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The immersive turn: hype and hope in the emergence of virtual reality as a nonfiction platform

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ABSTRACT

This article responds to the recent wave of experimentation with Virtual Reality (VR) as a nonfiction platform. Amidst daily announcements of new VR documentary initiatives, and at times giddy claims about the potential of this new medium, I consider how a media technology expected to enter the mainstream as a games platform became a magnet for nonfiction producers. VR is not a new medium, and has been the subject of a substantial body of research across arts and science. This research is also the site of claims for the pro-social potential of VR, which provide a significant context for its adoption for nonfiction. Less attention has been given to ethical risks posed by VR, which I highlight, and which I suggest require attention within documentary practice. The article concludes with a discussion of the symbiotic relationship between technology and content development in this arena. All these factors have come together at the intersection of VR and nonfiction to produce a heady mix of commercial excitement (hype) and techno-utopianism (hope) which this article highlights and analyses.

KEYWORDS

Documentary; virtual reality; VR; immersion; interactive documentary; immersive VR

Introduction

Documentary film has been a fluid form that has been reinvented over the years as producers have taken advantage of successive generations of new media technology. Following a period of intense experimentation with diverse digital affordances, the last five years has seen a remarkable turn towards immersive forms, most notably the harnessing of the virtual reality (VR) platform for nonfiction. Here, documentary takes on a new experiential dimension, as a participant ensconced within a headset feels as if present within a virtual depiction of a scene from the historical world. In this article, which develops a paper I gave at the 2016 i-Docs Symposium in Bristol, UK (Rose 2016), I contextualise and investigate this turn towards VR, considering the novel features of the medium, and its specific appeal for documentary and journalism. To do so, I reflect on the discourses and interests that have come together to fuel an embrace of virtual environments as platforms for engaging the real.

VR is not a new medium, and, as I discuss, has been the subject of a substantial body of research across arts and science. This research is also the site of claims for the pro-social

potential of VR, which provide a significant context for its adoption for nonfiction. Less attention has been given to ethical risks posed by VR, and I suggest that these include issues that require attention within documentary practice. The article concludes with a discussion of the interrelationship between technology and content development in this arena, and an exploration of the role of Silicon Valley in the promotion of VR for nonfiction. All of these factors have come together to generate a vortex of hype and hope around VR nonfiction, which this article seeks to highlight and deconstruct.

Background – documentary meets computerisation

Nonfiction VR is emerging into a context where computerisation has already shaken the foundations of documentary ontology. Since the earliest days of hypertext, artists, creative technologists and more recently documentarists and journalists have been exploring the potentials of computerisation for nonfiction content. In the last decade this exploratory field has burgeoned. To grasp what's at play in these developments, it is helpful to revisit Bill Nichols' 2001 framework for analysing documentary in the context of a particular historical moment. Documentary changes, Nichols proposes, in relation to four arenas – the institutional context, the community of practitioners, the audience, and the corpus of texts. Looking across these four domains, he suggests, makes it possible to see the specifics that are at play within documentary, 'at a given time and place' while also recognising, 'the continual transformation of what a documentary is over time and in different places' (Nichols 2001,16).

This framework makes it possible to appreciate the breadth and depth of disruption that computerisation has brought to documentary, with the last decade marked by novel developments within each of these arenas. New institutional players – Journalism, NGOs – have got involved with commissioning and making documentary, while crowd-funding has introduced a form of democratised commissioning, free from institutional constraints but also from responsibilities. Looking at the community of practitioners, we see new disciplinary perspectives brought to bear, as computer scientists and creative technologists get involved in shaping documentaries for digital platforms. Meanwhile, the audience are no longer only leaning back to watch work scheduled by others, but are engaged in a dynamic relationship with media content – seeking out media on demand from a plethora of digital publishers and platforms, and also often generating, making, sharing, and rating content on social media. In Nichols final arena, the corpus of texts, there have been developments with profound implications. In addition to continued production of linear work in which audience agency takes place at the level of 'cognitive deconstruction' (Winston et al, 2017 59), we're now seeing works which engage the audience in forms of online interaction, in the co-creation of content, and a shift towards the use of documentary media as a platform for convening dialogue (de Michiel and Zimmermann 2013), rather than for representation alone. Where twentieth century documentary was characterised by picture locked works (closed texts), recent years have seen forms of generative, personalised, recursive, 'living documentaries' (Gaudenzi 2013) – which, whether through developing over time, or responding in unique ways to individual audience members, are not resolved into a single fixed version. In so far as a corpus of texts assumes a collection of stable entities, these forms pose a challenge to the very idea of the corpus.

Within this field of documentary which takes advantage of emerging media technologies, the last five years has been marked by a decisive turn towards immersive forms. Here I am using immersion to mean forms in which a lone audience member moves from being a viewer to become an active participant or player in the story world. This trend was first signalled by the application of game mechanics to documentary content in *Prison Valley* (2010), and it has gathered pace since with high profile ‘docugames’ including *Fort McMoney* (2013), *Offshore* (2013) and *1979 Revolution* (2015). It has been expressed elsewhere in the development of novel forms of experiential documentary. In 2015 the Tribeca Storyscapes prize went to *Door into the Dark* by the British company Anagram, for instance. This documentary-without-a-screen involved a blindfolded journey through a darkened room to explore the meaning of being lost. However, the immersive turn is illustrated most dramatically by the rapid uptake of VR as a medium for non-fiction. As recently as 2013, before facebook’s 2014 purchase of Oculus VR heralded the advent of VR as a mass consumer technology, Nonny de la Pena – whose work I will discuss below – was an isolated pioneer experimenting with VR for what she dubs ‘immersive journalism’. By 2015 VR was being embraced by a plethora of nonfiction producers and mainstream platforms, with the UN unveiling a VR documentary about refugee experience at the World Economic Forum in Davos; the New York Times launching its own VR app and distributing Google Cardboard headsets to a million subscribers; and the BBC commissioning nonfiction VR demonstration pieces. That intense engagement continues apace.

