

Colliding Epistemologies, Productive Tensions and Usable Pasts in the Generation of Heritage-Led Immersive Experiences

Abstract

The growth of immersive technologies and media provide new ways for publics to access heritages. Extended reality experiences are the latest in a long history of media forms through which historical narratives can be told. In the creation of such experiences, many challenges emerge from the origination stages through to delivery, which bring together practitioners from disparate academic and professional fields. This article draws on the concept of usable pasts, to examine how disciplinary differences can create or mitigate tensions, and provide productive outcomes in the development of immersive experiences which take heritages out of museums and into the built environment. We mobilise Brown and Knopp (2008) approach of productive tensions and colliding epistemologies to draw attention to the constraints and opportunities of cross-disciplinary collaboration. Through our exploration of how to develop a design methodology for producing heritage-led immersive experiences we argue for the importance of understanding the philosophical approaches used by different stakeholders in the design process, highlight the importance of non-digital technologies and discuss how practical issues can produce ontological clashes.

Keywords: usable pasts – immersive technology – heritage – built environment – epistemologies

1. Introduction

The growth of immersive technologies offers new ways in which heritage can be made usable. Virtual, augmented and mixed reality experiences are the latest media forms through which historical narratives can be told and heritage experienced. Museums are adopting immersive technologies to allow visitors to explore their collections. There are many challenges to create experiences which engage users in a meaningful way from the origination stage, through design and content creation to delivery, all of which bring together practitioners from disparate fields. Drawing on the concept of usable pasts, this article examines how disciplinary differences create tensions, challenges and productive outcomes in the generation and design of immersive experiences intending to take heritages out of museums to allow publics to experience them within the built environment. To frame these interactions, we draw on Brown and Knopp's (2008) approach of productive tensions and colliding epistemologies which helps highlight and understand the constraints and opportunities of cross-disciplinary work in the creation of usable pasts.

In exploring these issues, we draw on a research project called *Memoryscapes* which developed a methodology for designing heritage-led immersive experiences that enable publics to engage with usable pasts beyond museums, archives and galleries. The project was funded by the UK's Arts and Humanities Research Council and Engineering and Physical Sciences Research Council, and included a multi-disciplinary team of academics working with a museums organisation and architecture firm. Over the course of a year we undertook research to understand how immersive heritage experiences might rejuvenate and enhance parts of the built environment. Through workshops we worked with participants who generated ideas to increase accessibility and engagement with a range of heritages. This article draws on the insights gained from the workshops, interviews with key informants and close dialogue with people working in three main areas: the heritage sector; public and private sector technology and computer science disciplines; and architecture and planning. In so doing this paper makes three sets of contributions. First, in relation to usable pasts we highlight the role that multiple actors have in the development of usable pasts and argue it is crucial to interrogate their ontological and epistemological orientations to understand the types and methods for producing different forms of usable past. Second, by using the concepts of colliding epistemologies and productive tensions we outline how collisions are possible for individuals and single fields even when philosophical perspectives are aligned. We also illustrate how practical issues such as funding and staffing can be generative of ontological clashes. Finally, we highlight the importance of non-digital technologies – such as the built environment and historical artefacts – in the production of heritage-led immersive experiences. We argue, therefore, that if immersive media and technologies are to be used in the generation of usable pasts critical, conversations need to move beyond operational issues to explore practical challenges in partnership with the philosophical differences which produce different understanding of what usable pasts can or should be, in order for productive relationships to form.

2. Usable Pasts

2.1 Origins of Usable Past Concept

On the surface, a usable past seems a straightforward concept. Ashton and Kean (2009, 4) neatly define it as “thinking about the past in the present”. But the concept has a long and contested history. Writing in 1918, Van Wyck Brooks argues:

“The past is an inexhaustible storehouse of apt attitudes and adaptable ideals; it opens of itself at the touch of desire; it yields up, now this treasure, now that, to anyone who comes to it armed with a capacity for personal choices.” (Van Wyck Brooks [1918] cited in Brookes and Sprague [1993])

Despite the democratising tenor of Brooks’ statement, debate about who has the right to define and use the past, and for what purposes, has preoccupied scholars for decades. As a discipline, history has made the greatest claim for stewardship of the past, leading to libraries of debate. There is not enough space to go into these debates here (for a fuller discussion see Jenkins [2003]; Jordanova [2011]), so instead we focus on the emergence of the concept of a usable past as a framework which allows the construction of narratives and experiences which facilitate engagement with heritages on a personal level. In so doing we highlight the need for an understanding of the range of actors involved in the production of usable pasts.

An overriding theme in the discussion of usable pasts has been their framing around a dichotomy between academic (or professional) historians and people who are not academic (or professional) historians. For Kean and Ashton (2009, 178), the non-academics are “those involved in community, local and family history projects”, while Becker (1935, 247) refers to them as ‘Mr Everyman’ (sic) or “informal historian[s]”. In constructing such a division between professional historians and publics there is a perception that history is simplified for/by the latter. This is borne out in Becker’s definition of history for publics which moves from history as “the knowledge of events that have occurred in the past” to “the memory of things said and done” (Becker 1935, 235). His redefinition is the result of a series of deliberate conceptual shifts that enrolls everyone in the process of history-making and using histories. Becker stated that by taking history away from academic historians and giving it to everyone, he has reduced it to its lowest terms and echoes Van Wyck Brooks’ democratising ethos. However, invoking a hierarchy of high and low history does not do away with the dichotomy between those trained to produce knowledge of the past and those who use it in their everyday lives, but instead reinforces a power dynamic between the two groups. As Samuel (1996) has argued, there is an assumption that professionals produce robust academic analyses of historical events which filters down to other scholars of lesser standing (even within historical subjects¹) and then the public.

