Telling difficult stories: VR, storytelling and active audience engagement in heritage sites and museums

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Abstract:

The emergence of heritage science as an interdisciplinary field of studies over the past couple of decades coincided with a surge of research into audience engagement, politics of display, storytelling and co-creation Arguably, what remains missing is a study that brings these two hitherto largely distinct fields of studies together. This article focuses on storytelling as a narrative device to increase audience engagement with displays and exhibits, and proposes that by using VR, museums in fact create an 'other space', a heterotopia which is especially suited to engaging viewers with difficult stories. The article explores one case study, that of 'The Eye as Witness: Recording the Holocaust' travelling exhibition, as a project that has been purposefully designed by a regional, budget-strapped UK museum that is rethinking its storytelling strategy. By drawing on a collaborative approach that brings together experts from museums and universities, and by harnessing the potential of interactive digital technologies, in

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particular VR, as an integral part of its design, 'The Eye as Witness' brings together traditional and innovative ways of audience engagement. The aim? To shift the focus of the museum experience away from being object-based and instead making it experience-focused.

Keywords:

digital museum, digital heritage, virtual reality, storytelling, audience engagement.

1. Introduction:

Storytelling, and in particular, storytelling that actively engages the viewer in immersing themselves in the narratives- especially if these narratives are challenging previously held conceptions, can be a powerful way of creating audience engagement. In its widest possible definition, 'audience engagement' has become an umbrella term that focusses on audience behaviour where, say, the visitor to a heritage site, spends time reading wall text, then they might stop and look at a particular exhibit or engage with an interactive kiosk. Outside the actual physical estate of the site, there might be engagement with the cultural site on social media channels. Audience Engagement at its most inclusive level covers any activity where the visitor engages with a display beyond just a walk through. It is understood that we need to spend more time reflecting on what is actually captured under the umbrella term 'audience engagement'. In

particular, we need to be clearer on how to measure successful audience engagement in the first place, but the baseline of this article follows the assumption that increasing audience engagement is a desirable aim for any museum and cultural institution in the twenty-first century. In fact, 'the right of access to, and enjoyment of cultural heritage' is actively promoted by the United Nations Human Rights Commission as of particular significance for the identity and development processes for both individuals and communities (Shaheed, 2011). Nina Simon coined the term of the 'participatory museum' and in her eponymous study she highlighted a shift away from the museum as a static repository of expert-generated-content and as authoritative single voice of instruction, towards a site for audience-generated content with a very different social feel (Simon 2010). Simon's study, with its focus on methods of display, encouraged cultural heritage sites to reconsider how the space and design of museum buildings and the exhibits contained within become themselves sites for contestation of meaning, and crucially, their space for increased audience engagement. One very common response to this challenge has been to harness new technologies to update and replace existing interactive displays (where they were already used) or to introduce interactivity where this had been hitherto absent. One particular trend has been the introduction of Virtual Reality (VR) displays, where most commonly visitors wear a headset that allows them to enter into an immersive space.

This chapter examines the way in which 'The Eye as Witness-Recording the Holocaust' travelling exhibition developed by a project team at The National Holocaust Centre & Museum (NHCM) Newark (Nottinghamshire, UK, used VR not as an add-on

but as an integral part of the conception and design of the exhibition, suggesting a new and sustainable approach to exhibition design. The VR element of the exhibition was an integral part of the exhibition planning from its conception and has been specifically used as a significant storytelling device. The VR element is integrated into the overall experience of the exhibition, aiming to challenge viewers to take a new look at seemingly familiar images of the Holocaust by entering into a hypothetical best guess (virtual) recreation of the historical time and place of the taking of the original photograph. The viewer is placed in the position of the witness of this moment, which means a necessarily more active role as viewer/participant than when faced with a traditional photograph on its own.

Some major museums and galleries, notably The Metropolitan Museum New York (The Met 360, 2017), The Tate (Modigliani *Atelier Ochre*, 2018), and The Louvre (Leonardo da Vinci, 2019) have long pioneered the use of VR projects as a means of enhancing and augmenting a visitor's experience of an exhibition. The Met, The Tate and The Louvre though are major institutions that invested heavily into these blockbuster showcase events but the resources required to do this, by outsourcing substantial projects, the cost and range of these projects, have until now put them beyond the reach of most museums and heritage sites (Mekele et al., 2018). What has changed though is that as the technology for integrating Augmented Reality, Virtual Reality and Mixed Reality has become more accessible to a wider range of institutions, the debate needs to shift and reflect on 'how' these technologies are being used for the greatest audience engagement impact. As a storytelling device has come within reach

of a much wider range of cultural heritage sites, how can you have the greatest impact?

