Scripting the virtual: Formats and development paths for recent Australian narrative 360-degree virtual reality projects

Kath Dooley, Curtin University

Abstract

Since around 2015, an abundance of cinematic, short narrative virtual reality (VR) projects utilizing an immersive 360-degree format have emerged at film festivals around the world and on online platforms. While this medium is one that is increasingly being adopted by established, traditional 2D filmmakers, the specificity of the form gives rise to a number of challenges for the screenwriter when considering screen grammar, script formats and the writing process. This article begins to address a gap in knowledge in this area by reporting upon approaches to the script formats, development techniques and methods of collaboration utilized by three Australian practitioners working in this format. This research includes a study of the physical expression of a screen idea (recorded on the page or elsewhere) and an exploration of the working conditions within which these ideas are shaped to provide some insight into emerging practices. I draw upon detailed interviews with the three practitioners, and in doing so, I open up a discussion on how their approaches to 360-degree VR differ from traditional forms of screenplay writing.

scripting

Introduction

Since around 2015, an abundance of short narrative virtual reality (VR) projects utilizing an immersive 360-degree form have emerged at film festivals around the world and on online platforms. Viewable through head-mounted display units (HMDs) such as the Occulus Rift or Samsung Gear VR headset, these projects are accessible via a computer or a mobile phone device. Storytelling in the 360-degree format involves a medium-specific consideration of spatial relationships in what is often a 'real-time' environment for the viewer. Whereas traditional film and television narratives play out on a rectangular screen, 360-degree projects have no screen edge, and moreover, the viewer is 'present' within the story environments as either a participant /actor or witness to story events. Featuring high-quality video that is beginning to rival that of the traditional feature film, this is a medium that VR practitioner and scholar John Mateer refers to as 'cinematic virtual reality, [an] experience where individual users can look around synthetic worlds in 360°, often with stereoscopic views, and hear spatialized audio specifically designed to reinforce the veracity of the virtual environment' (2017: 15). Larsen suggests that there is no clear agreement on methods of storytelling in this new format (2018). Mike Jones, screenwriter of the recently released short VR crime drama, *VR Noir* (2016), describes the medium as one involving a new 'grammar' and a style that has yet to be fully defined (Funnell 2016). In the case of Jones' project, the inclusion of elements designed to encourage audience interaction and/or immersion gives rise to a narrative that plays out in both first-person and third-person perspectives.

While 360-degree cinematic VR is an emerging medium, it is informed by many forms of immersive media that have existed before. Ryan notes that 'the history of Western art has seen the rise and fall of immersive ideals, and their displacement, in the twentieth

century' (2001: 2). Tricart traces the origins of VR as we know it today to Sir Charles Wheatstone's design of the stereoscope in 1838 (2018: 7–8). She suggests that inventor Morton Heilig, designer of a 'Telesphere Mask' that offered stereoscopic viewing in 1960, 'may have been the first person actually to use the term "virtual reality," which he used to describe "a simulation of reality"' (Tricart 2018: 12). Meanwhile various cinematic developments in the twentieth century, such as windscreen, surround sound and 3D, have given rise to more immersive and 'realistic' theatrical viewer experiences. 360-degree virtual worlds have long existed in the realm of video games; however, considering the technological advancements of the last few years, it is notable that 'the position of the viewer/spectator is completely redefined by the fact that he/she is wearing an HMD and not facing a stage/screen' (Tricart 2018: 87). The cinematic VR form, with its common use of high-quality, live action footage and special effects, offers unique elements of immersion, presence and embodiment, to create spaces in which narratives can unfold. This form is increasingly being adopted by established, traditional 2D filmmakers; however, its specificity gives rise to a number of challenges for the director and screenwriter when considering screen grammar, script formats and the writing process (see Dooley 2017; Mateer 2017). While considerable academic investigation into interactive VR environments for computer-generated imagery (CGI) and game environments has been undertaken over the past three decades (see Aylett 1999; Aylett and Louchart 2003; Laurel 1991; Mateas 2001), Mateer notes that, in terms of research into the cinematic VR form, 'there are presently no initiating studies or foundational articles that can be seen as seminal at this point' (2017: 15). His article raises some interesting questions on how the traditional film director's craft applies to the 360-degree immersive environment, and in doing so, highlights issues for the screenwriter (2017). Larsen explores the issue of audience placement in narrative VR,

arguing for a second-person POV (2018). This research suggests the need for further investigation into other aspects of screenwriting for narrative 360-degree VR.