¹ Samuel identifies the diminishment of biographers, antiquarians, local historians and collectors of oral histories by some historians.

Rosenzweig and Thelen's (1998) research extends work on usable pasts. Together with a team of researchers and collaborators, they undertook and analysed 1,453 interviews with Americans about their relationship with history. Their work goes beyond Becker's abstract theorisation of 'Mr Everyman' to illustrate rich examples of the use of the past through intimate, individual and familial stories that are mobilised in the everyday lives of Americans as they reflected on the past, present and future, undertook hobbies, and told stories. Echoing Becker, Rosenzweig and Thelen highlight the difference between history found in books and a usable past as "pervasive, a natural part of everyday life" (1998, 9). Their book was a prompted further work (for example, Conrad et al. 2013; Ashton 2010) for some professional historians to acknowledge their shortcomings. For example, Gardner (2004, 14), when associate director of curatorial affairs at the National Museum of American History, acknowledged that:

"when we're exploring 'the people's history,' we remain largely isolated, self-referential, writing for and talking to one another. Our training as historians has not prepared us to address the tensions between our understanding of the past and the public's, between scholarly integrity and our responsibilities to the public."

But even in acknowledging the gap between professional and public histories, the dichotomy is reproduced through the very nature of 'us and them'. The History Workshop project is an attempt to avoid this dualism in the creation and understanding of usable pasts. The History Workshop project has the aim to give "detailed attention to the lives of working people, with Ruskin [College] students and 'amateur' historians from outside the college playing an active role in the production of the Workshops" (Iles and Roberts 2012, np). For Ashton and Kean (2009, 1), such an approach is based on the idea that people "are active agents in creating histories" and therefore the past should not be owned by particular groups or disciplines. This explicitly political project echoes feminist-inspired approaches such as Evans (1983, 235) who, in the face of male-dominated historical narratives, asserted "women have always been agents and creators of history". In an attempt to move away from the dichotomy outlined above, Kean argues for an emphasis on the process of making usable pasts that demystifies what historians do and emphasises the potential of collaborative work between publics and historians. Scholars from the History Workshop have produced important, ground-breaking work such as Anna Davin's work on feminist histories (Davin 1978, 1997) and Raphael Samuel's research on working class histories (Samuel 1996, 2016). In so doing they enrol new actors into the production of usable pasts. In *Theatres of Memory* Samuel outlines an extensive rollcall of 'invisible hands' who shape history including, but not limited to librarians, collectors, novelists, television producers, artists and archivists (1996, 17-39). Similarly, the early work of the Annales school – who also sought to promote 'history from below' - championed interdisciplinarity, arguing for collaborations between history and "geography, sociology, psychology, economics, linguistics, social anthropology and so on" (Burke 2015, 2). These invisible hands do good work to help create usable pasts but as Griffin's (2018) examination of two archives in Glasgow, UK reveals, the financial and political pressures placed on personnel tasked with opening up access to resources to publics can limit what is done. His work highlights that usable pasts can be shut off without sufficient, ongoing support for people and institutions "integral to the provision of, and engagement with, diverse social and political histories" (2018,

501). It is important, therefore, that we consider not only how we define usable pasts and consider what might be involved, but also understand the context and constraints within which they work.

2.2 Heritages as Usable Pasts

The brief sketch outlined above provides a useful starting point to understand the origins of the usable pasts concept. Beyond this foundational work in history there exists a rich seam of other scholarship which, although it does not explicitly refer to the concept of usable pasts, relates to this topic. Much of it again privileges history, both as a concept and as a discipline, over other fields which are using the past, and thus limits how usable histories can be. Work from the perspective of heritage, in contrast, attends to a more diverse and multi-disciplinary set of agents involved in the production and use of the past. Moreover, this work highlights the power and politics of using the past contemporaneously.

Heritage is a usable past, as it is something by its very nature that is defined as useful by various actors through their contemporary adoption of it, rather than the study of it. This has led to critique that heritage is of less intellectual worth than history through the process of commodification that supposedly strips away value (Bickford 1981; Hewison 1987). What is key in relation to heritages is that it allows the use of the past by a much broader range of actors. The work of Laurajane Smith (2006) is particularly informative here. In her critique of contemporary uses of heritage, she highlights how particular groups and institutions have (re)produced an ‘authorised heritage discourse’ (AHD) through the invention of heritage. By unpicking this discourse, the politics and power relations infused in the presentation of history and invention of heritage are revealed. Smith argues the Victorians were instrumental to this process and it can be seen through the institutionalisation of history and heritages through, for example, the rise of museums. Victorian museums provided the opportunity for publics to gaze upon what curators and donors decided were the very best endeavours of past societies and the museum acted to propagate the lost values those objects represented (Merriman 1991). This was not only an important shift in public education, but also in terms of who owned and presented heritage. Previously collections of fine artefacts from the past were held by the upper classes, displayed in their country houses and only shown to their peers. But with the advent of public museums more could enjoy the ‘spoils of history’. So, in order to try and enlighten the public about their missing virtues, a ‘sacrifice’ was made in opening up previously private collections to the country. Such a move was seen as epitomising the nascent sense of civic duty by the upper classes (Lowenthal 1998).

Alongside museum professionals and influential donors, the nineteenth and early twentieth centuries saw architecture and archaeology shape and implement legislation designed to protect tangible manifestations of the past through emergent claims of professional knowledge and expertise (Smith, 2006). At the same time, this conservation ethic saw new institutions such as the Society for the Protection of Ancient Buildings (SPAB) (est. 1877) emerge and, together with museums, sought to make use of the past to educate the public about the importance of the country’s heritage and the ideals it embodied (Harvey 2001). In the twentieth century, international charters, the organisations who produced them, and the agents who implemented them can be

added to the list of those influencing the production of usable pasts (Starn 2002). The growth of the heritage industry, what Hewison (1987) identifies as the rise of organisations involved simultaneously with the preservation and sale of heritage, adds still more agents to the list of disciplines and professions.