The NHCM's adoption of VR as an integral part of the storytelling of its travelling exhibition 'The Eye as Witness' shows a regional museum venturing into the VR arena, and arguably offers a case study for exploring the storytelling potential of VR. The exhibition also marks an attempt at bridging the gaps between heritage science and museum studies, potentially heralding a new phase of interdisciplinary collaboration between these two fields. Carefully designed and conceptually integrated VR, digital technology that stands at the beginning of the design of an exhibition and is not added as an afterthought, might in fact allow a much wider range of museums and cultural heritage sites to engage with 'difficult' and even controversial narratives. It also suggests the potential for rethinking the skills needed for a curatorial team, and suggests that we are a long way off yet from understanding and tapping into the role digital heritage can play in furthering audience engagement. Of course, the widespread adoption of VR for travelling exhibitions for example, also suggests a tantalising glimpse of these exhibitions reaching into non-traditional sites, such as for example shopping malls, bringing audience engagement with cultural heritage into the very spaces where social interactions are increasingly taking place. VR has the potential for breaking down spatial and conceptual boundaries.

2. Background/ Literature Review

Of course, VR has not come out of nowhere but its use follows in the footsteps of the many interactive displays which have long been used by museums as a way to increase audience engagement with their collections, especially in displays aimed at children. One of the best known examples in the UK remains the 1977 'An Exhibition of Ourselves', Human Biology Gallery at the Natural History Museum, London, which pioneered the introduction of levers to push, buttons to press, lights that flashed up to highlight specific parts of an exhibit. These displays may be limited in the options offered to the visitor, but are tactile, playful, accessible to a very wide cross-generational demographic and provide instant feedback to the user, in other words, draw on sound design principles. These displays allowed for repetitive and limited engagement only, and were often quite mechanical, but they remain popular with visitors because at the heart of the interactives is fun. Pushing levers and pressing buttons respond to the clearly recognised value of play and interaction as a means for entertaining visitors (Miles 1986). The next step in their evolution was a recognition that these displays were conceived and delivered as an add-on to wall texts and labels that carried the core information. In other words, the interactives were an add-on to a narrative told through different means, and arguably it is only now that the potential of the interactives to become a key part of the storytelling of a cultural heritage site is being recognised. Technology from VR to touch screen displays, to smart phones, QR codes, websites, apps and social media platforms extends far beyond the physical estate of the museum, effectively creating a digital estate for the sites. How to best look after and exploit this digital estate remains to be seen though, because no

museum has yet demonstrated what a mature digital domain may look like.

Has the most significant transformative factor to impact on the experience of museum visitors over the past couple of decades then been the widespread and ongoing adoption of digital technology? This is explored by the #CultureIsDigital' initiative (launched by the UK Department for Digital, Culture, Media & Sport in 2018), which states that "digital experiences are transforming how audiences engage with culture and are driving new forms of cultural participation and practice […] especially [with regards to] younger audiences. … Audiences are creating, adapting and manipulating as well as appreciating art and culture". What this statement captures is an aspiration towards achieving a mature, nuanced and developed practice of integrating technology into the workings of a museum and heritage site. Because, the paper concedes, "cultural organisations are [only] beginning to harness the potential of digital technology to engage audiences through new formats and mediums and by diversifying their distribution channels" (DCMS 2018). In reality then, there is still comparatively little empirical data that tracks how impactful and transformative he introduction of these technologies to museums and heritage sites has been, given

a) the short time for such technologies to mature and embed themselves (particularly considering this against the accelerating pace of change of the technological hardware and software) and

b) the (as yet) scarcity of scholarly studies on the subject.

