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Abstract

In 2015 The Tow Center for Journalism produced a live-motion virtual reality (VR) journalism story on the Ebola outbreak in West Africa, 'Secret Location'. They stated that this new technical and narrative form appeared to change how journalists must construct their stories. They also challenged the industry to explore the journalistic application of VR beyond 'highly produced documentaries' (Owen et al. 2015). We decided to take up the challenge; to make a short news VR film that explored the construction of this form of media and asked which narrative characteristic engaged the viewer to continue watching in a medium where, thanks to VR technology, the viewer was already immersed in the storyworld. Our findings suggest that even when the VR technology immerses the viewer into an illusion of presence, the traditional characteristics of narrative, character, plot, and subject remain of fundamental importance in the construction of a news story, and despite the feeling of immersion, it was the tension of what happens next, that is the plot, that was the strongest narrative driver in this short journalistic VR film. We also reflect on some issues raised in the production of the piece, such as the time taken to make the video, the limitations of creative editing when producing a VR item and whether the expectations that VR raises with viewers might impact on their experience of viewing a VR news items.

Key words

Journalism, VR, narrative, practice, immersion.

Introduction

Lewis et al. (2005) write about the changing focus of what is of interest to news, where the feeling of 'being there' and of 'liveness' has superseded the aim of providing new information, so it is of no surprise that organisations have been looking at VR as a medium to enhance this feeling of presence, if not of immediacy. Since the purchase of Oculus Rift by Facebook in March 2014, and the introduction of 360 video as a method for audiences to experience stories from a first-person perspective (Sirkkunen et al 2016), the use of immersive media or 'VR' including factual storytelling and news and current affairs, has been increasing and by 2025 the shipment of home mounted displays (HMD) for enterprise VR use cases will reach 41 million devices (Jijiashvili 2020).

Much VR journalism has covered stories with high news values, or like the 'Secret Location,' have been high end productions. We wanted to produce a VR piece that was similar to news stories that many journalists cover daily, made by a team like that engaged by many broadcast news organisations, but we also wanted to make it different in its use of spatial storytelling and interactivity. We hoped to investigate questions relevant to the production of VR where we could examine the storytelling techniques in this medium, and whether these storytelling techniques could hold the audience of the VR piece even though the item was produced by a news team with no budget, no dramatic locations, and no extra video layers. We also wanted to look at the experience of making a VR journalism story which was produced by a more traditional news crew, that is 3 people, rather than the 12 people involved in the high-end documentary production of 'Secret Location'.

We thus initially looked at what aspects of narrative people are interested in, and which aspects they would stay with to watch a VR story. Davies (2004:26) writes that practice as research explores the relation 'between the generative act that brings a work into existence and the receptive act that is a proper appreciation of that work'. We wanted to investigate whether and how traditional techniques of narrative affected the engagement with the inherent features of the VR form and reflect on the limitations on the production process when making this experience.

Narrative

Literature on narrative is extensive and ranges widely across different mediums and different genres. Writers across genres agree that 'a story is a story and that it doesn't change when you watch it on a different medium (Bucher 2017: 212); that it is a cognitive structure that 'transcends media, disciplines, and historical as well as cultural boundaries (Ryan 2006:102), and that it is an organising mechanism for making sense of the world (Hardee 2106:681). This last function is especially relevant for narrative in journalism. Kovach and Rosensteil write that journalism is 'storytelling with a purpose; that purpose is to provide people with information they need to understand the world' (2014: 214). People need to make sense of what is happening in the world, but a good storyteller must also intrigue the reader, so they stay with the story to fully understand its whole, and it is in this latter function that narrative techniques from literature have been adapted to journalism (Kramer 1995).

The traditional inverted pyramid structure of news can eliminate intrigue in the piece as the outcome or conclusion of the story is related in the headline, or introduction (Lewis 1994), but a chronological structure of events introduces tension into the story. With the development of the plot, the reader stays to find out what happens next, and to solve a mystery (Vanoost 2013). From Aristotle onwards narrative is constructed as cause and effect, where different narrative characteristics drive the action from cause to effect. In literature Todorov (1977) identified a pattern where a state of equilibrium is disrupted by an opposing force, which results in new disruptions which lead to resolution and a new state of equilibrium. Story becomes a sequence of events where characters try to resolve conflict by accomplishing goals (Bucher. 2018:31).