This article begins to address this gap in knowledge by reporting upon approaches to the script formats, development techniques and methods of collaboration utilized by three Australian writers/creators working in this emerging medium. Referencing existing scholarly work on screenwriting and development, this research includes a study of the physical expression of a screen idea (recorded on the page or elsewhere), and an exploration of the working conditions within which these ideas are shaped, to provide some insight into emerging practices. As I have argued previously (Dooley 2017) there is no one single approach associated with the writing of a 360-degree VR narrative; however, a survey of recent works offers some insights into the variety of techniques adopted by practitioners working in an Australian context. With reference to *VR Noir*, the web series *The Next Striker* (2016–17) and the documentary *Collisions* (2016), these aspects of screenwriting craft for this immersive medium are unpacked and explored. Parallel to a textual analysis of these works, I draw upon detailed interviews with the writers/creators listed above to report on their approaches to the development and writing process. In doing so I seek to open up a discussion on how these approaches to 360-degree VR differ from traditional forms of screenplay writing and development.

About the projects and their writers/creators

At the time of writing in 2018, the three case studies that are featured in this article represent a cross section of innovative work that has been produced in the previous two years. The projects are all of short duration, with Australian writers/creators at the helm, but they vary in their genres (mystery, action, documentary), their target audiences and the imperatives driving production. As such, this particular selection of works and makers highlights the

array of approaches and practices taken up by early adopters of the narrative VR medium in Australia.

The three practitioners who have written these works all bring some experience of traditional filmmaking to the projects; however, their professional knowledge and expertise in other related areas such as gaming, advertising or art installation, is substantial and varied. In the case of *The Next Striker* and *Collisions*, the writer is also the director. When analysing the latter documentary project, I use the term 'creator' to encompass the work undertaken by Wallworth, which sometimes blurs the lines between writing and directing.

VR Noir (2016), a collaboration between writer Mike Jones, Sydney-based company, Start VR, and the Australian Film, Television & Radio School (AFTRS), is a twelve-minute (approx.) murder mystery that draws upon film noir conventions. The coming together of the three partners listed above is significant, as Jones explains: 'what went from being a very modest, lean experiment in narrative VR suddenly had a lot more resources at its disposal' (2017). *VR Noir*'s storyline concerns the adventures of protagonist Veronica Coltrane, a private detective who investigates a missing husband only to become an unwitting witness to murder. By drawing on familiar noir story tropes, the creators were able to focus their attention on experimentation with the 360-degree VR technology and form, prioritizing AFTRS' research agenda and worrying less about profit-making. Developed and produced over twelve months, the *VR Noir* project debuted at Sydney's 2016 Vivid Festival, where audience members were surveyed before and after viewing, to gauge their expectations and reactions to the work. The project then toured globally for twelve months, playing at various film festivals.

The *VR Noir* narrative plays out in three scenes, with 360-degree visuals created through a mixture of video footage, still images and CGI. Head-tracking technology allows the audience to interact with story elements throughout the scenes, although this interaction

does not impact upon the overall narrative. For example, when Veronica meets a new client, Ms Stackhouse, the viewer is asked to comment on whether this mysterious figure is 'wasting time' or 'a woman in grief'. Depending on the viewer's choice, Veronica gives a slightly different reaction; however, the scene plays out to a fixed conclusion. The inclusion of these interactive elements means that *VR Noir* has a variable duration dependent on viewer input; however, the media assets employed in the work are fixed and predetermined.

Writer Mike Jones, who also works as a script editor and script producer, comes from a theatre background before more recent work in television and feature film development. He describes himself as always having 'had a foot in interactive across platforms', with work in 'digital projects, interactive games, multiplatform projects and digital series interspersed with more traditional work [as a] novelist and playwright along the way' (Jones 2017). Following work on *VR Noir*, he recently collaborated with Martin Taylor and Christian Cantamessa, the latter being the writer of the successful video game *Red Dead Redemption* (Rockstar Games, 2010), to create the speculative fiction VR project *Awake* (2018). In addition, Jones leads long-form script development labs for Google/YouTube and works as a story consultant to ABC Signature studios in the United States.

The Next Striker (2016–17) is a fictional series of seven short episodes that position the spectator in the place of a new recruit to the Adelaide Strikers cricket team. It is described by writer/director Tom Phillips as a concept that plays out in first-person perspective: 'You are the next striker. You get plucked from obscurity from your local club and you're going to end up playing on Adelaide Oval' (Phillips 2017). Funded by the South Australian Cricket Association (SACA) and realized by Phillips in collaboration with Adelaide company Jumpgate VR, the series is created for a target audience of young cricket fans. On writing the project, Phillips comments that 'I tried to think about myself when I was a young fan, what would I have liked to see?' (2017). The answer, he decides, is 'I want to see my heroes up

close talking to me, throwing the balls at me […] interacting' (Phillips 2017). Taking this approach, the episodes of approximately two minutes feature real-world elements in terms of settings (club rooms, offices and training grounds) and actual Strikers players as the protagonist (the viewer) is called up to join the team, trains with his or her peers and then gives a triumphant performance on home ground. Unlike *VR Noir*, viewer interaction is limited to the choice of where to look within the 360-degree space. The first-person visual perspective of the work encourages the viewers to immerse themselves in a challenging world of professional sport.