In other words, while the potential of technologies to transform audience engagement is clearly acknowledged, what is less clear is what digital maturity in museums might look like and how museums and cultural heritage sites are going to make these technologies work for them. The speed of the digital transformation is currently so rapid, that there is a disconnect between the comparative permanence and stability of a site's on-site, physical display, and the rapid change and seemingly endless permutations of narratives possible through digital means and in social media spaces. Storytelling that bridges the physical and digital estates of a cultural heritage site is therefore emerging as a key consideration for museums' development of their physical and digital presence; the Victoria & Albert Museum (V&A, London) commissioned research into the use of their collections which found that stories were of prime interest to its audience. Their visitors wanted to both "understand the connections objects have with other objects, people and the cultural and societal contexts", at the same time as wanting to tell of their own stories and their own connections to the museum and its collection (Craig 2019). Which narrative is 'correct' and carries authenticity? What stories are being told where and how? How does the museum visitor become a co-creator for the narratives that are visible in the digital and/or physical estate of the museum? These are questions that still go looking for answers but they underline the dynamic nature of the debates in the field and the opportunities for digital technologies to play a major role in re-imagining the narrative landscapes of the modern museum.

3. Methodology

Of course, this raises questions about what the future digital landscape of museums and cultural heritage institutions might actually look like, and how best to get there, a process that may have been accelerated by the least expected of external factors, the onset of the 2020 COVID-19 pandemic. When governments adopted lockdown measures to curb the spread of the virus, many cultural heritage institutions responded by increasing their activities online. The reopening of museums varied depending on local context, from some institutions operating strict social distancing protocols and access only via pre-booked and timed entry slots, to others able to return to the practices in operation before the onset of the Global pandemic. The COVID-19 virus is transmitted by touch, so may have a long-lasting impact on how cultural heritage sites choose to use hands-on interactives going forward.

#CultureIsDigital espouses the ideal of audiences embracing technologies to co-generate content in digitally mature environments, which seems quite a leap from the *status quo*. It does emphasise though the timeliness of taking a snapshot of how digital technology has so far been utilised in cultural heritage sites to better understand where the opportunities for development lie and potentially, which platforms to invest in, for museums which enter the market with budgetary constraints and very little existing infrastructure to build on. Here, focussed user studies still remain scarce, but one recent survey which has looked at issues surrounding both the adoption of digital technology in museums, and has also observed audience interaction with these systems, offers a starting point for thinking about best

practice with regards to digital technology. A team led by Professor Eugene Ch'ng from the University of Nottingham Ningbo (China) studied 22 sites over 15 cities in China and evaluated 800 samples of data, capturing a snapshot of how cultural technology has been embedded (Ch'ng et al., 2018). Maybe surprisingly, given current trends with regards to the adoption of digital technology to aid visitor engagement, Ch'ng's study reveals very low rates of satisfaction with the experience of digital technologies in museums and cultural heritage sites, suggesting that 'only 17.14% respondents felt satisfied with the current installation of multimedia systems' (Liu et al., 2012). The survey suggests that successful engagement with the digital technology in a museum or a cultural heritage site depends on a multitude of factors, both physical and conceptual. For example, it established that the most engaged audience with regards to digital exhibits are family groups- this is borne out elsewhere (Price, 2018). Engaging digital exhibits therefore need to be accessible (including at the right height for children), permit space for groups to gather around the exhibit and be located in such a way that other groups of visitors can continue to circulate in the gallery around the digital exhibit. The noise generated by the group gathered around the digital exhibit must not compete with the auditory ambience of the remainder of the gallery; given that research into soundscapes is live and topical, there are competing agendas here for the shape of an impactful gallery environment, and all of these factors need to be combined and considered (Stafford and Mansell, 2020). Maybe it is not yet common practice in museums and cultural heritage sites to carry out this type

of Impact Assessment Exercise, either at all, or to repeat it regularly, in order to keep the spaces and displays fresh and up to date with developments? Clearly, one side effect of the rise of VR is that the physical and digital estates of museums are expected to work together much harder, and the work of scholars such as Ch'ng is starting to formulate a set of questions that could start to form the basis of developing protocols for institutions that measure digital impact on audience engagement, generating data for future reviews.