Intrigue and tension are created through 'the delay between the complication and the denouement' (Vanoost 2013:81). The development of the plot thus works to both make sense of the event and engage or immerse the audience. The sequence of events is usually described by a character or witness involved in the events, and this character often answers the how and why of these events but they also 'become characters with whom readers can empathise and identify' (Van Krieken & Sanders 2017:1367).

Thus, in narrative one of the most important elements is character. Bucher states that we connect to stories through how we empathise with characters, and 'at the most granular level, storytelling is emotional reaction to the character' (2018:70). Jessica Brillhart, the principal filmmaker for VR at Google argues that characters become 'vessels for the story' (Bucher 2018:9), and Aylett & Louchart (2003) argue that the character based narrative form allows for a greater user satisfaction as character manifests an emotional quality which makes a stronger connection to the story. The feeling of presence, and thus connection is also intensified as the observer experiences narrative events alongside the characters (McRoberts 2017). In her study on immersive journalism in virtual reality, Jones (2017) also found that the character-led narratives were found to be more engaging than the reporter-led narratives.

Arguably however, the tension in the plot and the identification with the character all contribute to a greater sense of engagement with the story by the viewer of the piece, and the characteristics of VR in its placing of the user in the presence of the story contributes to the feeling of being immersed in the story. Owen et al. (2015) warn of the temptation to concentrate on mastering the technology of VR, but if we are to look at what narrative characteristics engage a viewer in a piece of VR journalism, it is necessary to look at how this technology affects the viewer's experience of being immersed in the story.

Immersion

Like narrative, the term immersion has many definitions and is much debated. VR is seen as an immersive tool in that it enables the 'feeling of being present in an environment' (Schroeder 2010: 25). Greater understanding of an event or situation is perhaps given to the viewer by being 'in' the event, where the viewer is offered the illusion of an 'inclusive and surrounding reality' (Marciano 2016). Biocca and Levy (1995:136) write that 'virtual reality facilitates the imagination not by depressing the senses but by immersing the senses in information from the illusory space', where presence in the space means that the viewer/observer/participant is sharing in the real. Steuer (1992) argues that it is the viewer's presence which contributes to the emotional engagement with the story. It is presence which supplies 'VR media a special communications power' (Hardee 2016:686).

Presence in the story determines that the events are also taking place in the present. If the observer is with other participants, he is present in their time. In VR the time in which you are observing can be another time, but if you are an active presence you exist in the same time as the players. For Paul Debevic (senior staff engineer at Google VR) being in the present is what is important, where people can affect what is happening in the environment and exist with characters that are around you (Bucher 2018: 198). De la Pena (2016) also argues that the capacity to make our bodies part of the experience of a story can also engage us in a deeper emotional response and connection to the events being portrayed.

In our VR film, which is the story of a past event, the viewer 'exists with others in the space … and is offered a first-hand experience' of the locations (McRoberts 2017:2). She has physical engagement or navigation via VR, in that by turning her head, or moving a mouse to explore a scene, the experience is given an embodied meaning (Nash 2018) which opens another space in which to explore the veracity of what is happening. The viewer can then decide which narrative to follow, and in various stages of the story in this VR film, and in different locations, she can choose which aspect of the story to engage with and can decide where in the scene she wants to look.

Immersion can thus be regarded as the 'level of fidelity' afforded by the technology (Hardee 2016) and is related to the ability of the computer to provide the illusion of an inclusive and surrounding reality. McRoberts claims that this form of immersion allows for a deeper emotional engagement as the viewer 'can experience the situation as first-person, alongside other participants' (2017: 9). However, immersion is also the psychological state (Sadowski & Stanney 2002) which perhaps is also affected by the engagement with the narrative, and the strength of the organising mechanisms of narrative. This 'immersion'

> 'is nothing more than the total surrender of the reader, listener, or spectator, to the narrative of the respective environment to which they are watching, reading, or listening. With the immersion, the concentration of all the senses occurs. This happens when we watch a movie or read a book, for example, and we transport ourselves entirely into the story presented there. It is the moment when we lose the notion of the

objects through which the story is transmitted to us – the book or movie and movie-projector, and we go completely into the story' (Longhi, 2017: 18).