Smith's (2006) work is important not for simply revealing who was involved in the (re)production of an authorised heritage discourse, but for highlighting who it excludes. Working class, female, LGBTQ+, indigenous and BAME heritages are at best marginalised and at worst dismissed, destroyed and lost to future generations. The politics of the AHD are deeply ingrained in school curricula, media discourses and public imaginations with damaging effects. But as projects such as *Colonial Countryside* (Fowler, Whitehead, and Everett 2018), Miranda Kaufmann's (2017) work on Africans living in Tudor England and Priyamvada Gopal's (2004) research on subaltern histories attests, other heritages exist if only the stories are told. Smith and these authors draw on critical realist and constructivist ontologies, acknowledging the construction of knowledges is a plural, contested and dynamic process wrought with politics. As we illustrate below, such approaches collide with more positivist philosophy which limit the plurality, and therefore viability of usable pasts.

In the telling and consuming of usable pasts, it is important to consider the role different media forms play and the actors involved in their production and circulation. Samuel (1996) and Rosenzweig and Thelen (1998), for example, highlight the important role of television, film and radio in shaping people's perceptions of usable pasts, while Sobchack (1996) argues that audiences see themselves participants and adjudicators of history. Echoing this, de Groot (2016, 5) suggests that "film, TV, documentary, fiction, games, hobbies, museums and the like all have a contribution to make to a historical imaginary...but further, [they] enable a historiographical imaginary (they contribute to an understanding of how 'history' itself is construed)". Bell and Gray (2007) contend that the best way to present pasts on television or in museums is to do so in a 'mindful' way. They draw on Moscardo's (1996) work and their own research with historians engaged with television documentaries, to differentiate between mindful engagement with audiences, characterised by empowering the individual to make their own interpretations, and 'mindless' engagement where a single narrative is presented as optimal. The latter, Bell and Gray suggest, reproduces the power asymmetries seen in Victorian museums, where audiences are conceived as passive and in need of education about the right version of history through authoritative voices of so-called experts.

Virtual, augmented and mixed reality technologies and the experiences they create are the latest media forms through which historical narratives can be told. Heritage venues are adopting immersive technologies to allow visitors to explore their collections. These technologies provide the potential for producing and experiencing usable pasts in new and exciting ways. It is important, therefore, that the potentialities of such technologies are understood. To do so, we need to consider the medium, but also the actors involved in the design and use of immersive technologies, as well as how the narratives of the past are presented through them. The rest of this article begins to make a contribution to this work through an examination of how ideas for heritage-led immersive experiences were generated as part of our Memoryscapes research project.

3. Project details and Methodology

Memoryscapes was a project initially funded through the AHRC-EPSRC's 'immersive experiences' call. The aims of the funding scheme were to allow interdisciplinary teams of academics and partners from the cultural and creative industries to "create new knowledge and address major challenges for the development of the next generation of immersive experiences in the areas of...memory, place [and] performance" (AHRC 2017, 3). The funding had a series of other objectives including building partnerships for future proposals, developing ideas for immersive experiences, creating prototypes and to understand the complexities of the intersection of immersive technologies with the themes of memory, place and performance. Our project sought to address these by focusing on potential applications of immersive experiences in two ways. First, to explore how immersive experiences might help re-contextualise and increase access to heritages by bringing them out of museums, galleries and archives and presenting them in new ways and in new locations. Second, to reimagine and reinvigorate public spaces by contributing to their character and identity using heritage-led immersive experiences. To do this we worked with two non-academic research partners: Tyne and Wear Archives and Museums (TWAM) (a museum, art gallery and archives service who operate nine museums, support 50 more and manage the region's archives) and FaulknerBrown Architects (a Newcastle-upon-Tyne-based architectural practice). The project aims and choice of partners reflects the range of perspectives the project team brings to the project with researchers from human geography, English literature, computer science and architecture.

Our project's main output was a methodology for the development of heritage-led immersive experiences for public spaces that could be used by people and organisations involved in the heritage sector; planners, architects and those working in regeneration; creative industries; and digital technology providers. The first phase of our work involved interviews (n=7) and close dialogue (Clark 1998) with key informants from the fields above and desk-based research to understand the 'start-of-the-art' of immersive technologies, heritage and regeneration. The second phase brought together actors from these areas for a scoping workshop to explore the opportunities and constraints of combining heritage, immersive tech and urban development. The findings of this workshop informed the development of 'ideation' workshops designed to generate ideas for heritage-led immersive experiences within the built environment. We ran six of these workshops with 77 participants which included the three main stakeholder groups from the scoping workshop, plus groups of retired people, cultural and creative practitioners, academics, postgraduate students and policymakers. We also undertook adapted versions of the ideation workshops with 50 school children (aged 11-18). Evaluation sheets were used to collect ideas from participants and members of the research team recorded notes of the groups' discussions. As well as 32 ideas these workshops generated, they also helped us understand more about the opportunities and constraints for the technologies, actors and organisations involved in creating immersive experiences, as well as what might work and what might not work. Moreover, they helped us better understand the approaches taken by different actors developing usable pasts.

The data and insights presented in the next section are based on all three phases of the research. From the six main ideation workshops 32 evaluation sheets were generated outlining designs for immersive heritage experiences. Ideas included turning a pedestrian tunnel into a digital bookcase with interactive screens, projections of historical figures telling stories, soundscapes and lighting to change the mood; using telephone boxes as sites for interactive projections and holograms that allow viewers to dress avatars of themselves in clothing from different periods of history; and city-wide treasure hunts using QR codes and image recognition to make street furniture waypoints where interaction occurred. These, together with the interviews and notes made during the workshops were transcribed and coded using a deductive approach applying the themes identified in the first phase.