With regards to the content of good interactives, there needs to be enough and varied content available for a group made up of different ages, yet Ch'ng's study found that very few visitors engage with the content fully, and most spend a maximum of 4 minutes at a console. The study concluded that the type of experience and the length of the digital exhibit were important, as few visitors engaged with everything, often barely skimming the many (too many?) options available. All too often, there remains a disconnect between the intentions of the technology and how end users actually access it. In other words, museums which might have an internal structure that includes a curatorial team, are suddenly challenged to incorporate principles of good user experience design into the conception of their exhibitions, and need to develop 'experience strategies' for their visitors where before the storytelling focus of the team may have been elsewhere (Price 2018). What this suggests is an emerging skills gap in the makeup of traditional museum and cultural heritage teams, and it is not always clear where the needed skills can be acquired. Often, these skills are more commonly found in ar-

eas previously external to the museums sector, and the acquisition of these new skills through, for example, bespoke CPD training programmes (such as the 'Telling Stories' workshops offered by the University of Nottingham 'Storytelling workshops' (2015-19) in collaboration with external partners such as the V&A, The Met and Beijing's Natural History Museum) can stretch training budgets for the institutions, challenging the traditional make up of museums' staff teams even further. The pertinent issue here is one of collaboration between different partners to pool expertise, which is something discussed below in section 4.

Location and accessibility of the interactives in the gallery, agility and responsiveness of the technology, configuration of both the physical and the digital space, ergonomics and height of console(s), connectivity and access to free Wi-Fi, access to charging stations for mobiles- all of these factors go beyond the traditional emphasis on the curator(s) voice in shaping display and storytelling in the physical estate of the museums and cultural heritage sites. In fact, institutions are increasingly enabling digital interactions beyond the walls of the museum and are encouraging visitors to extend their visit and take to social media, creating a digital estate all of which again raises questions about the important role technology can play in the modern museum. Ch'ng's study shows that museums and cultural heritage sites may have been quick to adopt technology, but remain in a transitional phase with regards to exploiting the potential of new and emerging technologies for their collections. The very pace of technological change, and the high costs connected to acquiring and maintaining the hardware, as well as either purchasing soft-

ware or developing bespoke programmes still remains a forbidding obstacle for many. It is also worth noting that different age demographics engage differently with the physical and digital estate of the museum; teenagers and young adults are keen users of social media initiatives and respond well to targeted events, particularly embracing game-based and experience-focussed technology (Lewis, 2014). All of this suggests the potential for museums and cultural heritage sites on attracting and retaining different audiences, and the value of rethinking the space of the museum is clearly recognised. But, how to get there?

Here then is where the crossover between technology and museums studies throws up some interesting shared questions about, for example, audience engagement, display, storytelling and co-creation which have been dominant themes for discussion in the (scholarly) discipline over the past couple of decades. What this article seeks to do, is bring some of these debates together by focusing on one case study, that of 'The Eye as Witness-Recording the Holocaust' travelling exhibition, as a project that has been purposefully designed by a regional museum that is rethinking its storytelling strategy. The NHCM, by drawing on interactive digital technologies, in particular VR, as an integral part of its design, has developed 'The Eye as Witness' as an innovative, experimental and experiential foray into engaged storytelling, and in order to do so, it brings together traditional and innovative ways of audience engagement. The aim? To shift the focus of the museum experience away from being object-based and instead making it experience-focused.

4. Case Study: 'The Eye as Witness- Recording the Holocaust' (National Holocaust Centre and Museum, Newark, UK), 2020.

For the National Holocaust Centre and Museum (NHCM) in Newark (UK), it's focus has long been on enabling visitors to meet Holocaust survivors and to encounter their difficult stories first hand and face to face. Far from avoiding difficult encounters, the NHCM foregrounds its work with survivors as a key part of its mission to remembering the past and therefore protecting the future. With its main modus operandi inherently built on participation and audience-engagement, the NHCM has long had to think of how to preserve the stories of the rapidly passing generation of the Holocaust survivors. For the NHCM, digital technology is at the heart of preserving and disseminating their stories in this transformational point in its institutional history. In other words, digital technology is rapidly becoming an essential storytelling device, and this explains their pioneering work which seeks to exploit and harness the technology's potential to enrich visitors' engagement with the physical and digital estate of the institution. The NHCM has its physical base in Laxton, Newark, in Nottinghamshire, and this location in the East Midlands necessarily restricts the number of visitors able to engage with the Centre. For the Centre, reaching out to a geographically diverse audience far beyond its usual reach, makes perfect sense. Researching, designing and delivering 'The Eye as a Witness' has pushed the NHCM into new ways of operating, and key to achieving this has been a collaborative approach, bringing in key exter-

nal expertise. Professor Maiken Umbach (University of Nottingham) has led a team of interdisciplinary researchers as part of an AHRC-funded project on 'Photography as Political Practice in National Socialism' (2018-2021), a project that, on top of the exhibiton, will also result in a range of publications examining photographic albums as sites of memories (Nora (1989); Umbach (forthcoming); Necker (forthcoming)).