This form of immersion is obviously affected and heightened by the ability of the VR medium to immerse the users in the presence and experience of the viewing, but in this project, we hope to look at the particular narrative through which the viewer discovers the story, thus investigating the traditional narrative characteristics within the immersive state of the VR experience.   However, it is not just the narrative which will be of interest, but how the particular narratives contribute to the level of interest in the experience and thus perhaps a reminder to journalists who are interested in VR not to forget the power of storytelling techniques, when trying to master the technology (Owen et al. 2015).

Methodology

This project was designed to be practice-based research where we created a VR film with the specific purpose of answering a direct research question.   Our VR film was created to research which narrative form engaged the viewer to continue watching the news item, and the methodology for this is examined in the first section. However, in its construction the project also became a research-led practice project, where the practice 'highlights insights, conceptualisation and theorisation which can arise when artists reflect on and document their own creative practice' (Smith & Dean 2009: 5). We thus also examined the creative practice in the hopes that the creation of a VR film might lead to new knowledge of operational significance for that practice (Skains 2018).

Practice-based research

Practice-based research is that where a researcher incorporates their creative practice, methods and output into the research design of a project which is tailored to answer a research question. Smith and Dean (2009:5) write that this form of creative work is 'in itself a form a research and generates detectable research outputs' (2009; 5). It emphasises the creative practice itself. Skains (2018: 86) writes that this 'type of practice-related research is conducted as an attempt to understand the creative artefacts themselves, rather than to respond to a gap in scholarly technique or cultural context'. As in any piece of journalism we first chose the story to be covered and then constructed the video as a tool to research the VR medium itself.

The story for the news item was selected for its journalistic nature, with a focus on factual storytelling. It was a story that had been covered by local news organisations and was a story that did not have high news value (Harcup & O'Neill 2016).   Thus, it was felt that much of the engagement would be elicited by the strength of the narrative and/or the immersive technology, rather than news values such as celebrity, bad news, threshold, unexpectedness etc. It would be an example of a story more often covered by newsrooms than big disasters or wars, and thus a story more relevant to many journalists who cover UK news.

The story was the events of 2017 in Womanby Street in Cardiff, where an attempt by Wetherspoon's to build a hotel above their pub and an application to build flats on the street was opposed by the music community, venue owners, politicians, and members of the public. They feared that the existing live music venues could lose their licences if subsequent complaints were upheld about the music from the venues. The 'Save Womanby Street Campaign' resulted in victory after the developers withdrew their plans. The length of the news item is longer than the traditional news package, which in 360 is about 5-10 minutes. Studies looking at comfort when watching or becoming immersed in content within a VR headset have found the duration to be around the 10-minute mark.

As noted by Bucher (2017) above, Marie-Laure Ryan (2003) proposes that certain characteristics of narrative are medium free. These are character, events, setting, time, space, and causality, but there are also three dimensions of narrative; the chronicle, the what; the mimesis, the how (the descriptions); and the plot, which gives meaning and form to the events by focusing on the why (Ryan 2006: xxi). These are similar to the definition of journalistic stories, or narrative journalism as a genre, where Van Krieken & Sanders list the techniques of character, setting and plot or the chronological order of events (Van Krieken & Sanders 2019:12). Machill et al (2007:91) define narrative characteristics as the narrator, the narration, and the process of narrating.

Some characteristics of the narrative could not be chosen by the viewer as this was a news story, based on the real. The fixtures were setting, time and space which were built into the structure of the news event we wanted to cover. Hardee writes that the challenge in immersive journalism is to 'design a framework that makes the handling of time, space and causality credible in an interactive medium' (2016: 681). As stated, the events of Womanby street had taken place, so to an extent we were looking at a historical event rather than 'news', so the observer was present with the characters, but listening to an event from the past, so it could be argued that the 'time' aspect was compromised, even if the telling of the story was in the present. Regarding setting, the spectator was placed in the location where the event took place, so filmed in places that had significant relevance to the story.