The ideas documented in the evaluation sheets, plus others recorded as part of our observations, were not straightforwardly generated. They are the outcomes of discussion and iteration in the workshops. As we discuss below, they are borne of productive tensions between participants from different disciplines with their own epistemological and ontological traditions which we observed colliding. In some cases the collisions led to the end of ideas, in others they were crucial to help seeds of ideas germinate and bloom.

4. Colliding Epistemologies and Productive Tensions

Reflecting the range of approaches highlighted above, throughout all the phases of our project it was clear actors were approaching the design of heritage-led immersive experiences from very different ontological and epistemological perspectives reflective of disciplinary and practice orientations. In section five we unpick these differences and to frame this we adopt the concept of colliding epistemologies and productive tensions as used by Brown and Knopp (2008) in their work on mapping LGBTQ+ spaces. This section outlines their work.

Brown and Knopp (2008) were part of a project to create a map highlighting sites of significance for the LGBTQ+ communities in Seattle, USA. The authors explored how using geographical information science (GIS) and digital design tools to make maps of queer histories creates tensions between the post-structuralist influenced ontologies of queer theory and “almost life-like forms of positivism, realism, pragmatism, and Cartesian rationality” which infuse GIS and related technologies (Brown and Knopp 2008, 48; see also Schuurman and Pratt, 2002). Brown and Knopp provide a processual account of tensions that manifest in a number of ways: whether to adopt an inductive or deductive approach; what counted as significant places that should be included; and how to combine processes of coding data for cartographic use with “issues of memory, negotiation, trust, and serendipity” (2008, 48). Brown and Knopp were particularly concerned with representing the unrepresentable: how to depict hybrid pasts, connectivity and interlacing scales of significance. They and their project partners took a practical approach and conceived these issues as ‘productive tensions’ which could be solved, albeit in explicitly partial ways. This partiality is not presented as a problem but seen as a way to prompt discussion about what is included and what is not, and something which prompted “map viewers and critics

interact[ing] with [it to] discuss the map” (Brown and Knopp 2008, 53). This understanding of maps makes them post-representational (Kitchin and Dodge 2007), ‘writerly texts’ for users to construct anew each time they are mobilised (Pickles 2012), places in which to dwell (Rossetto 2012), and prompts users to reshape their use of spaces represented by maps (Palmer and Lester 2013; Swords and Jeffries 2015). The idea of maps being writerly texts parallels Bell and Grey’s (2007) argument for mindful approaches to presenting the past. Applying the idea of colliding epistemologies to their work highlighted above, we can understand an epistemological tension between concepts of knowledge as the property of experts orating authorised pasts, versus participants ‘who want to know’ and can take ownership of pasts through their own experiences.

Influenced by Brown and Knopp, in the next section we take a processual approach to explore the productive tensions borne of colliding epistemologies which were revealed through our research. But Brown and Knopp’s work, and related thinking about cartographic representations, is informative in other ways. First, the map Brown and Knopp (2008) helped create is an artefact of usable pasts. Importantly, the authors state that unlike many forms of countermapping and participatory GIS, the map is not produced in opposition to anything, rather it is “identity-oriented groups producing cartographies for their own sake...a material artifact that boldly represented space, place, and spatial relations, but was also open, plural, equivocal, and tentative” (2008, 44). The final part of this quote is a useful way to think about what heritage-led immersive experiences can and cannot be. Heritage is increasingly acknowledged as plural, contested and open to interpretation (Waterton 2005; Smith 2006; Ashworth, Graham, and Tunbridge 2007) and thus usable pasts should be similarly aligned and recognised as partial. There are also parallels with the types of pasts included in the Brown and Knopp maps with the work outlined in Section 2: it is personal and intimate pasts signified through places used on an everyday basis which are included, rather than the monumentality of official national histories.

5. Colliding Epistemologies and Productive Tensions in the Generation of Memoryscapes

Drawing on the data collection outlined above, four themes emerged which this section explores. In so doing, we highlight the epistemological differences between different groups of participants and some of the cross-sector learning we observed as an outcome of these productive tensions.

5.1 Virtual Reality as a Solution

One of the underlying principles in the design of our methodology was to avoid what (Mattern)(2013) refers to as instrumental rationality and what Morozov (2013) calls ‘solutionism’. This is the approach which dominates technology-led interventions and recasts “all complex social situations either as neatly defined problems with definite, computable solutions...that can be easily optimized if only the right algorithms are in place” (Morozov 2013, 24). It is typified by the ‘there’s an app for that’ response to questions about how to do something laborious or time consuming. This ethos, however, starts with a solution before properly understanding the problem which it might solve and frequently there is a misalignment between the two. This is not only inefficient, but such an approach does not explore, and therefore cannot offer robust answers to, complex

problems. Born out of positivist approaches in computer science, solutionism can reinforce established problems and have (un)intended yet serious negative consequences through translation processes of quantification, datafication and visualisation essential to building computer software, algorithms or other socio-technical devices (Amoore and Hall 2009; Bucher 2018; Leszczynski 2016; Obermeyer et al. 2019; Swords 2018).

Although it was not frequent, we repeatedly saw evidence of solutionism in workshops. It was typified by a “just VR it” or “we’ve got the technology, just give us the content” responses from technologists. For some participants this was a shorthand, but for others it betrayed a lack of understanding of the complexities involved in understanding and using heritage. In contrast, heritage professionals’ training and experience made them aware of such complexities, as well as the huge potential of immersive technologies with many having evaluated their uses within museum contexts.