The faces of VR

What is Virtual Reality in this context? As William Uricchio has underlined, the term VR is being used very loosely in the field of nonfiction to cover a variety of 360 degree media experiences that can be accessed through a head-mounted display (HMD) (Uricchio 2016). There are three distinct forms of image capture at play in nonfiction VR, and they are important to note because they have significant implications for participant experience. The most accessible capture technology for nonfiction producers interested in VR is 360 degree video, sometimes called spherical filmmaking. 360 video is the capture technology that dominated the first wave of VR nonfiction, and is the platform employed by the UN and the New York Times in the projects mentioned above. Here, pre-rendered video images wrap around the viewer, who occupies a fixed point of view. She can turn her head and see in any direction, but she is in a fixed position within the recorded scene and can have no affect on the unfolding content. Meanwhile, we are also seeing work derived from computer-generated images (CGI), which are then uploaded into a games engine – commonly Unity, or Unreal – with increased potential for interaction between content and user. Examples include the work of Nonny de la Pena which I will discuss below. Here, the participant might drive the experience forward by looking at hotspots within her field of vision or by using manual controllers. She might have the freedom to walk around within a room scale environment in which her surroundings adjust realistically to her position within the space. The third form of image generation which is now becoming significant is volumetric capture. Whether through photogrammetry or LIDAR scanning, 3D real world environments are captured in the form of data. That data can then be rendered live and in response to user activity. The

user experience of content captured in these three forms therefore varies substantially. While 360 degree video offers a wraparound media experience with minimal interaction, in worlds constructed from CGI and volumetrically captured content the user can feel embodied and able to act on and affect the virtual world. What the three approaches have in common is that the media displayed within the headset gives the user the impression of being within an apparently frameless 360 degree space. In the immersive experience of VR then, the participant feels as if plunged into the media world, and fully surrounded by it.

Even in the context of the restless exploration of emerging creative technology within documentary in the last decade, the speed and decisiveness with which VR has come to dominate nonfiction innovation has been remarkable, and, in a sense, troubling. After the emergence of new possibilities for audience engagement, contribution and co-creation in interactive documentaries, it has been curious to see such a decisive turn towards a medium that places authorship, in these first experiments at least, exclusively in the hands of the professional media maker. Furthermore, in the context of widespread unease at feeling tethered to our digital devices, the enthusiastic embrace of a medium that requires the viewer to be strapped into a screen, isolated from others, with, in spherical video work at least, agency limited to being able to turn one's head and shift one's view, seems retrograde.

How then to understand the immersive turn represented by this rapid adoption of VR for nonfiction? Why has VR proven so attractive to nonfiction producers? As a media technology, VR can be understood within the cinematic tradition of the optical illusion. Where cinema conjures an impression of moving images, the 360 environment of VR creates the perception that, rather than watching events unfolding on a screen, the viewer is within the world of the images. This powerful illusion – characteristic of VR – is known as presence. For the participant, the absorbing experience of presence can offer a rewarding alternative to the distractedness commonly associated with browsing or scrolling content. The novel creative challenge that presence represents for storytelling is drawing diverse creators to experiment with the medium. As I will discuss below, presence is central to discourses around the promise of VR for journalism and documentary.

VR old and young

Before considering the development of nonfiction VR, I will situate the contemporary manifestation of the VR platform within the history of the medium and within a wider cultural context of immersion. Though now being marketed to consumers as a novelty, Virtual Reality has a half century history. It was in 1968 that Ivan Sutherland, a Harvard researcher who was a pioneer of computer graphics, first demonstrated the 'head-mounted three-dimensional display' (HMD) known as the 'Sword of Damocles' (Sutherland 1968). I call this moment the first wave of VR. It is thirty years since the term Virtual Reality was coined by technologist and entrepreneur Jaron Lanier in the second wave of VR. For pioneers and champions in 1980s and 90s, VR was articulated in counter-cultural terms – as a mind-expanding technology that promised to transport users to other worlds and enable profound human connection (Rheingold 1991). The expectation that mounted over VR at that time, on both cultural and commercial fronts, is well expressed in the title of a panel on Virtual Reality that took place at the

computer graphics conference SIGGRAPH in 1990 – Hip, Hype, Hope; The Three Faces of Virtual Worlds (Woolley 1992, 16). As I have suggested, both the hope and the hype are looming large again today in relation to VR nonfiction. While this suggests a continuity in the desires that surround VR, I will show how both facets are finding expression today in forms that are specific to contemporary preoccupations and the contemporary media ecology.

Despite a few gaming products coming to market during the second wave, neither the hardware nor the software were ready to deliver VR to consumers at scale in the 1990s (Lister et al. 2003). However, VR did not go away, but became a significant platform in contexts where investment in high-end technology was available – in product development, for training – in military and medical settings in particular – and research into the experience of VR environments has been ongoing. While the 1990s was a false start in terms of VR becoming a mainstream commercial proposition, the platform drew substantial scholarly attention – so it is a peculiar feature of this ‘new’ medium for contemporary research that it is already the subject of a substantial body of literature that began in this earlier phase of development. This body of work provides important contextualisation for the immersive turn within nonfiction today.