The other narrative devices listed by Ryan (2003) could be explored as three strands. These were character, causality and description.   Thus, the first characteristic to be investigated and choice that was offered to the user was that of the narrator, that is, the character.   Narrative theories from philosophy (Aristotle 1987), literature (Todorov 1977) and film (Bordwell 1986) stress the importance of the author who tells the story.   The literary techniques in journalistic narrative include the use of voice, 'techniques that allow creating a form of experience for the reader, i.e., detail of expression of thoughts and feelings etc' (Vanoost. 2013: 79). According to Machill et al. (2007) the narrator recounts the 'newsworthy' event, either from a personal perspective or from a distance as an observer. The aim of the study was to evaluate the interest in the character, not the events, so his voice had to be that of thoughts and feelings only.

The character also takes on the actant role (Griemas (1973), where he becomes a function of the narrative in being the subject who is looking for the object, that is the overturning of Wetherspoon's decision to build a hotel in Womanby Street. We wanted to find out if it was empathy for this character and his actions that drove the story.   Machill et al (2007) write of television's narrative ability to entertain and inform with a combination of feeling and knowledge. We have attempted to make Ewen one of the main organisers of the campaign, the character, or the channel of feeling, where he emphasises his emotions, motivations and reasons for his involvement and his reactions to what happened.

The second narrative channel was the knowledge of the narrative, that is the plot or events, what Vanoost (2013:79) refers to as the 'media narrative', that is where the text that 'organises real, re-existing material at least partly according to a narrative logic or around narrative elements (a beginning, middle and end). The idea of the plot draws on Aristotle's dramaturgy (exposition, conflict, and resolution), and we attempted to separate the interaction of the character from the events that unfolded. The causes and ensuing results of events in Womanby street were told as a straight chronological account of what happened by Thom, another of the organisers of the 'Save Womanby Street Campaign'. He was directed to narrate just the events without linking his personal story, character, or emotion to the campaign, so hoping to discover if it was the sequence of events, that is the plot, that engaged a viewer, rather than interest in Ewen as a character.

The third strand offered to the viewer was that of description, which we took to be the music. This offered the context of the story to the viewer. The music is talked about, rather than being listened to, so perhaps does not fall into the category of mimesis, but it is offered as data, as a selection of information that was relevant to the topic. This was presented by Thom who was also a musician, so the viewer/observer was given the choice to find out more about the protest through information and description of the subject matter that was the central issue of the protest, that is the music.

Study

A sample of 16 students were used for the study. The participants were informed of what the study would entail, what data would be collected, the basic premise of the story, and then instructed on how to use the Oculus Go device and basic interactions. The user journey was mapped by the researcher during the experiment, using audio to determine the choices made by the participant.

The participants were then given a questionnaire which enabled us to examine the experience of watching, i.e., Was the experience engaging? How easy was it to navigate through the experience? We then asked about the emotional connection to the character, and whether it was this that made the viewer want to find out more about him, the events in Womanby Street, or the music, the (questions 8-12). This was an attempt to confirm whether it was the character that held the attention and whether the character was the mechanism for eliciting further viewing. The same method was used to find out about the event (qu. 13- 17), that is whether the event was the focus of attention, and whether it was the events or plot which drew the viewer to investigate the narrative. We asked the same question regarding the music (qu. 18 – 20). The last set of questions asked whether there was more the viewer wanted to know, and which narrative made them understand the story the most.

After we had begun the viewings, we realised that we needed more detailed information, so interviews were conducted with the final seven participants. The participants were first asked whether they felt there were any limitations to the medium itself, to find out what their reaction was to immersive storytelling, to try and elicit whether how far it was the features of the medium that engaged them, and how far it was any of the narrative characteristics. They were then asked whether they would have liked more information about the characters, or events to find out more about the design of the piece. We asked what they remembered most from the viewing, and finally whether they thought VR was suited to this form of journalism.

