The Use of 360-Degree Video to Provide an Alternative Media Approach to Paralympic Sports

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Abstract. This paper describes exploratory research that consists of the production and testing of a 360-degree video-prototype aiming to provide a closer perspective to Paralympic athletes' training universe, exemplified by the wheelchair basketball. Media coverage of Paralympic sports has been changing but still represents athletes as heroes due to the overcoming of odds related to the impairment and not to the sports results. The present work considers immersive journalism and the use of virtual reality (VR) technologies as the path to an alternative framing where the athletes are portrayed as players facing a hard training routine and having sporting goals as the non-disabled ones.

The paper presents a brief description of prototype production and details the user study conducted in the aftermath with four focus groups. Feedback provided by participants indicates the suitability of the 360-degree video, when experienced with a headset and headphones, for the framing proposed and also points out narrative strategies that can be useful not only in Paralympic sports' storytelling but in the conception of diverse narratives for 360-degree video.

Keywords: Paralympic sports · Wheelchair basketball · Virtual reality 360 video

1 Introduction

The Paralympic Games is a multi-sports event organized by the International Paralympic Committee in which athletes with different disabilities participate. It takes place every four years following the Olympic Games. The 2016 Summer Paralympic Games held in Rio de Janeiro had a cumulative audience of more than 4,1 billion people with 5,110 h of broadcast, more than the total hours for the previous editions Beijing 2008 and London 2012 combined [1]. The increasing attention drawn by the event shed light on media representation of impaired people through the coverage of sports. Media portrayal of Paralympic athletes has been changing but still presents a narrative where athletes are framed as heroes that overcome odds related to the disability [2–4].

We hold the position that it is necessary to provide an alternative representation of Paralympic athletes in media coverage, portraying them as athletes - as the non-disabled ones -, without the need to ignore the impairment, but also without hyper-focusing on the histories behind the disability. We consider the immersive journalism

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and the use of virtual reality (VR) technologies the path to this alternative framing, giving the audience the illusion of being present in the environment.

In this paper, we describe an exploratory study that consists of the production and testing of a 360-degree video-prototype aiming at giving special access to Paralympic sport's training universe, exemplified by the wheelchair basketball. After the brief description of the prototype's production, we detail the user study conducted with four focus groups to have insights into how participants perceived the Paralympic athletes after watching the prototype with a headset, namely the Samsung Gear VR. Feedback indicates the prototype facilitates the perception of the hard training routine and contribute to seeing the impaired athletes without compassion, just as athletes. The study also suggests the suitability of some narrative strategies for storytelling in 360 video, such as using the first scenes to introduce the audience to the possibility of exploring the 360° and the placement of the character talking directly to the camera.

2 Literature Review

Several scholars have studied the portrayal of disabled people in the coverage of the Paralympic Games. British newspaper's articles about London 2012 and Sochi 2014 (winter edition) show the tendency to promote a "triumph-over-adversity" narrative instead of highlighting the sports results [2]. The Canadian print coverage of London 2012 has a major focus on sports performance. However, almost half of the texts analysed have secondary narratives based on the stereotype "Supercrip" [3]. Berger [5] defines "Supercrips" as "individuals whose inspirational stories of courage, dedication, and hard work prove that it can be done, that one can defy the odds and accomplish the impossible." The "Supercrip" stereotype was not prominent in the Brazilian print coverage of the Rio 2016 Paralympic Games. The photos, nevertheless, are highly focused on the disability [6]. The content provided by broadcasters also uses the "Supercrip" stereotype [4]. Studies centred on the athletes' point of view indicate they prefer the focus on sports performance and felt uncomfortable with the "Supercrip" discourse. However, some of them recognize that this speech attracts broader audience [7].

We hold the position that it is possible to provide a media approach without the use of the "Supercrip" framing, offering an alternative standpoint to the Paralympic world. An immersive experience in journalism aims exactly to provide a "special perspective" to the news. De la Peña et al. [8] explain that the person participates of a virtually re-created scenario representing the news story as a visitor with first-hand access or through the perspective of a character in the story. Two key-concepts about immersive environments are Place Illusion - a strong sense of being in a place even though you know you are not in fact there -, and Plausibility - the illusion that what is happening is actually happening, in a reliable relation to what would happen in reality [9].