It’s worth noticing that what VR meant to the pioneers of the second wave is not what it means on today’s nonfiction festival circuit. For Brenda Laurel, the ‘virtual-reality systems’ of the early 90s offered, ‘the confluence of three very powerful enactment capabilities: sensory immersion, remote presence, and tele-operations.’ (Laurel 1991, 188). While remote presence – an illusion of self presence in a distant location, represented in the form of an avatar for instance – and tele-operations – an ability to make changes to the physical world across space by operating equipment at a distance – are accessible capabilities today, neither have featured in any of the forty or so VR projects I’ve experienced in the last few years. Instead, today’s nonfiction VR focuses on aspects of sensory immersion. I have discussed elsewhere how, if one looks at the field from the perspective of the senses, two distinct currents are very much in evidence. 360 video is a media to do with sight, and can be regarded as a development of visual practices – technologies of seeing – within a lineage going back to the Renaissance. Meanwhile, CGI and volumetric capture allow for forms of VR that involve the user in being able to move around in room scale environments or engage with virtual worlds through haptic interfaces. These explore multi-sensory practices – technologies of corporeality – which might be expected to become central cultural modes of the future. These two currents can also be understood as representing distinct and opposing epistemologies – with sight linking to a Cartesian, and corporeality to a phenomenological form of knowledge production. (Rose 2018).

While VR technology is native to the computer age, the project of immersion needs to be understood in the context of a much deeper cultural history. In *Virtual Art – From Illusion to Immersion* – Oliver Grau shows how VR builds on a deep seam within visual culture (Grau 2003). Grau points for example to instances of three hundred and sixty degree representation in the classical world such as fresco rooms that date from around 20 BC in the Villa Livia near Rome. These seek to enclose the observer in an unframed image space, in which, Grau argues, there is an unmistakable intention to create an immersive effect. In the twentieth century this immersive seam has been further developed, as Grau discusses, through diverse cinematic applications – Cineorama, Futurama, IMAX – which have attempted to integrate image and observer.

Grau's argument frames VR as an expression of an ongoing human fascination with creating mimetic representations of our world. This tendency was notably identified by the French film critic Andre Bazin in 1967. Reviewing a history of early cinema, by George Sadoul, Bazin notes how it was the desire to create a, 'complete illusion of life', and a, 'faithful copy of nature' that drove the development of cinematic technology, in what Bazin dubbed, 'the myth of total cinema' (Bazin 1971). The discourse around the real that is evident in relation to nonfiction VR shows how this drive towards mimesis takes on a particular force when it comes into play with nonfiction content. As new creative technology offers new affordances, this idea resurfaces. In *Claiming the Real*, Brian Winston discusses this phenomenon with reference to the adoption of the handheld 16 mm camera and sync sound by Direct Cinema pioneers.

'In their view', he argues, 'the apparatus had been produced to make good the camera's ability to capture representations of the world in real time with minimal disturbance ... For Drew and Leacock and those working with them ... the gear represented a chance to liberate the mimetic power of the sound camera for the first time. Now they could really gather evidence, film life as lived, shoot 'events as they happened'. The new equipment did not just bolster and protect documentary's truth claim; it enhanced and magnified it.' (Winston 1997, 147)

Winston cites commentators from the time describing the unmediated feel of the footage that was generated using the new sync sound, how it offered, 'a sensation of life, of being present at a real event.' (Winston 1997, 149) As successive developments in creative technology have been taken up for documentary purposes, the idea that the latest generation platform presents reality without mediation or construction has been recurrent. We can note this idea emerging in response to camcorder recordings in the 1990s. As VR meets nonfiction today, Bazin's myth of total cinema is again at play when people talk of 'being there' as if present at events represented in VR.

While arts and humanities scholars have probed the cultural and creative implications of VR, the bulk of VR scholarship that began in the 1990s is comprised of scientific studies which explore the real world applications of VR. One strand of work examines how simulated environments can enable training (commonly in medicine and in the military) or rehabilitation (for stroke victims, for example). Another substantial strand of VR research has been undertaken within psychology, and involved explorations of the ways that virtual experiences can alter real world behaviours. Multiple studies discuss the uses of VR to address psychological disorders – from anxiety to post-traumatic stress disorder, spider phobia to fear of flying. Others look at the potential of VR to impact attitudes – and suggest a positive impact on implicit bias for example. Mel Slater and Maria V Sanchez-Vives' 2016 survey of peer-reviewed research provides one introduction to the extent of that work. Its title – *Enhancing our Lives with Immersive Virtual Reality* – points to the emphasis within those studies on the pro-social potentials of VR (Slater & Sanchez-Vives 2016). *Experience on Demand*, a 2018 monograph by Jeremy Bailenson of Stanford's Human Computer Interaction Lab, provides another useful overview. His emphasis on the pro-social implications of VR is clearly evident in the introduction, which includes an account of a visit to the lab by Mark Zuckerberg in 2014, a few weeks before facebook acquired Oculus VR in a move which kick-started commercial engagement in third wave VR. The CEO tries a number of VR experiences before they talk.

‘For the rest of the two hour visit to the lab’, Bailenson explains, ‘we discuss my research into the psychology of virtual reality, and how it has convinced me that there are many ways the unique power of VR can be applied to make us better people, more empathetic, more aware of the fragility of the environment, and more productive at work. We talk about how VR is going to improve the quality and reach of education, and open up the world for people who can’t afford to travel, transporting users to the tops of mountains, or into earth’s orbit, or into a calming oceanside setting at the end of a long day.’ (Bailenson 2018, 5)

The techno-utopianism of the vision is noteworthy; the belief in the benefits that the application of VR technology will yield is unambiguous. Citing this effusive passage is not to suggest that Zuckerberg and Bailenson did not touch on the negative potentials of VR in their meeting. Among others topics, Bailenson describes how they discussed, ‘the dangers VR can pose to the physical and mental health of users, and the detrimental effects certain types of virtual experiences can have on our culture as VR becomes a mainstream technology.’ (Bailenson 2018, 6) But what’s interesting to note is how these concerns are bracketed off in favour of a vision of VR as an agent of human advancement, human betterment and life enhancement. This type of thinking has informed discourse around VR in the third wave, and provides a backdrop to the embrace of VR for nonfiction. The context of psychological research also makes way for a blurring between uses of VR for entertainment and for influencing behaviour that I will return to.

