of SM in identity construction:

'After watching a draft of the film and being reminded of my former self I had the sudden realisation that all of these photos are in the public domain, there for any one of my Facebook 'friends' old, but more importantly new to see. This made me feel uncomfortable. I only really wanted the old photos there for me to see, and perhaps the people who knew me then.' (anonymous)

'It's made me think about whether I should be using social media differently … I started to look like I was a bit of a buffoon … Especially the first part of the film, it was all sort of clowning around and it was like someone who you can't then take really seriously … It doesn't feel appropriate anymore and even though I'm still doing that a lot, I feel like it's past its sell by date [since the cancer treatment]. I don't really want to come across as that person anymore' (anonymous)

'Social Media provides the means to express a certain part of yourself … and you can soon end up creating the wrong persona for yourself without even realising … It's so easy to think 'oh well obviously everyone knows I'm not really like that' but then actually most people are only knowing you through Social Media, and most of your friends on Social Media are people probably you don't see from one year to the next' (anonymous)

This idea is quite fundamental and relates to the way in which Goffman talks about the search for self-sameness and a continuity of the self (Goffman, 1959). It can also help to explain the importance of the 'life story' as a means of anchoring self within one central narrative (Habermas and Köber, 2015), When the narrative breaks down, or appears inconsistent, as it can in SM, then this can be challenging to the individual. Here, we are reminded of the three components involved in *systematic reflection* (Ellis et al., 2014), namely: (i) Self-explanation where individuals analyse their own behaviour and provide explanations of successes and failures, (ii) data verification where people are confronted with a different perception or interpretation of the same data, and (iii) feedback, where people ask themselves what worked, what didn't, and what might happen in the future. The remediated forms of SM data would particularly support the verification process (ii), where people see things in a new light. However, we found evidence for self-explanation and feedback reasoning underlying the kinds of value-judgements we described earlier.

5. Discussion and conclusions

We have used different forms of digital storytelling and remediation to gain new insight into digital selfhood. We find that SM data can easily be repurposed, but that the transformation says much about the original and changing value of the underlying data. Our original goal was to try

to understand more about the ways in which SM could better support the process of self-reflection. As noted earlier, we have seen a marked change in the way that personal informatics tools have been used to support an enhanced sense of self, but these are highly deliberative systems where the user makes an explicit decision to collect and use data for personal reflection. There has been a less systematic enquiry of the ways in which SM can support reflection, perhaps because much SM data is simply a by-product of everyday digital communication.

We do know that people *experience* Facebook in terms of different functional platforms: for the everyday performance of self, the longer-term curation and exhibition of self and the personal archiving of sensitive data (e.g. Hogan, 2010; Schoenebeck et al., 2016, Zhao et al., 2013). The problem is that most applications do not currently allow for the retrospective extraction of personal data in these terms. Our work reveals a need for smarter sorting of SM data according to narrative, archival or display function that would, in turn, support more meaningful reuse of personal data. Note that here, we distinguish our work from those curation systems that have been designed to explicitly support reminiscence by the deliberative creation of digital mementos (e.g. Petrelli et al., 2009; Kalnikaitė and Whittaker, 2011). In those systems, the digital artefacts are chosen with the intent to use them in future reminiscence and reflection, whereas our findings are more explicitly concerned with the ways in which existing SM data can be repackaged for such purposes.

With this in mind, we have also tried to understand what is gained by the remediation of SM data into markedly different forms. We note Madianou and Miller's (2013: 170) observation that understanding identity work in SM necessitates a theory of polymedia, where:

> "The emphasis shifts from a focus on the qualities of each particular medium as a discrete technology, to an understanding of new media as an environment of affordances. As a consequence the primary concern shifts from an emphasis on the constraints imposed by each medium … to an emphasis upon the social and emotional consequences of choosing between those different media."

We have captured, in this paper, some of the 'affordances' of a book, triptych and film and concur with Madianou and Miller (2013) that there are indeed significant emotional and social consequences associated with choice.

Our three transformations also amplify content that may otherwise have been forgotten, encouraging a re-visiting of the past. We find less explicit recognition in the SM literature concerning the value of an autobiographical life review, although we have noted the work by Westerhof and Bohlmeijer (2014) that captures the known psychological values of reminiscence and we recognise the importance of the life story for individual meaning-making (Habermas, and Köber, 2015).

At the end of our studies, participants engaged in an 'ideation' process that allowed them to consider the benefit of *potential* future transformations of their digital data, in line with Baumer's (2015) suggestion of 'envisioning alternatives' to allow for reflection. For [*anonymous*], a film provided her with food for thought about how she might maintain a better integrated sense of self in the future, and a desire to be able to bring disparate SM together in one platform:

> 'I feel very disparate online, so I have my Twitter identity, I have my YouTube identity, which are all present a different way of how I am. So if people only read my Tweets then they only know me in small bite size chunks. But if they've seen me on YouTube then they know that I say things with a smile and that I'm not very succinct … And if they look at me through music then they might think I'm really serious … The problem with technology is that it allows you to have all these different options and platforms to play around with and you end up with loads more than you can really take on … [This project] has made me really want to push my website forward and portray this really secure home for all the media and for all the connections.' (anonymous)

Here, we gain a sense of an artist negotiating the presentation of self in a multi-platform digital world and again we get a strong sense of the importance of the continuity of self in a consistent life story. There is a tension here. It is clear that the SM offer individuals a chance to tell their story in "*complex and sometimes contradictory ways*" (Vivienne and Burgess, 2013, p. 25). These self-contradictions lead to problems when audience boundaries break down – i.e. when the different SM platforms 'collapse' (Marwick and boyd, 2011a). Yet the concern about digital fragmentation expressed by [*anonymous*] would lead us to think that more support for a coherent and consistent digital self would be welcome. For an artist such as [*anonymous*] in search of a particular form of *uniqueness*, this tension may be felt most acutely as a battle between the desire to belong to a part of a community and the desire for '*separation, individuation and autonomy*' (Erikson, 1968, p. 30).