Umbach and her team worked with the NHCM on developing a travelling exhibition whose key premise was to problematise photographs as 'records', and to consider photographs instead as complex and ideological artefacts. Photographs are infinitely more than objective documents, and in challenging the role of photographs in storytelling, the importance of the 'Eye as Witness' came to the fore, and hence the focus of the exhibition. The NHCM involved an interdisciplinary team of external experts right from the start of the conception of this exhibition, bringing together researchers from History, Education and Computer Science, and by leveraging expertise both internal to the institution but complemented and supplemented by the external experts, as well as working closely with visitor focus groups, the 'Eye as Witness' developed into a co-creation project. From the point of conception of the exhibition, the principles were less those of a carefully created, one-directional information exchange, but rather those of an experiential, co-curated engaged dialogue enabled by a focus on storytelling. The project, which marks the 75th Anniversary year of the liberation of the Nazi concentration camps, has been years in the making and was enabled by drawing on external funding, as the operating budget of the NHCM has no provision for this kind of initiative (which is not unusual for the

budgets of museums and cultural heritage sites). Drawing down external funding was only possible in the first place through collaboration with researchers, suggesting that heritage sites may need to be agile in their ways of working going forward, with the plus side of course that this significantly diversifies expertise and by implication, the scope for developing new projects. The exhibition asks visitors to engage with questions about the role of the witness, about the act of looking as a way of creating memories, and the role of the witness in constructing stories and creating memories of events, particularly by challenging visitors to look again at Holocaust photography. The exhibition seeks to go behind those photographs, and in one case, uses VR to enable the visitor to step inside the frame of a photograph, where they bear witness to the moment the photographer chooses to take his shot and to create his image (Tennent, 2019). They become witnesses to the photographer's choice on which 'decisive moment' he will seek to capture.

Commented [GN1]: Photo credits: Paul Tennent, 2020

The visitor literally steps through a projected curtain into the photographer's world, where they find themselves behind the camera- and where usually in a photograph, the people depicted are subjected to the gaze of the spectator, in this case, the subjects of the photograph can look at the spectator, creating quite a different kind of dialogue. The photographer makes one choice of many alternative choices available and the question is whether in the act of looking at a photograph, we as viewers ever consciously consider that what the photograph shows is not an objective record, but a subjective storytelling choice. This also raises questions as to who that photographer is and what his intentions are. The social historian Michael Baxandall wrote in 1972 that 'paintings are the deposit of a social relationship' (Baxandall, 1972). Photographs work the same way: somebody wants to record a specific moment which has arisen as a result of a sequence of events, and the act of recording that moment suggests a nar-

rative intention of using this image as part of a story that is being told. 'The Eye as Witness' seeks to challenge the viewer to look afresh at Holocaust images and to engage with ideas about intention, purpose and construction of the image. What were the choices behind choosing the particular moment that has been captured? Who has made this choice? What other options have been disregarded? Is the story told from the point of view of the ideologically motivated perpetrator or that of the victim? Who is behind the camera and what are they wanting us to see? After all, whatever story is being told, somebody has made a choice to privilege one version of events, and to disregard alternative views.

No photo is an objective record; Susan Sontag described this active process of viewing an image, engaging with it and deriving meaning from it as 'viewing ethics' (Sontag, 1977); Umbach develops this idea further and suggests that photography becomes a site for ideological contestation in National Socialism (Harvey et al, 2019). In 'The Eye as Witness', the viewer's 'viewing ethics' are challenged and tested – but in the privacy of the VR experience. The safety of the VR space therefore becomes an enabling device for enabling disruptive interactions, allowing difficult and contested stories to be told. Much of the photographic record documenting the Holocaust, for example the 1944 Stroop Report, consists of commissioned propaganda pieces, in effect perpetrator photography, which is carefully constructing an image for effect. The historian Stephen Greenblatt describes this carefully selective process of using images in the construction of a message for propaganda as a process of self-fashioning, of the ability of images to self-consciously, deliberately and artfully determine