An experiential medium

While the underlying technology behind VR was not sufficiently advanced to bring the platform to the commercial entertainment market in the 1990s, research into VR continued, and, as I have suggested, the 3D environment that VR offers proved to have significant potential for testing, training and learning. It was a University Lab in Barcelona where Slater and Sanchez-Vives conduct their studies that provided the context in which Nonny de la Pena, an American journalist and sometime documentary maker, first encountered VR and, in collaboration with them, began experiments in what she has gone on to call ‘immersive journalism’.

Before discussing de la Pena’s immersive work, we should consider how the term immersion has been understood in a media context. In 1997, Janet Murray described immersion as, ‘a metaphorical term derived from the physical experience of being submerged in water. We seek the same feeling’, she suggested, ‘from a psychologically immersive experience that we do from a plunge in the ocean or swimming pool: the sensation of being surrounded by a completely other reality, as different as water from air, that takes all our attention, our whole perceptual apparatus ...’ (Murray 1997) I would suggest that the wraparound visual experience common to all the diverse VR platforms now available has the capacity to make the user feel immersed in this way. In the seclusion of the headset, all distractions are removed and one can feel deeply absorbed. The appeal of VR for de la Pena lay in this capacity to command attention. Responding to evidence that the public had become inured to media images of human suffering, de la Pena saw in this capacity a route to a new journalistic offer that might, ‘reinstitute the audience’s emotional involvement in current events’ (de la Peña 2010).

De la Pena's first work used the affordances of VR to give participants a virtual encounter with the stress positions used on detainees during interrogation in Guantanamo Bay. Since then, de la Pena has created a series of Virtual Reality pieces including *Hunger in L.A.* (2012), *Use of Force* (2014), and *Kiya* (2015) through which she has been exploring the potential of VR to allow the participant to feel as if they are 'on scene' at a 'non-fiction event that parallels a physical world occurrence'. (de la Peña 2017, 208). *Hunger in L.A.* represents an incident in a queue for a food bank which is overwhelmed by demand – when a man waiting on line goes into a diabetic seizure. *Use of Force* portrays the fatal beating of an undocumented migrant at the hands of US border patrol. *Kiya* is based on mobile phone calls made by two women awaiting police assistance at the scene where their sister is being threatened, and is then shot dead by her partner. Each of these works involves a virtual recreation of an event from the historical world, grounded in verite audio recorded at the scene. The audio plays out uncut in real time, with images created in CGI to represent people and place. The user experience is not about *watching* events unfold. De la Pena works with room scale VR; her immersive system and fast computer graphics allowing the participant freedom to move around and explore the unfolding scene.

It is the capacity of VR to allow a full-bodied encounter with a media world that particularly interests de la Pena. For her, this allows the user to feel like a participant in the action and fosters a powerful sense of connection to a historical moment. In de la Pena's account, 'this manifestation of oneself, akin to being present in the natural world, allows the stories to be communicated in a uniquely visceral way.' (de la Peña 2017, 208) De la Pena has tested this belief in the power of what she calls, 'embodied digital rhetoric' through facilitating thousands of participants to experience her works in multiple locations around the world. Showcased also at industry festivals – Sundance, Sheffield Doc Fest, Tribeca and elsewhere – from 2012 onwards, before anyone else was applying these techniques to nonfiction, de la Pena's experiments have been widely seen and have proved highly influential in the emergence of nonfiction VR.

It is worth noting that de la Pena relates to twenty-first century VR development in another significant respect, too. One of her interns at the University of Southern California when she was developing *Hunger in L.A.* was Palmer Luckey, a VR obsessive since childhood and sometime researcher at the university, who worked on the prototype goggles for de la Pena's project before leaving to start his own venture. That venture was Oculus Rift, which he went on to sell to facebook as I have mentioned, and which can be credited with kick-starting the recent phase of VR development as a mass-market proposition. Thus, de la Pena's experiments in immersive journalism also connect to the technology innovation which lay behind VR reaching the consumer market. This close relationship between content creation and technology innovation is a feature of nonfiction VR that is significant to note, and one to which I'll return.

One passage from a review of de la Pena's *Hunger in L.A.* on the verge.com is worth quoting at some length as it will stand for many participant reactions, and is suggestive both of the nature of the VR user experience, but also of tensions within that experience as it is applied to non-fiction.

'I knew the set-up of the story going in, and when I heard commotion behind me — I immediately knew the diabetic man was suffering his attack. I turned, and despite the

crude animation the illusion held. My heart rate picked up, and I impulsively wanted to do something. My first inclination was to kneel down and hold him steady, but at the same time I knew how ridiculous that would look to the cable wrangler that was standing behind me in the “real” world. I finally cast those thoughts aside and knelt beside the man — but of course reaching out was impossible as I had no arms or legs in the simulation. I had the agency of perspective, but no ability to participate in the events themselves.’ (Bishop 2013)

Bryan Bishop’s description neatly evidences key features of VR user experience. The illusion of presence is powerful enough to be sustained despite the lack of visual realism created by the ‘crude animation’. Unfolding events create a visceral response so that his ‘heart rate picks up’. At the same time, while intensely engaged with events in the VR experience, the participant is still fully aware of their physical context. Despite being caught up in the unfolding events, Bishop knows, ‘how ridiculous that would look to the cable wrangler ...’.