Practice-led Research

As stated, this project began as a project designed to research knowledge about or within the practice (Skains 2018:85), but it also led to some conclusions which resulted from the new knowledge gained through practice and its outcomes (ibid). Haseman calls this 'performative research' and emphasises the way practitioners 'tend to "dive in", to commence practising to see what emerges' (2006: 100), and this was very much our experience on this project. We thus had no research questions about the production itself at the beginning of the project. Sullivan (2009: 48) calls this research a movement from the 'known to the unknown', and Skains (2018: 88) citing Garfinkel writes of an autho-ethmethodological approach where the practitioner begins with a familiar activity that has 'arguably been mastered and introduces an unfamiliar element'. The team consisted of three members, a documentary director/lecturer, an ex-video-editor/lecturer who teaches VR and a 2nd year undergraduate student. Both the director and editor were familiar with the creation of a traditional short news/documentary, but relatively unfamiliar when it came to creating a VR news item. It is in the difference between the familiar and the unfamiliar elements

that the limitations to practice, and insights into the making of short VR journalistic items have been observed and noted.

Smith and Dean (2009) suggest that practice research includes documentation, theorisation and contextualisation of an artwork. The documentation included the usual production texts, such as schedules, briefs, pre-production and post-production scripts, were gathered as the production progressed. The contextualisation of the process took place in discussions between the team during and after the production, but the theorisation of this research still waits to be undertaken.

The first difference noted was in the time taken to set up the VR project. On a traditional production this could have been achieved by background research, and a couple of phone-calls to the participants and the locations to check availability and set a date for filming. However, for the VR film after the story was chosen and Ewen contacted, the student met with Ewen and Thom to research their stories on 22/6. On the 25/6 the three of us met with Ewen and Thom again to brief them on what was required and explain the process of VR filming. A research brief was then written, and permission was sought from the two locations that we filmed in. We had a trial with the VR camera the following week using this time to familiarise the team with its use and conduct a recce of some of the locations and wrote a shooting script. We then filmed the exterior location on the 9/7, and the two interiors, the Moon on the morning of the 10/7 and the Beelzebub pub in the afternoon.

Because of the construction of the film as different narratives, the participants had to be directed, as required by the brief of the research project. This was unlike the production of a traditional news interview where characters involved would have recounted events from their point of view and without direction.

The 360-camera used, was chosen due to its availability, affordability, and ability to film in high resolution (5.7k pixels) which allowed for higher visual fidelity than that available from other consumer devices at the time. The camera was fixed to a small tripod, positioned centrally at each location so that the audience would feel as though they were within the scene, and adjusted to head height, this was to support the feeling of presence within the story. Due to the nature of VR and the audience's role within the story, the ability to use traditional filmmaking techniques was severely limited.

Due to filming in 5.7k RAW format the video files were not in an editable format direct from the camera, the video recorded from each lens of the camera needed to be 'stitched' prior to editing. This process combines the video from each lens and creates a 360-video file that can be edited using most video editing software. The software used for stitching of the video was Garmin Virb Edit, which is specifically designed for use with the Garmin Virb 360 camera. There are some limitations with this software, but it was determined that this software would be adequate for the prototype. There is other stitching software available that provide more professional tools but were unavailable for this project.

The process of editing took a considerable amount of time due to the nature of the media, limitation of the available systems and editing tools, and subsequent technical difficulties. Unlike traditional video media, 360 video content requires high resolution to retain the visual fidelity of the image and thus requires more computer power to edit and render. This was not fully appreciated when initially planning the project and led to the editing taking longer than it would for more traditional news content. For a similar type of story where traditional video formats are it would have taken the

team a day to edit the entire piece, to include any necessary rendering and post-production. The editing process for the 360 footage took 5 days to finish.

Because of the construction of the film as an investigation into specific narratives, and the necessity to build in a more interactive audience driven narrative experience where the audience could change the narrative focus at any point within the story, it was decided to use a "hub and spoke model" (Owen et al. 2015). This approach allowed the audience to explore more aspects of the story and potentially see how the narratives interlinked. This also added substantial time to the production of the piece.