The Next Striker series was developed and produced over the course of a single cricket season, meaning that the episode structure revolved around the actual team schedule and logistics. Phillips describes how 'the story in a sense evolved with the season', during which he physically followed the team from location to location (2017). Finished episodes were first viewed by fans in 2017 when a tent containing a number of HMDs was set up at Strikers' home games and at key events. Several episodes are also accessible through the Strikers Facebook page (2018), a format that proved to be surprisingly popular.

Phillips describes himself as a writer/director with a background in traditional short film making and advertising. As such, he was well accustomed to working with a commercial client such as SACA. Following the success of his 2012 short film *Close Your Eyes*, Phillips took a feature film pitch to the Cannes Film Festival. Experienced in both short- and long-form screenplay writing, before *The Next Striker* he had previously worked with Anton Andreacchio, co-founder and owner of Jumpgate VR.

The last case study to be considered is *Collisions* (2016), a seventeen-minute Emmy-nominated VR documentary project created by renowned Australian artist Lynette Wallworth. *Collisions* transports the viewer to the remote Western Australian desert home of the Martu tribe, where they are Welcomed to Country (a formal greeting and protocol) by

indigenous elder and traditional custodian Nyarri Morgan. Nyarri then recounts his experience of unwittingly witnessing an atomic bomb test on Martu land in the 1950s – one of many British atomic tests conducted in the country in that era. Wallworth's project reflects upon the impact of this destructive nuclear experiment, and on contemporary Martu traditions and culture. In doing so the project forges a connection between Nyarri and physicist J. Robert Oppenheimer, a key player in the Manhattan Project, which developed the first-ever nuclear weapons during Second World War. *Collisions* mixes 360-degree camera footage of Martu land with computer-generated animations of the remembered bomb blast. As with *The Next Striker*, viewer interaction is limited to the choice of where to look within the 360-degree space as they bear witness to Nyarri's story.

Wallworth has a history of creating immersive installation work for film festival and art gallery settings, and directing more traditional documentary production (see *Tender*, 2013). She initially conceived of *Collisions* as an immersive installation, the central idea of which was to 'construct some sort of a meeting between Nyarri and Oppenheimer, a sort of communication that had never happened between those two men' (Wallworth 2017). When Wallworth first viewed a piece of live-action VR footage in 2015, she realized that this was the perfect medium through which to tell Nyarri's story, with 'one of the central considerations (being) to actually be able to convey feeling for being in country' (Wallworth 2017). She describes her goal of providing the viewer with an 'almost formal and tangible sensation of (the) process of being invited in to Martu country through VR' (Wallworth 2017). The project was further developed and produced as part of the Sundance Film Festival's 'New Frontier' programme in collaboration with Jaunt VR. Wallworth recalls how the Sundance Institute 'were interested to see if (she) could construct a linear narrative in VR […] beyond just an experience' (2017). The finished product has screened at a number of

festivals and venues around the world, including the World Economic Forum in Davos, and can also be viewed through the downloadable Jaunt VR app (2018).

In summary, these three innovative Australian projects reflect some, but no means all, of the possibilities for the medium of 360-degree narrative VR. This field of screen production is very much in flux and remains a popular area of experimentation for practitioners from a range of backgrounds.

Development techniques and methods of collaboration

Script development is a practice that can encompass a range of activities, with the term itself being 'complex, contested and contingent on context' (Batty et al. 2017: 226). In the context of the Australian screen industry, it refers to the process of developing a screen idea to a producible work, which may involve the rewriting of drafts, the production of 'test scenes', proof-of-concept work and/or the generation of other developmental materials. This work is sometimes supported by government funding bodies, private production companies and/or other institutions, and involves potential collaboration with script editors, directors, producers and actors. In the case of work undertaken by emerging writers, script development most often occurs without financial recompense, but it can be equally as collaborative a process.

When attempting to define the field of script development, Batty et al. pose the question: 'Does script development depend on media/format?' (2017: 241). While a survey of the practices undertaken in relation to these three Australian VR screen works does not reflect all of the development work occurring in the 360-degree narrative space, it nonetheless provides some indication of emerging practices to facilitate a comparison with traditional screen media development paths.