In relation to what heritage-led immersive experiences might deliver, participants identified a collision between, on the one hand, the plural, contested and partial nature of heritage and, on the other, demand from museum visitors for “attractive, complete, storied objects” (Curator X, interview). This demand for the latter left little room for nuanced and cautious explanation of what *might* have happened in the past and helps explain the exhibition of certain kinds of histories presented through authorized heritage discourses in UK museums, despite efforts to provide, amongst others, working class, BAME and personal histories. It also highlights the difficulty in producing writerly or mindful pasts, for if an historical narrative is presented as complete, it limits opportunities for a visitor to add their own interpretation. Heritage professionals suggested this was exacerbated with the creation of virtual environments experienced through interactive screens, but particularly headsets, for a series of reasons. First, while virtual environments provide the opportunity for users to explore inaccessible landscapes, buildings, monuments and objects with additional layers of information, the application of the technology often creates a passive experience where the user is simply looking around, seeing the reproduction of particular gazes in what Larsen (2018) refers to as a catatonic state. One participant suggested this is the result of technology advancing faster than the development of new visual languages for virtual environments. He suggested many visually-focused virtual experiences rely on the same tropes and techniques developed for film and the translation into immersive experiences needs further consideration. Until this problem is resolved there is a danger immersive experiences remain passive, reproducing the gaze of the curator and unable to become mindful, writerly texts or post-representational (Bell and Grey, 2007; Pickles, 2004; Kitchin and Dodge, 2007).

5.2 Practical Issues

These narrative and aesthetic issues were accompanied by practical problems which applied to immersive technologies and using digital products more generally. The cost, time and expertise needed to design, or just help design immersive experiences for usable pasts were regular issues highlighted by participants. Where there was the capacity to do this, it often came from short term funding, meaning the sustainability was always in question. This is compounded by a relatively

high turnover of staff as a result of funding cuts as part of UK government austerity. This echoes problems highlighted by Griffin (2018) in his examination of archivists struggling to make usable pasts available in the face of limited funding.

Sustainability was also an issue in relation to the robustness of the technology where hundreds of people may be using it every day or week leading to breakages and the unwanted sight of ‘out of order’ signs in exhibits. For experiences outside museums in city centres, harsher environmental conditions compound this issue. Further, heritage professionals highlighted the problem of how quickly some devices and software become redundant with resultant loss of customer support, software upgrades and patches. An internal epistemological and ideological collision can be identified here with heritage professionals wanting to use technologies to enable better access to collections, the realities of relatively short technology life spans and the preservation ethic of museums and their staff. A curator discussed the dissonance of working hard to ensure the practice of archiving and preserving artefacts was maintained in the face of funding and staff cuts, while seeing relatively expensive touch screens frequently out of order. Heritage professionals were enthusiastic about the idea of immersive exhibits in city centres, but were realistic about the needs for a change in funding regime before they could be developed and sustained successfully.

Technology-focused participants offered potential ways to navigate these issues by using innovative digitizing technologies which could simultaneously save time for curators and keepers of history and widen access to collections by putting them online. Heritage professionals were keen on these solutions and TWAM have a successful collections search tool which enables shallow and deep ‘dives’ into part of their collections. TWAM’s new search tool was the result of collaborating with Microsoft and participants appreciated what technology companies can offer: “I don’t think the interface is perfect yet...there is more that could be done with it but the important thing is we’ve changed the concept of how we think about our collections” (Heritage professional A – interview). But participants, again, underlined time, cost and staffing issues when there is not the funding or opportunity to partner with a global company like Microsoft. In addition, heritage participants highlighted a lack of knowledge of the mission of heritage organisations and the capacity they have. A curator recalled a conversation with a business interested in helping to provide access to a museum’s collection. The business assumed the museum could just enable access to their collection catalogue which could straightforwardly be mined, searched and potentially commercialized. The curator had to explain that there are parts of the collection which aren’t catalogued and those bits which are catalogued may be recorded with missing data. They gave the example of having many ‘brown shoes’ in the catalogue: items where that was the only information they had. In addition, much of the catalogue is not photographed and where it is, there are issues with copyright and intellectual property rights. Some paintings may have been donated without permission for photographs to be reproduced online and some agreements with photographers limited what could be done with the photographs they took. These examples, then, highlight that practical issues can be generative of ontological clashes. That is to say, there are obstacles which limit what heritage might and can become, even before we consider how disciplinary epistemological differences become a factor.

5.3 Digitisation

In a similar way, there is a debate about the role of digitization and preservation, processes crucial to producing immersive experiences, in creating usable pasts. On social and online media there is a regular mantra of “digitisation is not preservation” from archivists, conservators and other museum workers in response to technocentric claims that digital backups will help save vulnerable heritages. This is often accompanied by a claim heritage professionals are reluctant to adopt new technologies (for example, Dreyfuss 2018). There is a collision here in relation to what preservation means in heritage and web-platform contexts, as (Zhou 2017, online) explains:

“digital conversion makes content digital, but...there are the problems of format reconciliation, checksum, error correction, data storage, and data migration, all of which are critical components of a robust digital preservation operation, whereas by simply storing the digital content and doing nothing else, one will miss all those vital steps.”