Transformations of SM data often meant that a story or image was stripped of its historical context, resulting in a rather empty narrative, and one that becomes more fixed in time. This 'fixing' of a life story is an interesting dimension to the remediation process, particularly given new 'backstalking' practices (Schoenebeck et al., 2016) in which friends can playfully (or maliciously) mess with archival Facebook data, sometimes with the intention to highlight embarrassing moments from the past. Our participants were generally satisfied with the ways in which their selves became 'fixed' by our three remediations, but did express concerns about *who* was portrayed, noting that design decisions made in support of the performance of self might clash with the interests of others:

> 'My family life would have to be dealt with carefully … I accentuate the positives in terms of my family and personal life.' (anonymous)

> 'There are other photographs on there, it's just they tend not to get shared. Family members aren't on Facebook and don't necessarily want things being shared on Facebook. (Sarah, MySocialBook).

Again, we see that the celebration of the *authentic self* (Pridmore and Lyon, 2011) was sometimes compromised in the various digital expressions of self that formed the source material for our artefacts. This led to some expressions of concern that a particular artefact might not accurately portray 'who they were' .

> 'I think all these services assume that I thin,k over assume the extent to which Facebook represents my or anyone else's life. It doesn't, Facebook represents a kind of history of how I've communicated with some of my friends at certain times' (Charlie, MySocialBook).

The literature on both the narrative and the archival value of SM data is growing (Lindley et al., 2013; Schoenebeck et al., 2016). Our participants appreciated the personal value of an SM archive but often expressed this in terms of some potential benefit to a 'future self'. In part, this theme of the changing value of SM over time was triggered by the way SM could regurgitate unwanted and irrelevant content that once seemed relevant or smart. In other words, the processes of remediation itself offered the opportunity for reflection and consideration of the value of specific content.

A re-visiting of the past was bound to occur, but the precise form of each transformation led to subtle differences in reflective practice. The triptychs were most likely to provoke a sense of sentimentality and consideration of life milestones (births, graduations, relationships). Often the photographs chosen would come from an older time period, thus evoking reminiscence about events that may not have been as fresh in the memory. They also seemed to be most valued as a material object, compared with the MySocialBook. Participants emphasised that they would keep the framed triptych and pick a place in their home where it could be displayed publically. MySocialBook, in contrast, offered participants a chance to reflect on the nature of their idealised self, and on the social value of their book for deliberate acts of shared reminiscence with loved ones (something they would not do if in digital form). However, participants were not in full control of the content of their books, which limited their potential as tools for long-term reminiscence. The

films allowed for significant acts of self-reflection, as the material covered a wide range from text, to video, photographs by the participants and those in their network. In addition, as material spanning a number of years, in some cases, over a decade, was made available, the films had the potential to show a rich, detailed account of their digital identity as it had evolved. Finally, the involvement of professional filmmakers, who identified strong narratives from among their dispersed digital identities, brought an external viewpoint to the stories of their digital selves. Therefore, the films, more than any other form, offered the film subjects the chance to adopt the perspective of the 'other' .

We find that Goffman's (1959) arguments hold when considering the different, contextually nuanced presentations of self, which take place in real time. In our work we see how a performance can be viewed both within and outside of its original context. We take and post a photo, a tweet, a comment etc. for a particular purpose and selected audience, and while we recognise that other unintended audiences may engage with these postings, we seldom consider the potential benefit to our future selves.

We have described the decisions and judgments that underpin a digital curation and remediation process and believe that this could be useful for SM providers, data aggregators and researchers wishing to develop better tools for SM analysis and display. Inevitably, our findings are somewhat dependent upon the particular design transformations we offered our participants, but we made these choices deliberately, to reflect some of the very different ways in which SM could be repurposed.

Beyond our research context, the tools we assessed hold real world applicability. There has been an influx of applications such as TimeHop and Facebook's life event films in recent years. Facebook users are regularly presented with friendship videos and anniversary slideshows of photographs. The MySocialBook platform is available to anyone, and visitors to the MySocialBook website are encouraged to design books to give as gifts to friends and family (provided you have access to their content). We can clearly see that the number of automated biographical tools designed to repurpose SM content is on the rise (Thomas and Briggs, 2016). We have discovered that allowing people to review these transformations reveals to them the realities of their SM profiles- who sees their content, how much data is stored, and often how mundane their posts are- resulting in considerations around the 'cleaning up' of content in order to remain in line with idealised identities. By exploring these three different ways that SM can be repurposed, we have begun to understand how SM content is perceived by its creators, and continue to demonstrate the value in undertaking these repackaging exercises.

There is clearly a market for digital remediation services, but there simply is not a current research literature that can help us understand how such digital remediations might be used in future. Our future selves will have access to a vast repository of digital memories that they may find overwhelming. Here we have gained some understanding of how people might seek to reduce the 'noise' in their SM data in order to make it more usable, useful and appealing. Current systems tend to do this in a rather ad-hoc way, such as presenting people with a single time-stamped 'memory' from a year or two earlier, but we can imagine the development of more sophisticated systems in the future. Such systems will capture some of the different archiving, narrative and display functions that we describe here and could better marry the form and function of digitally remediated artefacts.

Acknowledgement

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