VR Noir was originally planned as a six-part series, although only a first episode has been produced to date. When describing the project's development, Jones recalls a collaborative process that is similar to that of the contemporary television writers' room:

> We began with a fairly loose concept. We had a character, we had an idea of a general arc and it was a case of essentially designing a conspiracy. […] So we began with essentially a kind of a writers' room, which involved myself, Nathan Anderson (Start VR, producer) and a couple of other writers who were not necessarily going to write the script, because there wasn't enough script to hand around. But we plotted together much like a writers' room. We developed the concept together, we put it up on a whiteboard, broke it down, what were the beats and escalations. (2017)

While Anderson, as creative producer, occupied the 'showrunner' role on the project, Jones, as co-creator, appears to have crossed into the territory of this role in the development phase. He 'handled the creative and story elements, wrangled the people in the room and […] ran the room when we were developing the story' (Jones 2017). In addition to contributing in the writers' room, Anderson later ran the production of the project. Jones suggests that 'the showrunner in VR doesn't necessarily need to be one person but there needs to be a clear […] vision' (2017). He also notes the involvement of Martin Taylor, 'who was the technical director on the project and absolutely active in the story process from the beginning' (Jones 2017). He stresses the importance of having the 360-degree VR producer and director involved in the development of the project from the start: 'I think to work any other way is creative suicide. It won't work. You'll trip over yourself' (Jones 2017).

As argued elsewhere, 360-degree VR differs from other screen media in terms of the tactics required to attract audience attention to narrative events occurring in the 360-degree

space (Dooley 2017). Lacking a 'screen edge', VR works often use auditory or visual cues to encourage the viewer to turn in a particular direction and focus on particular actions or story events. Speaking hypothetically about his ideal for the narrative VR projects, Jones suggests that the medium's specificity can be addressed by bringing professionals from other areas of screen production into the writer's room during the plotting period. He remarks that

> […] if I have to think spatially and in proximity and in sound, then I need other collaborators in the room. It's no good to just put me in a room with a few writers. That's just not going to help. I need to have a level designer, I need a kind of spatial designer [and] I need a sound designer. (Jones 2017)

Each of these professionals, he suggests, can bring good ideas and solutions to narrative problems. For example, a sound designer might contribute ideas for 'oral cues and how we can drive drama by sound' (Jones 2017). Furthermore, a 'choreographer in the room […] can talk about movement and space' (Jones 2017). Jones stresses that having more collaborators means that the project needs to be managed carefully, which takes 'a real showrunner, someone who can […] manage that production and creative demands and […] steer the creative vision' (Jones 2017).

Jones considers the VR medium to naturally lend itself to an iterative development model. Following the writers' room process of plotting *VR Noir*, he wrote the first draft of the script. Jones comments, 'I went away and banged out a script and brought it back to the table and we kicked it around again' (2017). This process of reviewing and rewriting the script continued right through production and postproduction of the project. Further to rewriting before shooting, Jones was present on set, where he undertook script revisions to address staging and dialogue issues. He comments that 'wild lines of directions that we […] realised

we might need, were all written during the process' (Jones 2017). In parallel, Jones was involved in VR test shoots: 'we were doing some of the […] digital comping on set and we were able to put on the headsets and see what it would look like' (2017). Further revisions in the edit room addressed pacing issues specific to the work. Jones remarks that this issue surfaced 'because it was new and we were still working out what the pacing of [narrative 360-degree VR] is' (2017). This issue highlights one of the challenges of the medium – that despite Jones' substantial expertise in other interactive and traditional media formats, pacing was significantly unpredictable.

In what can also be described as a highly collaborative process, in the case of *The Next Striker* writer Tom Phillips worked closely with both the production company Jumpgate VR and the client, SACA, when developing the web series to a final draft script. The series concept originated with Jumpgate VR, and was already commissioned by SACA before Phillips' attachment to the project. The writer/director comments that 'in terms of brainstorming and collaboration […] they were definitely involved' (Phillips 2017). Scriptwriting and preproduction for the first episode occurred in a short period of two weeks, during which time Phillips took technical advice from Jumpgate VR to grasp the possibilities of the VR medium: 'what are the impossible things? What can we try? And what can we do?' (Phillips 2017). He comments that his collaborators at Jumpgate 'read all the scripts and gave feedback', reflagging technical issues related to camera movement and wobble. 'Essentially we had a very quick pre-production, which (involved) going through (the script) beat by beat' (Phillips 2017).

Preproduction also involved a test shoot, during which time the specific camera rig intended for use in the production was utilized to film a range of scripted actions. Phillips describes this test shoot as an 'eye-opening experience' as he discovered that he could 'probably do a little bit more [with the medium]' than he originally thought (2017). He likens

the experience of shooting 360-degree VR to early filmmaking with celluloid film as he lacked a monitor to view shot composition on set. While a rough version of the 360-degree footage was stitched together shortly after shooting for editing purposes, this lacked the final image stabilization and other effects. 'You don't know what you've shot until you're looking at the final stitched footage' (Phillips 2017).