Many of these steps apply to content creators and web platforms companies, from which such calls are made, but the techniques for keeping records of written or audio-visual material by a media platform are very different compared to preserving heritages in its various forms. The very nature of much digital content is novelty, where refreshing products and content is central to business models. Moreover, distribution of digital content is based on easy replication of uniform products, whereas the uniqueness of heritage is where its value lies, and copies draw their worth from the existence of an original (Benjamin 1935). It is important this is recognized in the production of digital heritages through immersive experiences. They should be seen as a way to engage with heritage, not replace it. Crucially, heritage practitioners we spoke to recognized this and welcomed the idea of increasing participation with histories by adding their own pasts through digital engagement – perhaps by uploading photographs, diary entries or stories from family to enhance an immersive experience through crowdsourcing. Productively, technology participants offered various ways to do this in workshops. Enabling this could make the experiences more “open, plural, equivocal, and tentative” like the maps Brown and Knopp sought to produce (2008: 44) and less ‘mindless’ where a single narrative is presented as optimal (Moscardo, 1996).

5.4 Immersion?

Mirroring debate in the academic literature, there was repeated discussion during the project about what counts as immersion. Many technologies have been used since the 1980s to generate immersive experiences (Carrozzino and Bergamasco 2010; Cummings and Bailenson 2016; Milgram and Kishino 1994) but Suh and Prophet (2018, 87) conclude there still remains a need for greater understanding of the field. There remains a conceptual elasticity and this was reflected in group discussions at the scoping workshop when participants were asked to define immersion. Responses included immersion through attention and focus; enabling people to do things they cannot in the ‘real world’; altering space and time; and being “out of your head” or creating transcendental experiences. At the same workshop, in ideation workshops and in interviews, productive discussions focused on the ways in which immersion can be created. Two important

themes emerged: digital vs analogue/non-digital technologies and the design of the built environment.

Participants from the technology sector and academics with a computer science background generally favoured digital devices to stimulate immersion. In contrast, heritage professionals and arts practitioners highlighted the potential for non-digital technologies to immerse people in the past:

“I appreciate you can get haptic experiences through digital joysticks with feedback...but actually, that point when you put a 3000-year-old hand axe into somebody’s hand...even the hardest nut is emotionally impacted by that.”

(Heritage professional C – interview)

At times these differences led to collisions. For example, during ideation workshops when groups were generating ideas, technology participants would often provide an example of an exciting technological solution to an issue someone had raised. But it was often challenged by planners and architects who highlighted the difficulties implementing such a solution within a busy shopping street where the buildings are owned by a range of organisations who would need agree on infrastructure changes. These participants, then, helped us and other participants understand the opportunities and constraints for immersive experiences with the built environment which proved especially important to creating ideas which did not involve headsets. There was consensus that VR headsets were inappropriate for a public setting due to the practicalities of maintaining an installation outside and users would feel uncomfortable wearing them surrounded by passers-by. The input from planners and architects also included illustrating how the design of existing elements of the built environment could enhance immersion. For example, lighting in tunnels could be used to catch the eye of passers-by to draw them into an experience or altered to allow for projections to be displayed on the walls. Similarly, use of vegetation and planting regimes could lower noise levels from traffic to allow for soundscapes to be generated, act as background sound as they moved in the wind or provide smellscape to enhance projection or screen-based augmented reality experiences.

These participants also shared knowledge of human behaviour within the built environment. For example, understanding how to change the amount of time people dwell in spaces to enable longer engagement with an immersive installation. Planners and architects also brought value by highlighting how street furniture has long served multiple uses and this was generative of many ideas from technologists such as phone boxes with cameras and responsive screens people could use to see themselves in other worlds. These approaches would enable immersion not just in the heritage narrative, but also in the environment in which it is presented. Doing so offers the potential for the experience to be linked to places where historical events happened or protagonists lived, reconnecting and recontextualising the heritage from the museum. In so doing the immersion shifts from being with the media and technology, to the place that history was made and it is this area where we are exploring further inquiry.

6. Conclusions

In the previous section we have highlighted how the knowledges and approaches of participants did collide, but as Brown and Knopp (2008) and we have explained, such collisions led to productive tensions which were generative of new learning. This recognition is crucial if immersive media and technologies are to be used in the generation of usable pasts. Moreover, it is critical that conversations move beyond operational issues because, although we have highlighted that practical issues can be generative of obstacles, philosophical differences need to be explored in partnership to enable productive relationships to form. It is not enough for people to remain within their disciplinary silos or they risk re-producing usable pasts which are passive and repeat the exclusionary practices of the past. It should be acknowledged, therefore, that, as Brown and Knopp (2008: 51) highlighted, colliding epistemologies cannot be “smoothly reconciled nor solved” and nor should that be the aim. The aim should be to appreciate the knowledge and experience that different groups of stakeholders can bring to a project. This was the approach adopted in the everyday operation of the project amongst the team of researchers from disparate subject areas (human geography, English literature, computer science and architecture). We learned much from each other, but there was much translation of discipline-specific language and approaches required to execute what we believe was a productive research project.

In exploring this empirical case study we have made three further contributions. First, in relation to usable pasts we have sought to highlight that multiple actors are involved in their generation and it is crucial to interrogate their ontological and epistemological orientations to understand the types and methods for producing different forms of usable past. Doing so is especially important as new ways of generating, distributing and exhibiting usable pasts are enabled with immersive media and technologies. As participants highlighted, there is huge potential for new kinds of heritage-led immersive experiences, but there are dangers narrow, partial and exclusionary pasts will be created unless practitioners from beyond heritage fields appreciate critical approaches to the past.

Second, in mobilising the ideas of colliding epistemologies and productive tensions through this case study we have highlighted how collisions are possible for individuals and single fields. Such internal epistemological collisions are born of dissonance between traditional practice and external challenges from visitor/customer demands and new in technological potentialities. Unmanaged, such internal collisions could be generative of cognitive and professional dissonances that do not produce the kind of productive outputs explained above and elsewhere (Brown and Knopp 2008). In addition, we have highlighted how practical issues can be generative of ontological clashes: obstacles which limit what usable pasts might be, even before considering disciplinary epistemological differences. Thus, it is important to take into account wider contexts which shape the negotiation of different epistemologies. Indeed, it is possible when divergent epistemologies can be aligned, there might be normative factors influencing collisions.