Bishop’s account also points to a common tension within VR experiences available to date. Like the angels wandering the streets of Berlin in Wim Wenders’ *Wings of Desire*; the VR user finds herself present although of course unseen by the subjects of the piece — perhaps deeply engaged, but powerless to influence their world. (In a reference to the film *Ghost* this is sometimes called the Swayze effect.) In the case of 360 video, what Bishop calls, ‘the agency of perspective’ can feel to the user intensely voyeuristic. There is a surveillance logic to the illusion that one is present, invisibly looking on at people from the social world. Where CGI is involved, as above, and some interactivity is on offer, the participant is caught in a contradiction — feeling present, yet with no role, or capacity to intervene in or influence unfolding events — a bystander with no part to play in the experience.

One of the earliest nonfiction works made for Oculus Rift — Oscar Raby’s *Assent* — proposes an alternative scenario with regard to user experience. Here, the participant finds herself assigned a role, addressed as Oscar’s father, invited by his son to reconsider an incident from his time as an army officer in Chile, after Pinochet’s overthrow of Allende’s National Unity government in 1973. In the aftermath of those events, a corp of Pinochet’s forces known as the Caravan of Death travelled the country. When the Caravan arrived at his barracks, Raby, along with fellow officers, was required to attend and witness the execution of a group of prisoners from a local jail. Within the experience of *Assent*, the participant occupies Raby’s position in a journey that culminates in a visually abstract reimagining of that event. Cast in the role of Raby senior within the experience, the participant is called on to occupy, imaginatively, his troubling and ethically ambiguous position as he looks back on this episode. In that way, the work asks the participant to consider Raby’s role in the process of coercion and brutality that was employed to secure the Pinochet regime’s power over the Chilean people. Here, *Assent* posits an approach in which the user is positioned not as voyeur, or as bystander, but as a type of player, at the centre of the historical events.

It was the potential of VR for giving the user agency within immersive environments that excited the early VR scholars. For Brenda Laurel, who brought a background in participatory theatre to her work in human–computer interaction, the central challenge was, ‘designing and orchestrating action in virtual worlds.’ (Laurel 1991, 188) Teasing out the meaning of immersion within virtual environments in 1997, Janet Murray draws a distinction between, ‘the mere flooding of the mind with sensation’, which she suggests is the way

in which many people listen to music, and the active engagement that is the nature of participation in virtual worlds. Here she says, ‘immersion implies learning to swim, to *do* [my emphasis] the things that the new environment makes possible.’ (Murray 1997) Although the potential for embodied interaction has not yet been widely adopted for nonfiction VR, it is in the sense that it privileges doing over simply watching that we can think of VR as an experiential medium.

VR as ‘Empathy machine’

In the context of nonfiction, the experiential nature of VR has been widely interpreted as meaning that the medium can provide privileged access to the experience of another, thus generating empathy with the documentary subject. The discourse around empathy that has become pervasive in connection to VR nonfiction was given a significant platform through a TED talk given in 2015 by filmmaker Chris Milk – co-founder of the Vrse studio. Vrse.works (later rebranded as Within) was significant in establishing the VR field beyond games, and much of their work has been in nonfiction. In 2015 Vrse produced VR projects in partnership with New York Times, Vice News, and the United Nations, among others. The latter collaboration, through which Milk worked with then United Nations Creative Director and Senior Adviser, Gabo Arora, has resulted in a series of 360 video documentaries which have been widely seen at festivals and have encouraged engagement with nonfiction VR. The first of these joint projects – *Clouds over Sidra* – which depicts a day in the life of a twelve-year-old Syrian girl in the Za’atari refugee camp in Jordan – won the Innovation Award at Sheffield DocFest in 2015.

In January 2015 Arora and Milk took *Clouds over Sidra* to the World Economic Forum (WEF) in Davos, Switzerland where it was part of a successful fund-raising effort for refugee relief. Images from the Forum show serried ranks of besuited businessmen, engrossed within Oculus Rift headsets. Milk’s TED talk, recorded soon after the WEF visit, seems inspired by the success of that mission. It is worth quoting his talk at some length in order to register how he discusses VR as if it is unmediated reality, and to notice the way he links presence and empathy – associations that have been taken up and become widespread.

‘It’s a machine, but inside of it, it feels like real life. It feels like truth. And you feel present with the world you are inside, and you feel present with the people that you are inside of it with. When you are sitting there in ... [Sidra’s] room watching her, you are not watching it through a television screen, you are not watching it through a window, you are sitting there with her. When you look down, you are sitting on the same ground as she is on. Because of that you feel her humanity in a deeper way. You empathise with her in a deeper way ... VR is a machine, but through this machine we become more compassionate, we become more empathetic, we become more connected, and ultimately we become more human.’ (Milk 2017)

Milk’s talk has been highly influential in promoting a link between VR and empathy. The association is ubiquitous in conversation and in literature at industry events where VR nonfiction is shown. An online search on VR and empathy (as of June 2017) yields thousands of results – many uncritically repeating the claim to a link between the platform and this particular affective response. A twitter search linking the two terms renders results including: ‘VR is the ultimate empathy device ..’, ‘M/B someday VR will afford mankind

the ability to experience the plight of others. Empathy may be our only saving grace at this point' and 'VR is good for fostering empathy. Allows you to drop people into the world.'