One discovery made as a result of the test shoot was the need to rethink foreground elements in footage relating to the playing of cricket. As a viewer, Phillips felt that 'you want to see the cricket bat in front of you. You want to see your arms (and) you want to see your shoulders' (2017). He therefore rewrote *The Next Striker* screenplay so that it included these foreground elements. Commenting on this peculiarity, Phillips remarks that 'in a normal (non-VR) script I wouldn't talk about what their hands are doing too much unless it was really important' (2017). Just as this test shoot led to refining of the script for the first episode, Phillips notes that scripts for other episodes were further refined as the staggered process of shooting took place and progressive episodes were edited and reviewed.

With the development of *Collisions*, Wallworth took a somewhat different path, devising her concept in isolation, before then engaging with project partners to finesse her vision and work out the technical business of how it would be realized. Speaking generally, she comments that 'I'm always very clear on an idea before I start. The idea behind a work is not something that I generally collaborate (on) with anyone' (Wallworth 2017). In terms of her first 360-degree VR work, she describes this early solo work as important as she did not wish to allow technological factors to override other imperatives:

I've worked with a lot of different technologies. I think it's very important to not be swayed by an emerging technology to try and demonstrate its possibilities over and

beyond developing the story. […] Otherwise if you're unsure of the concept, you can

be directed by the technology as opposed to directing the technology. (Wallworth 2017)

Wallworth has a seventeen-year history of working with immersive forms and she considered

the 360-degree VR medium to offer 'the most effective way of allowing the participant inside

the work to have the sensation of […] Nyarri's perspective' (2017). Once the concept was

fully formed, she describes two key events in early 2015 that drove the project towards

fruition. First, Wallworth was invited to display the first ever VR work at the World

Economic Forum, and second, she was awarded the inaugural Sundance Institute New

Frontier VR residency to develop the work. As part of this residency, Sundance took

Wallworth to visit VR production companies in Los Angeles and San Francisco. She

discussed specific limitations on the form of the work with these companies before eventually

settling on Californian-based company Jaunt VR as production partner in June/July 2015. She

comments that 'by August I would have been in pre-production (and in) September we were

shooting' (Wallworth 2017).

One benefit of the residency, according to Wallworth, was the production team that

she was able to access. She comments that 'I had a producer based in the United States

(Nicole Newnham), who I knew from previous work, and she and I then began to have […]

conversations with the production team at Jaunt VR' (Wallworth 2017). Other conversations

with production crew, such as Patrick Meegan (DOP), were part of a learning process of how

to deliver the work (Wallworth 2017). In addition, Wallworth sought out advice on the

creation of her animated sequences so that she 'could imagine these scenes with the (filmic)

transitions' (2017).

One can surmise, then, that the development path for *Collisions* can be split into two

distinct phases, occurring before and after the commencement of the New Frontier residency.

Wallworth's concept development, which was undertaken without the input of technological partners, allowed her to define her goals for the project and bring a fully formed idea to Sundance, which was then further developed in collaboration with a number of production crew. As with the two previous case studies, the making of *Collisions* involved a writer/artist working in close collaboration with the VR production company that would help to realize the end product; however, for this latter project, collaboration occurred further into the development process.

Script formats and devising tools

Professional screenwriting for traditional media such as film and television is an activity bound in convention in terms of script layout, font use and formatting. Screenwriting theorist and practitioner Kathryn Millard observes that

> […] conventional wisdom in the film and television industries suggests that the screenplay is not only a creative document, but also one that encompasses production planning; providing information about locations, actors, sets, props, time of day and, most vital of all, timing. (2010: 15)

As such, the use of Courier twelve-point font and other conventions allows the screenplay to become a quantifiable document, with one page of a script regarded as approximately one minute of screen time.

As with traditional filmmaking, the highly technical nature of narrative VR production also demands detailed planning documentation. However, my research suggests that the screenplay form described above is only one of many means that may be employed to bring a project to fruition. The three case studies here showcase a range of approaches to

'scripting', demonstrating that the traditional screenplay form continues to hold relevance, while other story-writing formats and visual aids are also useful creative tools. My interviews with the three practitioners highlight points of difference that relate to the specificity of the narrative VR form itself, as I will outline below.

When writing *VR Noir*, Jones utilized techniques associated not only with traditional screenwriting but also narrative video gaming to visualize and capture the story. An initial challenge for his writing process related to the conceptualization of spatial relationships in the 360-degree space. He comments that

> Even before we got to dialogue or impetus or what was going to compel the character or stakes […] I was thinking through a series of environments that would create their own pressures on the audience, and very much letting that help shape the story. (Jones 2017)

This approach required Jones to create physical cardboard maps of his story settings, in which he noted the position of the viewer in relation to story antagonists and other forces. He describes this process as a means for considering several questions.