Our final contribution relates to debates about immersive experiences. In the policy and commercial discourse surrounding the growth of immersive media and technologies, a great deal

of emphasis is placed on the digital. Development tools, content, distribution streams and devices are predominantly digital, but the insights from heritage professionals, planners and architects about the importance of non-digital technologies helps us consider immersive experiences beyond the digital. This shift is important because when designing immersive experience in urban environments, there are greater constraints on the kinds of technologies which will work to produce effective engagement. Moreover, considering non-digital technologies and artefacts from the start of the design process acknowledges the need to include stakeholders with a range of expertise. Doing so allows for the stimulation of productive tensions and therefore helps produce more inclusive, sustainable and engaging heritage-led immersive experiences.

Acknowledgements

We would like to acknowledge the support of our funders the AHRC and EPSRC (project number AH/R010137/1). Our partners Tyne and Wear Archives and Museums and FaulknerBrowns Architects provided incredible insight and support from the inception of the project, through to its development and execution. Thanks to Paul Griffin for literature suggestions. Finally, we'd like to thank the participants who gave up their time to take part in interviews and workshops. Without their innovative and enthusiastic engagement the research would not have been possible.

- AHRC. 2019. "Highlight Notice: Follow-on Funding in Research and Partnership Development for the Next Generation of Immersive Experiences." Accessed 1 June, 2019. <https://ahrc.ukri.org/funding/apply-for-funding/archived-opportunities/follow-on-funding-in-research-and-partnership-development-for-the-next-generation-of-immersive-experiences/>.
- Amoore, Louise, and Alexandra Hall. 2009. "Taking People Apart: Digitised Dissection and the Body at the Border." *Environment and Planning D: Society and Space* 27 (3):444-64. doi: 10.1068/d1208.
- Ashton, P. 2010. *History at the Crossroads: Australians and the Past*: Halstead Press.
- Ashton, P., and H. Kean. 2009. *People and their Pasts: Public History Today*: Palgrave Macmillan UK.
- Ashworth, G.J., B.J. Graham, and J.E. Tunbridge. 2007. *Pluralising pasts: heritage, identity and place in multicultural societies*: Pluto Press.
- Becker, Carl L. 1935. "Everyman his own historian: Essays on history and politics. New York: Appleton-Century-Crofts." In.: Inc.
- Bell, Erin, and Ann Gray. 2007. "History on television: Charisma, narrative and knowledge." *European Journal of Cultural Studies* 10 (1):113-33. doi: 10.1177/1367549407072973.
- Benjamin, W. 1935. *The Work of Art in the Age of Mechanical Reproduction*: Penguin Books Limited.
- Bickford, Anne. 1981. "The Patina of Nostalgia." *Australian Archaeology* (13):1-7.
- Brooks, V.W., and C. Sprague. 1993. *Van Wyck Brooks, the early years: a selection from his works, 1908-1925*: Northeastern University Press.
- Brown, Michael, and Larry Knopp. 2008. "Queering the Map: The Productive Tensions of Colliding Epistemologies." *Annals of the Association of American Geographers* 98 (1):40-58. doi: 10.1080/00045600701734042.
- Bucher, T. 2018. *If...then - algorithmic power and politics*. Oxford: Oxford University Press.

- Burke, P. 2015. *The French Historical Revolution: The Annales School 1929 - 2014*: Wiley.
- Carrozzino, Marcello, and Massimo Bergamasco. 2010. "Beyond virtual museums: Experiencing immersive virtual reality in real museums." *Journal of Cultural Heritage* 11 (4):452-8. doi: <https://doi.org/10.1016/j.culher.2010.04.001>.
- Clark, Gordon L. 1998. "Stylized Facts and Close Dialogue: Methodology in Economic Geography." *Annals of the Association of American Geographers* 88 (1):73-87. doi: 10.1111/1467-8306.00085.
- Conrad, M., K. Ercikan, G. Friesen, J. Létourneau, D. Muise, D. Northrup, and P. Seixas. 2013. *Canadians and Their Pasts*: University of Toronto Press.
- Cummings, James J., and Jeremy N. Bailenson. 2016. "How Immersive Is Enough? A Meta-Analysis of the Effect of Immersive Technology on User Presence." *Media Psychology* 19 (2):272-309. doi: 10.1080/15213269.2015.1015740.
- Davin, Anna. 1978. "Imperialism and Motherhood." *History Workshop* (5):9-65.
- . 1997. "Historical Masculinities: Regulation, Fantasy and Empire." *Gender & History* 9 (1):135-8. doi: 10.1111/1468-0424.00048.
- de Groot, J. 2016. *Consuming History: Historians and Heritage in Contemporary Popular Culture*: Taylor & Francis.
- Dreyfuss, E. 2019. "Brazil's Museum Fire Proves Cultural Memory Needs a Digital Backup." Accessed 1 June, 2019. <https://www.wired.com/story/brazil-museum-fire-digital-archives/>.
- Evans, S.M. 1983. "Toward a usable past - Feminism as history and politics." *Minnesota History Magazine* 48 (6):230-5.
- Fowler, C., H. Whitehead, and N. Everett. 2019. "Colonial Countryside." Accessed 30 June, 2019. <https://www2.le.ac.uk/departments/english/creativewriting/centre/colonial-countryside-project>.
- Gardner, James B. 2004. "Contested Terrain: History, Museums, and the Public." *The Public Historian* 26 (4):11-21. doi: 10.1525/tph.2004.26.4.11.
- Gopal, Priyamvada. 2004. "Reading subaltern history." In *The Cambridge Companion to Postcolonial Literary Studies*, edited by Neil Lazarus, 139-61. Cambridge: Cambridge University Press.
- Griffin, Paul. 2018. "Making usable pasts: Collaboration, labour and activism in the archive." *Area* 50 (4):501-8. doi: 10.1111/area.12384.
- Harvey, David C. 2001. "Heritage Pasts and Heritage Presents: temporality, meaning and the scope of heritage studies." *International Journal of Heritage Studies* 7 (4):319-38. doi: 10.1080/13581650120105534.
- Hewison, Robert. 1987. *The Heritage Industry Britain in a Climate of Decline*.
- Iles, A, and T Roberts. 2012. *All knees and elbows of susceptibility and refusal: Reading history from below*. Glasgow: Transmission Gallery.
- Jenkins, K. 2003. *Rethinking History*: Taylor & Francis.
- Jordanova, Ludmilla. 2011. "What's in a Name? Historians and Theory*." *The English Historical Review* CXXVI (523):1456-77. doi: 10.1093/ehr/cer315.
- Kaufmann, M. 2017. *Black Tudors: The Untold Story*: Oneworld Publications.
- Kitchin, Rob, and Martin Dodge. 2007. "Rethinking maps." *Progress in Human Geography* 31 (3):331-44. doi: 10.1177/0309132507077082.
- Larsen, Mads. 2018. "Virtual sidekick: Second-person POV in narrative VR." *Journal of Screenwriting* 9 (1):73-83. doi: 10.1386/josc.9.1.73_1.