Though not acknowledged in Milk's TED talk, the idea of the empathy machine appears to be a borrowing from the late film critic Roger Eberts, who described cinema as, 'a machine that generates empathy'. While Ebert's idea tries to capture a key affordance of cinema, looking back on a century plus of creative work, Milk's proposition operates in a deterministic way, seeking to promote this new technology platform by suggesting that it will yield a particular affective outcome in users.

This discourse of empathy around VR is founded on a number of questionable assumptions. In a case study for MIT Open Doc Lab's Docubase, '*The Limits of Virtual Reality – Debugging the Empathy Machine*', Ainsley Sutherland considers these assumptions in the context of *Machine to be Another* – an installation by the artist collective, BeAnotherLab. that, drawing on work by Jeremy Bailenson, explores the illusion of body-swapping in VR. Considering this project, Sutherland questions a key trope around VR – the idea that an empathetic response arises from standing, virtually, in the shoes of another. Sutherland points to the epistemological shortcomings within this idea – that while VR might offer you the chance to stand in the position of another, and might offer, 'an assemblage of the visual and haptic experience of another' ... 'it cannot reproduce internal states, only the physical conditions that might influence those states'. (Sutherland 2016)

The empathy machine idea was articulated by Milk in the context of an observational documentary derived from 360 video. As the extract from Milk's talk suggests, the material is promoted as providing a form of unmediated access to the world depicted. Here we see what Brian Winston has called an, 'illusionistic agenda' at work, an agenda which is common to much 360 video VR work. In this context, the *feeling of being there* known as presence amplifies the common situation for viewers in the Global North of witnessing through media the (less fortunate) lives of others, while being able to do nothing more than look on. Elsewhere in this volume, Kate Nash picks up on the concept of witness as the lens through which to interrogate the discourse of empathy (Nash 2017). In an analysis that draws on a deep seam of critical thinking in relation to witness in nonfiction media, Nash suggests that the perception of closeness to events created by presence in VR brings a new dimension to the ethical problem of media witnessing. VR, she suggests, is problematic in bringing the audience into a relationship of 'improper distance' with the subject (Nash 2017, 7). The faux proximity offered by the experience elides the actual distance between audience and subject, suppresses the critical response required to properly recognise the situation of the documentary subject, and discourages a reflective position that might arise in the audience through an appreciation of their own remoteness from the experience portrayed.

While the concept of the empathy machine is open to critique from a number of points of view, it continues to prove powerful to producers engaging with the field, and, perhaps picking up on their language, it is often referenced by people who have tried VR experiences. This matters from a number of points-of-view. One of Janet Murray's key themes is that a new medium develops through a collective process in which producers experiment, fail, try again (Murray 2016). The development process depends on the recognition of moments in those experiments when the specific expressive potential of that medium is realised. The driving idea within Sutherland's article is that the discourse around empathy obscures the nuances of what might actually be going on in the user experience

of VR. In a medium that is in a process of being invented in an iterative way through creative experiments by multiple artists, the dominance of the empathy claim can prove a distraction, if not a barrier to development.

Meanwhile, a view of VR as having a special relationship to compassion has been bolstered by a number of studies that investigate whether the medium has a particular capacity to recruit viewers to take action in regard to events portrayed. Research by Dan Archer and Katharine Finger for Columbia University's Tow Center for Journalism Studies suggests that VR can claim a deeper engagement on the part of viewers than what are sometimes called 'flatties'. In this study, participants were offered versions of a non-fiction VR experience that involved different levels of immersion (with an HMD or without), as well as a 2D version, and a written article based on the same story. Here, the findings showed that, 'Users experiencing the stories in either VR format were more likely to recall the stories, be motivated to find out more about the subject, and to take, 'political or social action' after viewing' (Archer and Finger 2018). These research results are echoed in statements coming from producers. Following the UN's experiments with VR, a number of NGOs have been encouraged to invest in VR projects in support of their fundraising efforts. Amnesty International have reported donations by passers-by increased by 16 per cent for viewers who saw their *Fear of the Sky* VR project. The US non-profit Pencils of Promise reportedly raised \$2million at a Wall Street gala where VR headsets allowed users to see inside a schoolhouse in Ghana (Joy 2018). Research is needed to show whether these responses will be sustained once the novelty of VR wears off. Nonetheless, these messages further build interest in VR, encouraging an engagement with the medium in a context in which media is increasingly required to deliver demonstrable impact.

The empathy discourse seems to be predicated on the assumption that a lack of compassion among the public is a central problem in, for example, the refugee crisis, and that fostering such an affective response is a self-evident public good. But what if this isn't true? In a 1999 article, *What's wrong with the Liberal Documentary?* Jill Godmillow questioned the function of what we might call the affective documentary, and the imagined relationship it fosters between audience and subject.

'We and they are not linked other than by feelings, such as caring, concern, and sometimes outrage. But the connections or links are momentary. We leave the theater filled with our best feelings about ourselves. The next day we go about the same business in the same way. This produces desire for a better and fairer world, but not the useful self-knowledge required to change anything. It offers no structural analysis of the problems described, and rarely proposes solutions ... It never implicates the class activities of its audience as central contributors to the situation depicted in the film.' (Godmillow 1999)

While calling on participants to feel compassion for refugees, and encouraging them to donate, VR documentaries that tell stories of distant suffering can be prey to the same problem that Godmillow identifies – promoting the status quo, by failing to address the systemic causes of the social problem described, or probing the ways in which the viewer is implicated in those systems. Godmillow identifies an alternative logic in the work of Harun Farocki, and her article tells of how she produced a shot-by-shot replica of his 1969 film *Inextinguishable Fire* in the English language, to make it available to a US audience. Farocki's film probes the production of napalm b, a chemical produced by the Dow