Problems

The location of the primary filming took place in the pub (The Moon) where many of the events took place. This might have made the user feel present, but the inaction of the participants and ordinary location does not perhaps produce 'massive stimulation' desired by Jerard (2015). To counter this problem Owen & Pitt (2015) suggest directing action around the camera, or supplementing the video by layering other content, but lack of relevant footage and time factors prevented us from doing the latter, and one must consider whether by directing the contributors, the line is crossed between recording actuality and reconstruction. This is a problem frequently encountered in documentary, but although news might be a construction of reality (Tuchman 1978), it should not perhaps be a reconstruction of reality.

Other locations were used as part of the film, locations that had relevance to the story. However, these locations represented similar issues regarding creating an effective journalistic experience, and the reconstruction of events in the location which could have raised issues of misrepresentation. Limited VR footage of events from the past also meant we had to resort a construction of the events in a linear chronology which raised the possibility of the audience having to suspend their belief in the story, and thus affect the feeling of immersion.

Another problem was the inability to cast the characters. As we were reporting on the 'real', the choice of characters who took part in the action was limited, and we could not avoid using a character whose delivery in telling the story of the events was rather flat, despite direction. This was obviously a consideration in whether viewers would follow the event's narrative but is something that traditional news reporting must contend with.

During the filming it was found that due to limited access to suitable equipment, certain aspects of the video would need to be composited out during post-production. A primary example of this was the visibility of the tripod within each 'scene', which could potentially have a negative effect on the user's sense of presence.

Research-based practice results

The data shows that character was the first choice for 67% of participants, with 33% following the event narrative first and 6.25% engaging with music. 63% of participants then chose event narrative in the 2nd choice, and music in the 3rd choice.

From looking at the user flow in detail, it can be noted that there are only 14 instances where users have followed a complete narrative, stage 1-3, in succession. It should also be noted that, even though no significant difference can be seen between event and character, there is a significant difference in how users engaged with music.

The percentage of participants engaging with character is also higher than other narratives at the 5th choice, with 56.25% of participants. 68% of participants navigated to between 5 and 9 of the scenes, with the highest being 25% of participants selecting 8 scenes.

From the user flow it thus indicates that viewers were initially most interested in the character. However, after the initial visit to the character the picture becomes more blurred. In the user flow less viewers stay with the character initially, but go back to the character in the 5th scene, stay there for a while and then the event takes over. In the interviews half the participants scored 3 (1 being the least, & 5 the most) when asked whether they felt emotionally connected to the character, but half of the participants scored 4 when asked whether they would stay following the event. When asked which narrative made them understand the story, the event and character had the same number of participants (5 each).

When asked why the participants stayed with the character, 3 mentioned his emotion: 'He was very emotive and charismatic', 'he seemed passionate', & 'I felt sorry for him'. However, when asked whether they wanted to find out more about him 40% scored 2, (1 being not interested, and 5 most), whereas 46% scored a high 4 when they were asked if they would stay with him to find out about Womanby street, i.e.the event.

In the questions about the event, 29% scored 3,4 and 5 when asked if they would stay with the event to find out what happened next, and 53% scored a high 4 when asked if they would stay with the event to find out more about the character.

The music was the least interesting narrative characteristic, but in the interviews 60% of the participants said it made them want to find out more about Womanby Street. Participants were also interested in the man performing the music. The divide between character and event and music is not easy to make as it is a character who performs the music. 3 participants mentioned the music and the performer: 'I liked the character and his analysis of music', 'The guy seemed like he was very into the story' and 'The person in music has an honest tone', but only a third of the participants scored a low 2 when asked if by following the music narrative they wanted to find out more about the music.

Thus, it seems that most people were drawn to the character at the beginning of the story, but it was the events in the story that drew people on and became the most attractive narrative. Through the event, people wanted to know more about the character and what happened next, a feature of storytelling that echoes Ryan's comments about certain narrative characteristics being intrinsic to all media (2003). This also reinforces the statement by Bucher mentioned above, that 'VR is more about letting the viewer discover the story' (2018:7), as the viewers actively follow the event narrative. This also perhaps differs from Nath (2001) who argues for a character based narrative form, and Aylett & Louchart (2003:5) who write, 'A plot centred approach conflicts with the freedom VR potentially offers to the user and can therefore be very restrictive.' It perhaps demonstrates that whatever the medium, the desire to know what happens next is strong, even if it means the user has no say in what happens next.