that which is seen by witnesses (Greenblatt, 1980). That which is visible, is the 'truth', as the witness can see it with their own eyes- or is it? 'The Eye as Witness' uses VR to allow the visitor to step into the frame of the image and witness a 360 degree view of the scene captured in the photograph. They can experience alternative viewpoints and explore the context for the photograph, with the VR space providing the visitor with agency which the person(s) photographed may not have had. Propaganda imagery generates, or, using Greenblatt's term, fashions, specific views of events, and 'The Eye as Witness' deliberately sets out to disrupt that authoritative viewpoint by offering alternatives. In the case of the exhibition, delivering that challenge comes partially through the immersion of the visitor in the VR environment of a photograph, so the object (the photograph) becomes the gateway to an experience.

Paul Tennent (University of Nottingham) developed *PhotoRealiser VR* to deliver this spatial experience, first experimenting with this technology for the 2019 *Thresholds* project.

Thresholds, by artist Mat Collishaw, recreated the Model Room of the King Edward's School in Birmingham in 1839, recreating an exhibition of 93 'Henry Fox Talbot's 'photogenic drawings'. Tennent has discussed how the biggest challenge for *Thresholds* was the complexity of the spatial challenge, bringing together and overlaying the physical space of the museum with the virtual space of the VR installation (Tennent et al, 2020). For 'The Eye as Witness', he again worked on the principle of a VR experience that is overlaid on a physical space, which gives the visitor more scope for sensory experiences, which of course enriches their mnemonic engagement with the photograph at the heart of the VR installation. VR becomes an integral part of the experience of the exhibition from the moment of conception, and not an afterthought.

The initial VR immersion in one of the images from the Stroop Report (1944), taken to document the process of evacuating a ghetto, gives way to images from the Lodz Ghetto, drawing on the work of Henryk Ross, and Joanna Szydlowska's covertly taken images from Ravensbrück. The Stroop Report documents an orderly process of moving people, while Ross, as victim of this forcible relocation, tells of the human emotions of pain, loss and fear. Szydlowska records, at considerable personal risk, what happens to these dislocated people who have been transported to camps. Her images are particularly harrowing to look at and tell difficult stories, of the 74 so-called Ravensbrück Rabbits, the de-humanised female victims of horrendous and illegal medical experiments, that left the young female 'subjects' either dead or permanently disabled, disfigured and in pain. Deep wounds were inflicted on the women's legs (the youngest was

only 15), and then the cuts were deliberately infected with tetanus, in a simulation of festering battle wounds. Many of the victims died of these horrific experiments, but some survived with the help of camp fellows. Szydlowska's covertly taken images show the women displaying their wounds hidden behind a shed, with the images, the visual record and evidence of the atrocities, preserved on a film that was carefully concealed and remained undeveloped until the camp was liberated in 1945. There was real danger associated with taking images of that which was to remain hidden and unseen, and the very act of taking these images bears witness to the victims' need to tell their story and to have witnesses to their ordeal. The images bear witness to the unspeakable; they demand courage from the witness and they ask for action. The act of witnessing precipitates the need to react; the women of Ravensbrück understood this, and looking at their images challenges the witness to question their 'viewing ethics' to use Sontag's term again. Szydlowska's images also raise questions which their victims were unable to articulate, about the perverse mutilation of young female victims, of sexualised and almost ritualised violence perpetrated on female bodies, of dehumanising treatment that goes beyond ideologically motivated racism. The experience of the Ravensbrück Rabbits is less that of an isolated group of the victims of one regime, and the images instead become part of an ongoing and alas all too topical debate about sexual violence in the context of genocidal conflicts. What happened in 1944 is not an isolated event but part of an ongoing story of dehumanisation in war, and violence against refugees- something the exhibition illustrates in its final section, an installation by the artist Lina Selander. Her installation shows

fragments of Holocaust imagery that appear reflected in a mirror that lies underneath a table, evoking ideas about objects as sites for memory while challenging and frustrating the visitor in only seeing fragments and glimpses of the past. The focus is on enabling the visitor to become an active participant in co-creating their own version of the exhibition. For example, there is emphasis on survivors' testimonies, and these are at the heart of the NHCM's way of working. The 'Forever Project', which contributes the video testimonials to the exhibition, seeks to sensitise audiences for the deeper meaning of testimony as conscious "act of witnessing" and it challenges the visitors to create their own meaning.