Chemical Company for use in the Vietnam War. Farocki, ‘eschews the use of ‘documentary evidence.’ There are no shots in *Fire* of Vietnamese children running down the road aflame. Instead of evidence, Farocki substitutes reconstruction and demonstration in order to analyze how the human labour that produces napalm is structured, encouraged, and camouflaged.’ Farocki’s strategy seeks to substitute an emotional response on the part of viewers to the damage that napalm does with a probing of, how ‘good American citizens’ produce weapons of war. It’s interesting to consider how such a Brechtian strategy might be transposed to the context VR. What might a counter-hegemonic VR practice look like, which still takes advantage of the affordances of the medium? What is clear, though, is how, in the first generation of VR nonfiction, affect has in general been privileged over understanding; the experiential potential of VR translated into work aimed at generating compassion rather than oriented towards equity, justice, or rights.

Commercial interests and ethical concerns

Amid enthusiasm for the affective power of VR, concerns relating to its use have received little attention within documentary and journalism production. In a 2016 article – *Real Virtuality: A Code of Ethical Conduct* – Michael Madary and Thomas Metzinger, philosophers of technology with considerable VR research experience, provide an evidence based review of the potential impacts of VR on users, and itemise ethical concerns that might arise from the use of personal VR, both in research and among the general public (Madary & Metzinger 2016). Reviewing the wider history of social science experiments that have shown how human behaviour can be influenced by environment, and the substantial body of work that has shown how users respond to virtual environments and events as if they have a material reality, they argue that, in the context of the plasticity of the human mind, exposure to virtual environments carries with it a variety of potentials for harm in the form of lasting psychological effects. Madary and Metzinger identify four foreseeable areas of risk: the unknown psychological impact of long-term immersion; the danger of neglect of embodied interaction and the physical environment; hazards related to privacy, and to the exposure of participants to what they call ‘risky content’. Both of the latter issues have relevance to the context of nonfiction. Reviewing VR at the 2018 Tribeca Festival, Pat Aufderheide sounded an alarm over risky content,

‘Hero and ... In the Now are two VR projects that put viewers in virtual harm’s way. In the Now is about overcoming fear of sharks by swimming with them; it’s a prototype for a project to address phobia and PTSD. Should they warn people what level of intensity is ahead? Is it enough to explain what the installation is about? Should care be available for someone accidentally triggered? And, if this is actually a prototype for a medical procedure, has anyone run it past an Institutional Review Board?’ (Aufderheide 2018)

Aufderheide describes a project which is intended for applied therapeutic use being exhibited in the interactive section of a major film festival, as a cultural artefact. The exhibition of such a piece seems to rest on a paradox – that these claimed psychological effects are of value, but that those experiencing it within the festival won’t be affected by them. Madary and Metzinger’s research would suggest that, at the very least, curators need to approach VR exhibition with more care, further than common attitudes to media effect may need revision in this context. Their work shows why the psychological risks to

participants through casual or uninformed uses of the affordances of VR need to be more widely understood and considered within the production and exhibition of nonfiction. Anxiety over the detrimental social effects of new forms of media is of course a recurrent theme, so there is a tendency to dismiss concerns as overstated. In the case of VR, it is interesting to notice how the hype and hope around the new medium have so far dominated discourse, despite such potential harms being flagged. In the play between desire and anxiety over new technology, we can see how it is the former that drives development. However, a consideration of commercial interests in this new technology suggests that there are other grounds for circumspection, too.

As Palmer Luckey's connection to de la Pena illustrates, there is a symbiosis between technology and content development in relation to VR, and nonfiction features in that interrelationship. Facebook and Google are among the biggest players in VR development. Since its acquisition of Oculus Rift in 2014, Facebook has substantially invested in the development of the headset, and in the social VR platform, Spaces. Google quickly became an innovator in VR. Their Cardboard headset released in 2015 allowed a mobile phone to become a VR platform, taking the platform beyond early adopters. They went on to release the Daydream headset with its companion Pixel phone the next year. They've also substantially invested in enabling VR on YouTube – and can now count almost 3 million subscribers on the platform's VR channel.

While VR was expected to enter everyday use as a gaming platform, the strategy within the technology companies has been to drive take up into the mainstream. Beyond their commitment to technology development, both Facebook and Google have backed that strategy by investing in nonfiction content creation initiatives that bring VR to mainstream audiences. Google subsidiaries have partnered with journalism, including the Guardian, providing investment in content creation in deals that have involved the use of their VR platforms. Meanwhile, Facebook has a hand in nonfiction VR through the Oculus Creators Lab, a section of its "VR for Good" programme.

The *Authentically Us* series – three 360 video portraits of transgender people produced in 2017 – provides an illustration of Creators Lab output. As director Jess Ayala explained on a panel at Sheffield DocFest 2018, screenings are 'paired' with what he calls 'analogue action', with viewers invited to write their thoughts about the video they've just seen onto a postcard and send it, either to an elected official or to someone in their own social network. As the title of the VR for Good initiative makes plain, claims for the pro-social affordances of VR are thus utilised by Silicon Valley to validate the platform, and are proving a significant factor in promoting VR to a general audience. We might think of such initiatives as part of a wider pivot to civics within Silicon Valley which has been identified in research from the Tow Center into the influence of technology platforms on journalism (Bell & Taylor 2018). Following that research – *The Platform Press: How Silicon Valley Reengineered Journalism* – it might be argued that in providing significant investment in a field where commissioning is sparse, the technology companies are, if not reengineering documentary, then certainly shaping this space of nonfiction innovation.