> What are the different ways we could get an audience into this room, what are the different ways we could get them out, how much agency are we handing over to them, how much control are they going to have? (Jones 2017)

Such a process is not common for feature or television writing, but Jones notes that 'you might do it [when devising] a play if you think about "blocking" in the way [that] dramaturgical collaborative theatre is made' (Jones 2017). Jenkins suggests the use of a

similar approach to vídeo game and amusement park ride design (2004: 121, 123). Both involve 'spatial stories (that) are held together by broadly defined goals and conflicts and pushed forward by the character's movement across the map' (Jenkins 2004: 123).

This exploration of spatial elements gives rise to the interactive nature of the *VR Noir* narrative, where the viewer is given time to explore the environment and garner gather story information in each of the project's three scenes. For example, in the introductory scene in Veronica's office, the viewer is initially able to move around at their own pace and examine the protagonist's personal belongings, an action that triggers a series of voice-overs revealing backstory. After a certain number of objects have been explored, the film's antagonist, Ms Stackhouse, enters the office and the story begins to unfold in earnest.

Unlike *The Next Striker* and *Collisions*, the first scene in *VR Noir* includes the 'choice points' described earlier, at which time the viewer can choose one of a number of responses to the story set up. This style of interaction is common in narrative video gaming, and so it is not surprising that Jones used a software program named Twine, commonly utilized in the gaming industry, to map the different branching narratives (2018). He describes Twine as a 'tool for creating a flowchart of cells' that enabled him to map the different choices and how they would connect together in the story world (Jones 2017). Whereas the choice points create different pathways for the viewer, he notes that 'it's not about coming to a different conclusion. [The choices] all build to […] basically the same ending' (Jones 2017).

While Jones 'would have preferred to keep it all in *Twine*', he found that the *VR Noir* production crew, many of whom were from a traditional film and television background, required a traditional shooting script (2017). 'For practical purposes the first AD wanted something they could break down and the directors wanted something they could rehearse with actors and hold on paper' (Jones 2017). He describes a sense of frustration when presenting the story in this format, and including the choice points, as follows:

In the script, it will come to the questions asked and they'll say there are three options, or two options or whatever. You can answer A and it follows the A dialogue and then […] here's B and it follows the B. So [the story] still presents [as] really linear on the script, which I find an incredibly clumsy thing to do and I'm sure we'll have a better option in the future. (Jones 2017)

This frustration points to a key problematic for the writing of narrative 360-degree VR projects: the limitation of the traditional screenplay when considering interactive story elements. One might look to the practices of narrative video game designers, many of whom have been working with 360-degree worlds for many years, and to software such as Twine to find a solution to this problem. However, as Jones' experience highlights, the demands of the production crew also influence the presentation of the script and other creative documentation, and therefore limit the range of possibilities.

When writing *The Next Striker* writer/director Phillips also worked with the traditional film industry script format. He began by drafting outlines of each episode. He describes these as quite 'in-depth' as each one included logistical information such as the inclusion of actual Striker players and location requirements (Phillips 2017). Phillips then utilized the screenwriting software Final Draft to expand the outlines to a full script (2018). He recalls these as being similar in appearance to a traditional feature film or short film script with a couple of key differences. First, he notes that his writing was a 'little bit more descriptive with small movements […] just to make sure whoever was reading it got a sense visually of […] what we're trying to do at any given time' (Phillips 2017). The practice noted earlier in this article, of describing the protagonist's hand movements and other body parts, stands as one example of this. Second, the scripts were written in the second-person tense so

that the reader (like the viewer) assumes the place of the protagonist. Phillips had not previously written a script in the second person but he stresses that it was very much *you*.

> It was very much *you*, y*ou're* doing this, the ball comes towards *you*. […] I wanted people to feel like they would feel when they're watching [an episode]. Even though it's shot in the first person, the script's in the second person. (Phillips 2017, emphasis added)

Phillips' use of this different perspective was in part fuelled by his feeling that, due to the emerging nature of the 360-degree narrative VR form, there was 'no right or wrong way' to write the script (2017). He notes that while his clients 'might have seen a couple of television commercial scripts [including] video and audio, but they hadn't seen anything like this' (Phillips 2017). The use of the second-person tense presented each episode 'in a way that they could consume it and kind of really get a sense of – this is going to happen, [then] this is going to happen' (Phillips 2017). One could posit that this approach to screenwriting grammar for 360-degree VR taps into the specificity of the medium when the writer attempts to make the viewer occupy a role as character within the story world.

When Wallworth reflects upon the development process of the documentary *Collisions*, she speaks of generating detailed storyboards from shot lists to communicate her creative vision. The eventual work features twenty shots, all of which were storyboarded so as to register camera angles and camera placement. Wallworth considers this detailed storyboarding to be a pre-production requirement that is specific to the 360-degree VR form. She observes that when planning a traditional documentary, 'you're setting the scenes, you know what the scenes are (but) you're not choosing camera angles in particular' (Wallworth 2017). By contrast 'in VR you have to storyboard for the tangible, which is the placement of

the camera within each scene because that essentially impacts everyone's experience of the work' (Wallworth 2017). Further to the planning of a traditional documentary, 'you have to know […] not just the arc of the narrative but […] the position of the viewer' (Wallworth 2017).