In a way, the visitors' act of witnessing becomes part of the story telling but in a different phenomenological space. One possible model for considering the potential of VR in creating different spaces for engaging with difficult narratives and contested stories is Michel Foucault's concept of the heterotopia. In his essay 'Of other spaces', Foucault establishes the definitions that determine a heterotopia. He describes spaces as defined by 'a set of relationships that define positions', and in particular,

> 'there also exist, and this is probably true for all cultures and civilizations, real and effective spaces which are outlined in the very institution of society, but which constitute a sort of counter arrangement, of effectively realized utopia, in which all the real arrangements, all the other real arrangements that can be found within society are at one and the same time represented, challenged and overturned' (Foucault, 1968).

The space of the museum has long been recognised as functioning like a heterotopia, complying, often very constructively, with several of Foucault's 'principles. For example, the second principle states that 'an existing heterotopia has a precise and determined function within a society and the same heterotopia can, according to the synchrony of the culture in which it occurs, have one function or another' (Foucault, 1967). The site of the museum is set apart from 'normal' space as it requires the visitor to enter the space, and to engage with the relationships created by the various objects and experiences sited within it. The museum brings together carefully selected, curated, objects and it stages an encounter between these objects, their stories and associations and the visitor (third principle). The museum and cultural heritage site also plays with notions of temporality in juxtaposing a contemporary viewer with a historic object (fourth principle), enabling an engagement with what Foucault calls 'slices of time'. Now, arguably, what VR and experience-based storytelling in museums permit is for the visitor to enter the boundaried space of a heterotopia where, for example in the case of 'The Eye as Witness', they experience the context that led a photographer to deciding on a particular composition for their shot. In Foucault's terms then, the VR facilitates the visitor entering into a 'slice of time' and occupying an individual and isolated space that is not freely accessible (fifth principle). Arguably, what VR creates is a new narrative space that enables new dimensions of affective storytelling because it creates a narrative and emotive landscape all of its own.

5. Conclusions

The National Holocaust Centre and Museum's ambitious 'The Eye as Witness' travelling exhibition demonstrates how a regional museum with limited resources embraces digital technology at a transformational point in its institutional history. For the NHCM, storytelling and first-hand exposure to Holocaust survivors' stories, has been at the core of their activities. 'The Eye as Witness' continues this approach and imaginatively and creatively draws on new technology to enable storytelling that reaches a wider and different audience. The NHCM has extended the reach of its physical estate by harnessing the opportunities afforded by a move into the digital estate of the museum without altering its core operating principles.

'The Eye as a Witness' has become one of a crop of new exhibition projects which exploits the heterotopic narrative space of the VR environment in an exhibition that has been purposefully designed by a collaborative team where the storytelling design has included a VR element from the point of conception. This approach has previously been pioneered by larger, national institutions such as Tate Modern which included 'Modigliani VR: The Ochre Atelier' as part of its blockbuster Modigliani exhibition (November 23, 2017- April, 2, 2018). For the VR experience, a team made up of experts from the Audio-Visual, Digital, Conservation and Curatorial in-house teams of Tate combined to recreate Modigliani's studios, offering visitors to the main exhibition an extension that was experience-based and allowed visitors to a

blockbuster show some private space Tate, 2017). What has enabled the NHCM to enter this space is the rapid evolution of the technology which is bringing the cost of these projects down, allowing regional and local museums and heritage sites to start moving into these spaces. And it is this democratisation, and levelling of the playing field, that is slowly but surely leading to the establishment of storytelling practices which are impacting deeply on audience engagement.