Arguably it is also not just the active discovery that affects the narrative, but also the nature of the narrative, reflecting the importance of the Todorov's (1977) patterns in traditional narrative. Two of the participants thought it was the type of story that they remembered, the archetype of overcoming the monster, and the victory of the ordinary man.

Participant 10 said:

'I thought I'd be more interested in the character, but it turns out, I was actually more interested in the event itself and what they achieved and how the community came together through that.'

Participant 12 commented:

'it was powerful, because it actually showed a group of just ordinary people coming together and working their butts off to save something that they love and that they believe in, and I really love that kind of stuff'.

Viewers who were given narrative agency, followed the unfolding of the linear plot sequence to move the narrative forward, to find out what happened next in the sequence of events. Even though they were present with the character and technically immersed in the story, they were still engaged with the traditional characteristics of narrative, in the unfolding of the plot, in the tension of what happens next and in the explanation of cause and effect which drew them through the story, and it is perhaps here that a greater understanding of the event might lie. Vanoost (2013:95) states that journalistic narrative should make sense and intrigue, and asks what information is needed to help the reader make sense of the story? VR journalism can perhaps bring the sense of agency to intrigue, using different ways to approach the finding out of a traditional plot, i.e., what happens next.

Discussion

As set out in the introduction, this project was designed to find out which narrative characteristics led the viewer to continue watching but this led to a reflection on the making of this VR news item and issues which arose from this production.

Taking into consideration the extra requirements on the participants to follow the narrative themes, this project still took considerably longer to set up, film and edit than the average production of a news story. From the point of view of directing and production, it was similar to that of a drama shoot, where a camera and edit script has to be written before filming. These extra resources would also have budgetary and production implications for a news organisation.

Another issue which is worth further thought is the viewer's expectations about the media itself. The participants in the study were asked to tick the types of media they usually watched or engaged with. Thirteen engaged with traditional media, TV, cinema and print media (including online media); one used the smart phone; five played video games, and only one participant usually engaged with VR. We did not specifically ask whether the VR medium affected expectations of what the piece would look like, or what the experience would be, but this was mentioned by some of the participants. One participant said

"I guess what it really made me think, was that there was an expectation, when I put the headset on, to experience something dramatic. Which is very different to your expectations when view say the 6.30 BBC Wales news."

When asked whether they thought VR was suited to the type of journalistic story in the VR piece, Participant 16 said "I don't think so. Because VR should present more dynamic things."

It might be that the viewer expects high drama, entertainment or a gaming experience when putting on the VR headset, which is not what news can or perhaps should deliver. This raises questions about the benefit of using VR, of adding interactivity to a news item and whether the

preconceptions of the medium would have a negative impact on the user experience when interacting with a VR news story with low news value, such as the one we covered.

The other issue that is worth further discussion is the limitations experienced by the producers of the film. This was not only the increase in time taken to make this VR film, but the limitations to common editing practices and authorship. Much of the post-production workflow and editing techniques that would have been used in a more traditional piece had to be abandoned such as close-ups, cut-aways, quick cuts and alternating viewpoints. This was due to the limitation of the technology and to ensure compatibility with the medium. Ideally, in the initial planning and storyboarding, still images would have been used and projected onto the scene to depict past events, and to support the story, but this was not done. This was partly because of the lack of suitable 360-video archive footage relating to the story, but also because of concerns that inputting other images would be disruptive to the chosen narratives. It was also felt that other images would lead viewers to miss the important indicators of the narrative and importantly, weaken the sense of presence. This limited the creative freedom of the editor and meant that much of the audiences' response to the subject matter would be dictated by their own pre-conceptions and pre-conditioning and could only be affected by the storytelling.

As indicated above, the research-led practice resulted in discussions on time, scheduling and shooting, but further work is needed on theorising the indications and limitations that we found, especially around issues of directing the action and the limitations to creative freedom and authorship caused by the requirements of the technology.

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