Silicon Valley's interest in VR content has another facet, which relates to Madary and Metzinger's concerns over privacy. As revelations about the exploitation of Facebook data by Cambridge Analytica have underlined, the business model of these corporations is based in harvesting data about the activities of users. In this context, VR constitutes a new feature intended to encourage user engagement with their platforms, thus generating

more data. However, VR also opens up a new dimension in data capture. By making it possible to map where the user looks within a VR experience, head-mounted displays allow access to a peculiarly intimate type of information known as gaze data. Gaze data is used now within development processes to gauge how users are navigating and responding to VR experiences. Eye tracking will also become increasingly important in entertainment VR as an integral part of recursive systems that allow user experience to be responsive to user actions, so that, for example, a new scene is triggered in response to where the user looks. Gaze data, which can reveal the dilation of a pupil in response to a given scene, is also of potentially huge value to platform owners; a rich new seam of information which can reflect the priorities, interests and preoccupations of users, showing evidence of preferences that they may not even be conscious of expressing.

Where, as in the case of Google and Facebook, VR platforms are owned by technology companies, there is much that is unknown about the capture, storage and sharing of this information. It is an understatement to suggest that caution is needed around access to such data, and what might be done with the sentiment analysis allowed by that data at scale. Data capture itself is not novel in relation to nonfiction; it has been possible to harvest data about pages accessed and time spent watching by users of online documentary content. The award-winning online documentary, *Do Not Track* (2015) raised awareness of data privacy issues by turning the tables on the data trackers to expose and question these practices. However, the richness and visceral nature of data that can be captured within VR environments presents a new ethical frontier for documentary, with producers needing to learn about and take responsibility for user privacy within their projects.

The VR documentary *Porton Down* (2017), explores some of these issues through the story of Don Webb, a serviceman who, in the early 1950s, at the age of 19, unwittingly found himself subjected to mind-altering chemical testing by the British military at the Ministry of Defence's Laboratory at Porton Down in Wiltshire. To experience the VR piece, the participant sits at a table in a set evoking a mid-century science laboratory. Once the piece begins, Webb's story unfolds in animated sequences. In between these scenes, the participant finds herself in a virtual lab, instructed by an avatar researcher to undergo a series of cognitive tests that echo Webb's story. It's a disconcerting experience, as one tries to follow the researcher's instructions while at times overwhelmed by visual stimuli. After the piece ends, the participant is given a printout and finds that their own data was collected within the Porton Down Virtual Reality environment. Including physical metrics and character measures – of neuroticism, agreeability, politeness and more; the dataset powerfully illustrates the insidious potential of the VR environment. By drawing attention to the extractive logic of VR, *Porton Down* shows how documentary can make an intervention in this field, fostering literacy about immersive environments and exposing ethical problems inherent to the medium. At the same time, *Porton Down* highlights how VR might reconfigure documentary ontology. If the documentary participant is surveilled within the headset, one might argue that the triad of filmmaker, subject and audience that constitutes the ethical base for documentary gives way to a tetrad, in which the platform owner becomes the fourth, unseen party.

Conclusion

In this article I've sought to disentangle what's at stake for documentary as it embraces VR. The framing of hype and hope brings to the fore the vortex of discourses and

interests that has converged at the intersection of VR and documentary content. The long-standing desire for immersion expressed in Bazin's 'myth of total cinema' has found new potency where this immersive platform meets 'the real'. From Nonny de la Pena's earliest experiments in 'immersive journalism' through the discourse of the empathy machine, the immersive turn towards VR nonfiction has been closely linked to ideas about the pro-social nature of the medium. An emphasis on the capacity of VR for the sharing of human experience, as if unmediated, has encouraged a liberal agenda expressed in modes of filming that privilege affect over thought, observation over analysis. There are other factors, too, playing into the adoption of VR for nonfiction, that I've only been able to hint at here. Storytelling in 360 degrees presents a fascinating new creative challenge that has proved a powerful draw to commissioners and producers alike. In the context of the attention economy, the deep engagement offered by the platform provides a welcome relief from the challenge of distraction inherent in browser-based work. One might say then that the immersive turn was over-determined.

Meanwhile, in the vortex swirling around VR nonfiction, matters of concern in relation to this emerging media platform have been downplayed. At a time when the dark potential of digital has been brought into view, it is remarkable to see the same techno-utopianism that was pervasive in relation to the development of the internet at play around a new generation of technology that, through its immersive nature, carries significant risks of harm. The role of Big Tech in this account comes as no surprise, but presents a new research domain for documentary studies. The enmeshedness between technology development and content creation that I've highlighted demands further exploration. Privacy and data capture issues relating to VR require greater transparency and new literacies. These are areas that need to be explored and brought to public attention, and documentary has a role to play in that work.

While it is yet early days in terms of the takeup of VR, immersion is being seen as a significant investment space within creative industry; identified as a strategic priority within the UK government's Industrial Strategy, for example. This focus calls for greater critical enquiry in this area and for the development of frameworks to guide practice. As documentary becomes experiential, producers need to pay new attention, not just to compelling issues of storytelling and content, but to what happens to participants within the works that they create. As I have shown, there is already a substantial body of research into VR. Whether in cultural history, philosophy, interaction design or particularly in psychology; this work constitutes a rich resource that, addressed critically, can inform creative development, guide ethical practice and open up avenues for the next stages of enquiry.

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Mandy Rose is Director of UWE Bristol's Digital Cultures Research Centre and coconvenor of the i-Docs Symposium. She is co-investigator on the EPSRC research project - Virtual Realities: Immersive Documentary Encounters and co-editor of *i-docs: the evolving practices of interactive documentary* - Wallflower Press 2017.

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