While not yet common, the inclusion of VR elements for blockbuster experiences has certainly become more common, with two major museums (The Louvre, Paris and The National Gallery, London) augmenting their Leonardo Da Vinci Blockbuster exhibition through the addition of VR elements. For the 'Leonardo da Vinci' retrospective at the Louvre, marking the 500th anniversary of Da Vinci's death in Amboise in 2019, the Louvre deliberately decided not to include the actual painting of the *Mona Lisa* in the exhibition as the lure of this one painting is so powerful, it has its own one-way queuing system to keep the gallery it occupies visitable. Including the *Mona* Lisa in a blockbuster exhibition would have made the exhibition 'practically unvisitable" (Rea, 2019), and would also impact the millions of visitors to the Louvre who come on a pilgrimage to Paris just to see this one painting. Rather than temporarily moving the actual painting of the *Mona Lisa* into the ticketed exhibition space, the curators behind the exhibition opted instead for the inclusion of a VR extension. Following in the footsteps of the Tate, and even employing the same company, HTC Vive, 'Mona Lisa: Beyond the Glass' is a specially commissioned 7-minute experience that combines infor-

mation and experience, confirming an emerging trend for museums and cultural heritage sites to outsource the development of VR. The reason is easy to see: traditional museum structures have not yet been expanded to include VR expertise in their in-house teams.

One notable exception is New York's Metropolitan Museum of Art which launched its acclaimed 'The Met 360° Project in 2016, raking in Webby Awards in 2017 and setting a new benchmark for the cultural heritage sector (The Met, 2016). The Met is unusual in the size and depth of its in-house digital team, and this has long enabled The Met to be sector-leading in its use and development of the digital. Ultimately, it is the integrated nature of the design, digital and curatorial teams in The Met that have given this particular institution such dominance in its digital work, and watching The Met gives an exciting glimpse at what the #CultureIsDigital future for museums and cultural heritage sites might look like. The aim of achieving a culture in museums and digital heritage sites where "digital experiences are transforming how audiences engage with culture and are driving new forms of cultural participation and practice […] especially '[with regards to] younger audiences. …" (DCMS2018) is getting closer. While few museums have the depth and breadth of teams that support The Met, the NHCM's 'The Eye as Witness' exhibition has important lessons to teach. It has demonstrated above all that for museums and cultural heritage sites, collaboration and creativity across non-traditional boundaries brings about maximum effect, and the means to achieve this is through a renewed focus on storytelling as the key that unlocks memories and co-creates context.

Much work remains to be done with regards to understanding the new, emerging landscapes of the participatory museum. While evaluations with a focus on how the device, the technology works are comparatively easy, more work is needed on the 'end-user experience', that is how audiences are reacting to the new configurations of the physical and digital estates of the museum. Emerging digital technologies are a key factor for the sustainable preservation and communication of cultural heritage for audiences of the future, and Ch'ng even suggests that technology is enabling a 'paradigm shift in [that] the nature of museums transitioned from having 'object-centredness' to visitor experience' at its core (Ch'ng et al., 2018).

The nature of the debates around the meaning of 'engagement' has also changed, with engagement increasingly coming to mean contact with a museum or cultural heritage site beyond a visit to its physical estate; the term 'experience economy' has been used to describe a digital estate that needs to extend simultaneously across a range of different platforms. Of course, each different social media platform works like its own heterotopic and boundaried space with its own distinctive narrative conventions and storytelling modes, so for a mature digital estate, museums and cultural heritage sites need to start to respond to these spaces by creating diverse content. Or rather than generate that content themselves, they need to enter these spaces for the express purpose of collaborative and dialogic co-creation of content of/By/For All engaged visitors (Nina Simon, 2018).

Museums often rely on a visitor's ability to read image- but rarely provide visual descriptions. One experiment, at MCA, highlighted just how complex the task of describing an image is

(Bahram et al., 2018). The discussion above of 'The Eye as Witness' has surely demonstrated just how the act of looking is heavily loaded with interpretation. Different viewers 'see' different meaning, and describing visual meaning is nothing more or less than an act of cultural translation. Asking visitors for their translations unlocks content and creates value which becomes inclusive of the many voices of a community, and again, it is the digital space as an extension of the physical estate of the museum and cultural heritage site that allows for this process to take shape. That process unlocks stories that otherwise might have been lost and this is what makes museums and cultural heritage sites such important sites for memory (Nora, 1989). Arguably there is no sector that suits the embracing of the digital more than that of arts and heritage organisation because it is the digital in its broadest sense that offers "an opportunity to shift our relationship with [..] audiences and battle […] engrained organisational culture. We have what it takes to do this well: a wealth of content, an ability to generate new ideas and a desire to build relationships with audiences" (#CultureIsDigital, 2018).

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