Wallworth rightly notes that the traditional filmmaker does not need to consider audience placement in relation to the rectangular cinema or television screen as the viewer position is generally fixed to the forward-looking position; 'in traditional film it's just a parallel placement' (Wallworth 2017). By contrast, the 360-degree VR experience sees the removal of the rectangular 'frame', giving the audience the freedom to look in any direction. Wallworth's previous experience with immersive media proved helpful in addressing this issue, as she explains:

> If you come from [a background of] immersive installation you're already in the habit and naturally predisposed to consider this, because […] you work in 360 degrees. So you devise a work around the way that your participant viewer will move, continually considering the work from the position of the participant viewer. (Wallworth 2017)

Moreover, the artist notes that the specific process of storyboarding *Collisions* was also concerned with placing the viewer inside the work, which is possible using a head-mounted display unit. She posits that creating the sensation of being present in an environment 'naturally leads to different decisions around the entry into the work and the exiting from that work' (Wallworth 2017). Consequently Wallworth found storyboarding more intense.

> [I] began storyboarding […] in a much more intense way than I would have had if [the project had] remained an immersive installation that you would experience at a

gallery, [where you] know yourself to be in a gallery with video projections all around you as opposed to in VR, [where] you feel yourself to be transported into that environment. (Wallworth 2017)

This practice, according to Wallworth, 'will make or break the experience, [influencing] my understanding as a participant viewer, of my place within the world of the work' (2017).

Conclusion

The use of the various script formats and tools for visualization that are listed above reflects the diverse nature of these three projects and the background of their makers. Just as traditional documentary adopts a different approach to 'scripting' than traditional drama or corporate work, so too can 360-degree VR projects in these various fields be seen to diverge in terms of screenwriting methods. It is clear that the practices of the three writers/creators reflect their previous experience of working in traditional and interactive media, demonstrating that no common format seems to work for all. Similarly, all of the practitioners have adopted an approach to the development of their projects that is somewhat driven by their previous experience and by that of their collaborators. These are writers/creators who are working across various film, television and gallery contexts, bringing a range of innovative approaches to their VR work.

In her 2014 text *Screenwriting in a Digital Era,* Kathryn Millard reports upon innovative screenwriting practices gleaned from a range of writers and practitioners working on the global stage in the age of media convergence. Following on from Steven Maras' discussion of 'scripting' as incorporating a spectrum of conceptualizing activities (Maras 2009: 171–72), Millard's research demonstrates that 'screenwriting is a living art, constantly in transition' (2014: 178), and moreover, that it 'is a transformation of earlier modes of

writing for screens, visual media, poetry and performance' (Millard 2014: 179). Furthermore, Millard highlights the importance of collaboration in writing, noting that 'in the new screen media ecology, ensembles, collectives, cooperatives and collaboratives are all flourishing' (2014: 182). These observations (made in terms of 2D filmmaking) resonate when considering the work of the VR practitioners surveyed in this article. All three writers/creators have transitioned to the 360-degree narrative form from other visual media, and they have worked closely with the practitioners that will bring the project to fruition. While the role of the writer is still central in the creation of the work, early collaboration with other craft and technical personnel seems to be especially important, given the unknowns related to the creative and technical possibilities of the VR medium.

Millard concludes with a manifesto for sustainable screenwriting in which she suggests that writers and filmmakers should 'reject script development in favour of production development. Research. Produce. Release. Find the collaborators with whom you wish to work and begin working towards production from the very beginning' (2014: 184). This too stands as sound advice when considering the cinematic 360-degree narrative VR medium. The interviews above suggest that the act of writing is somewhat inseparable from aspects of project preproduction, with test shoots and storyboarding assisting the writer/creator to consider audience placement and interaction in a way that is necessary to produce an engaging narrative. For the writer who is new to the 360-degree form in particular, a sound understanding of the form's possibilities in terms of storytelling and audience interaction, which may at least in part be garnered from project partners, is required to produce an engaging work.

This article stands as an initial attempt to investigate and understand more about these aspects of screenwriting for narrative 360-degree VR projects and has highlighted the need for further research into this area. A more comprehensive survey of practitioners in Australia

or further afield would more conclusively illuminate emerging trends related to script formats and/or development practices. There is also scope to explore the many other facets of screenwriting, such as the shaping of narrative arcs, the scripting of character and setting, and the location of the viewer/reader, in relation to the immersive 360-degree environment. Such research would provide further insight into how screenwriters working in traditional forms might adapt their practices to create innovative and effective narrative experiences in this emerging and exciting cinematic field.