- Leszczynski, Agnieszka. 2016. "Speculative futures: Cities, data, and governance beyond smart urbanism." *Environment and Planning A: Economy and Space* 48 (9):1691-708. doi: 10.1177/0308518X16651445.
- Lowenthal, D. 1998. *The Heritage Crusade and the Spoils of History*: Cambridge University Press.
- Mattern, S. 2013. "Methodolatry and the art of measure: the new wave of urban data science." *Places* (November):Online.
- Merriman, N. 1991. *Beyond the Glass Case: The Past, the Heritage and the Public*: Taylor & Francis.
- Milgram, P, and F Kishino. 1994. "A Taxonomy of Mixed Reality Visual Displays." *IEICE TRANSACTIONS* E77-D (12):1321-9.
- Morozov, E. 2013. *To Save Everything, Click Here: The Folly of Technological Solutionism*: PublicAffairs.
- Moscardo, Gianna. 1996. "Mindful visitors: Heritage and tourism." *Annals of Tourism Research* 23 (2):376-97. doi: [https://doi.org/10.1016/0160-7383\(95\)00068-2](https://doi.org/10.1016/0160-7383(95)00068-2).
- Obermeyer, Ziad, Brian Powers, Christine Vogeli, and Sendhil Mullainathan. 2019. "Dissecting racial bias in an algorithm used to manage the health of populations." *Science* 366 (6464):447. doi: 10.1126/science.aax2342.
- Palmer, C, and J Lester. 2013. "Maps, Mapping and Materiality: Navigating London." In *Mediating the Tourist Experience - From Brochures to Virtual Encounters*, edited by C. Scarles, 237-54. London: Routledge.
- Pickles, J. 2012. *A History of Spaces: Cartographic Reason, Mapping and the Geo-Coded World*: Taylor & Francis.
- Rosenzweig, R., and D. Thelen. 1998. *The Presence of the Past: Popular Uses of History in American Life*: Columbia University Press.
- Rossetto, Tania. 2012. "Embodying the Map: Tourism Practices in Berlin." *Tourist Studies* 12 (1):28-51. doi: 10.1177/1468797612444192.
- Samuel, R. 1996. *Theatres of Memory: Past and present in contemporary culture*: Verso.
- . 2016. *People's History and Socialist Theory (Routledge Revivals)*: Taylor & Francis.
- Schuurman, Nadine, and Geraldine Pratt. 2002. "Care of the Subject: Feminism and Critiques of GIS." *Gender, Place & Culture* 9 (3):291-9. doi: 10.1080/0966369022000003905.
- Smith, L. 2006. *Uses of Heritage*: Taylor & Francis.
- Sobchack, V.C. 1996. *The Persistence of History: Cinema, Television, and the Modern Event*: Routledge.
- Starn, Randolph. 2002. "Authenticity and historic preservation: towards an authentic history." *History of the Human Sciences* 15 (1):1-16. doi: 10.1177/0952695102015001070.
- Suh, Ayoung, and Jane Prophet. 2018. "The state of immersive technology research: A literature analysis." *Computers in Human Behavior* 86:77-90. doi: <https://doi.org/10.1016/j.chb.2018.04.019>.
- Swords, Jon. 2018. "Interpenetration and intermediation of crowd-patronage platforms." *Information, Communication & Society*:1-16. doi: 10.1080/1369118X.2018.1521455.
- Swords, Jon, and Michael Jeffries. 2015. "Tracing postrepresentational visions of the city: representing the unrepresentable Skateworlds of Tyneside." *Environment and Planning A: Economy and Space* 47 (6):1313-31. doi: 10.1177/0308518X15594906.
- Waterton, Emma. 2005. "Whose Sense of Place? Reconciling Archaeological Perspectives with Community Values: Cultural Landscapes in England." *International Journal of Heritage Studies* 11 (4):309-25. doi: 10.1080/13527250500235591.

Zhou, P. 2019. "Digitization Is Not Digital Preservation." Accessed 1 June, 2019.
[https://www.dpconline.org/blog/idpd/digitization-is-not-digital-preservation.](https://www.dpconline.org/blog/idpd/digitization-is-not-digital-preservation)