References

Adelaide Strikers (2018), 'Videos', Facebook, https://www.facebook.com/pg/StrikersBBL/videos/?ref=page_internal. Accessed 18 June 2018.

Awake (2018), Wrs: Martin Taylor, Mike Jones and Christian Cantamessa, Dir: Martin Taylor, Prod. James D S Marshall, Australia, Duration unfixed.

Aylett, Ruth (1999), 'Narrative in virtual environments – towards emergent narrative', *Proceedings of the AAAI Fall Symposium on Narrative Intelligence, North Falmouth, Massachusetts, November 5–7*, California: The AAAI Press, pp. 83–86.

Aylett, Ruth and Louchart, Sandy (2003), 'Towards a narrative theory of virtual reality', *Virtual Reality*, 7:1, pp. 2–9.

Batty, Craig, Taylor, Stayci, Sawtell, Louise, & Conor, Bridget (2017), 'Script development: Defining the field', *Journal of Screenwriting*, *8*:3, pp. 225-247.

Collisions (2016), Wr and Dir: Lynette Wallworth, Australia, 17 mins.

Dooley, Kath (2017), 'Storytelling with virtual reality in 360-degrees: A new screen grammar', *Studies in Australasian Cinema*, 11:3, pp. 161–71.

Final Draft (2018), 'Official website', https://www.finaldraft.com/. Accessed 19 June 2018.

Funnell, Antony (2016), 'Future tense: How storytelling is changing in the modern world', ABC Radio National, http://www.abc.net.au/radionational/programs/futuretense/how-storytelling-is-changing-in-the-modern-world/7622624. Accessed 2 January 2018.

Jaunt VR (2018), 'Jaunt Vr App', https://www.jauntxr.com/apps/. Accessed 18 June 2018.

Jenkins, Henry (2004), 'Game design as narrative architecture', in *First Person: New Media as Story, Performance, and Game*. Eds. Noah Wardrip-Fruin and Pat Harrigan. Cambridge: MIT Press,, pp. 118-130.

Jones, Mike (2017), in person interview with Kath Dooley, Skype, 4 March.

Larsen, Mads (2018), 'Virtual sidekick: Second-person POV in narrative VR', *Journal of Screenwriting*, 9:1, pp. 73–84.

Laurel, Brenda (1991), *Computers as Theatre*, Boston, CA: Addison Wesley.

Maras, Steven (2009), *Screenwriting: History, Theory and Practice*, London: Wallflower.

Mateas, Michael (2001), 'A preliminary poetics for interactive drama and games',
Proceedings of SIGGRAPH 2001: Art Gallery, Art and Culture Papers, New York:
Association for Computing Machinery, pp. 51–58.

Mateer, John (2017), 'Directing for cinematic virtual reality: How the traditional film
director's craft applies to immersive environments and notions of presence', *Journal of
Media Practice*, 18:1, pp. 14–25.

Millard, Kathryn (2010), 'After the typewriter: The screenplay in a digital era', *Journal of
Screenwriting*, 1:1, pp. 11–25.

____ (2014), *Screenwriting in a Digital Era*, Basingstoke: Palgrave Macmillan.

The Next Striker #1–7 (2016–17), Wr and Dir: Tom Phillips, Prod. Jumpgate VR Australia, 2
mins (approx) per episode.

Phillips, Tom (2017), in person interview with Kath Dooley, 24 February.

Rockstar Games (2010), *Red Dead Redemption*, San Diego, CA: Rockstar Games.

Ryan, Marie-Laure (2001). *Narrative as Virtual Reality: Immersion and Interactivity in
Literature and Electronic Media*, Baltimore: John Hopkins University Press.

Tricart, Celine (2018), *Virtual Reality Filmmaking: Techniques and Best Practices for Filmmakers*, New York: Routledge.

Twine (2018), 'Official website', http://twinery.org/. Accessed 19 June 2018.

VR Noir (2016), Wr: Mike Jones, Prod. Nathan Anderson, Australia, 12 mins.

Wallworth, Lynette (2017), in person interview with Kath Dooley, Skype, 7 June.

Contributor details

Dr Kath Dooley is a filmmaker and academic in the Department of Screen Arts at Curtin University, Western Australia. She completed a creative Ph.D. exploring the screenwriting approaches and production methodology of contemporary French directors, with a specific focus on portrayals of the body. Kath has written a number of short and feature-length screenplays, and has directed several award-winning short films and music videos. Her research interests include screen production methodology, screenwriting and screen education.

Contact:

Curtin University- Kent St, Bentley, Perth, Western Australia, 6102, Australia.

E-mail: kath.dooley@curtin.edu.au