The use for news purposes is one of the growing applications of virtual reality (VR), explained by Aronson-Rath et al. [10] as "an immersive media experience that replicates either a real or imagined environment and allows users to interact with this world in ways that feel as if they are there". Immersive narratives have been gaining space in news coverage, especially the 360-degree video, or cinematic VR: the user is

in a central position that cannot be altered within the environment, the agency is to look around. It is considered the most accessible type of VR [11]. What turns a 360-degree video into a VR experience is the possibility of seeing the content in a VR headset [12].

Interviews must be captured as they will be experienced by the viewer, with no cuts apart from the beginnings and ends of the scenes [10]. The amount of visual and sound information should be considered to avoid Fear of Missing Out (FOMO) [13]. The voice over should be used attentively: the user needs to look around to check if someone is talking on camera or it is a voice over [14]. Characters can give signals to the viewer, by looking, pointing or walking in a certain direction [15].

3 The Prototype

The shooting for the prototype took place in the High-Performance Centre of Vila Nova de Gaia (Portugal) on December 8th–9th 2017, during the training of the Portuguese wheelchair basketball team. The list of equipment for shooting was the following: 2 Samsung Gear 360 (2016) cameras; 2 Galaxy S7 Edge; tripod; Roland R-44 audio recorder; 5 microphones (four Behringer C-2 and one wireless lavalier mic). Besides the shots with the 360 camera, a linear audio interview was also recorded with the captain and the coach to be used as a voice over on the edited video.

The script for the prototype was designed with nine main scenes, every one lasting at least 25 s to give time to users to immerse themselves in each scene. In the video, the viewers follow the training routine: firstly as if they were with the athletes in the locker room; then in the centre of the court while players are warming up; and in the following scenes in different parts of the court, e.g., from the bench's perspective or below the basket during the exercises. The basic rules and the typical plays of the wheelchair basketball are explained by the captain and the coach. They also highlight the challenges of the athlete's life no matter the disability. We decided to include one scene in which the camera is attached to the athlete's wheelchair, as close as possible to the player's perspective. It's the only part of the video where the camera is in motion. Although shots in movement are considered risky because of motion sickness [16], we pondered that users should evaluate this scene in the user study.

Some narrative strategies were tested. The first scenes are slower and have less intensity, working as an introduction to the possibility of exploring the 360°. On the other hand, in the scene with more amount of information, the character talked directly to the camera, in order to keep the audience's attention. The voice over was another tool used to help users follow the narrative. The video's running time is 5 min (https://youtu.be/eW_e02pSaG4). The shots were automatically stitched with the software *Gear 360 Action Director*. The editing process was done in *Premiere Pro cc 2018*. The software *Reaper* and the *Facebook encoder* were also used for audio editing. The prototype was transferred to smartphones for the user study.

4 User Study

Four focus groups were organized in March 2018 to get insights from people with different levels of familiarity with Paralympic sports and Head-Mounted Displays (HMDs). All-in-all, 23 participants (15 male, 8 female) took part in the study, aged between 23 and 53. Group 1 (participants 1 to 5) was formed by people from organizations related to adapted sports and athlete's family members, all having a strong link to Paralympic sports and no experience with HMDs. Group 2 (participants 6 to 11) was formed by Ph.D. and Master's students with computer engineering and technology background and no/little familiarity with Paralympic sports. For group 3 (participants 12 to 18), Paralympic athletes that play wheelchair basketball were invited, all of them without previous experience with HMD's. Group 4 was formed by people with communication and social sciences background. They had no familiarity with Paralympic sports and no/few previous experiences with HMDs.

The devices used were the headset Samsung Gear VR (2016) plus a Samsung Galaxy S7 (with the Android 6.0 operating system) and headphones. In each group, participants were explained how to wear the devices to watch the prototype. They were allowed to choose if they wanted to experience the video standing or sitting. After all participants saw the video, the moderator initiated the discussion guided by three main open-ended questions about the experience of watching the 360-degree video with the headset; the content/narrative; and the framing of the Paralympic athletes in the video.

4.1 Watching the 360-Degree Video

All groups highlighted the excitement with the possibility of exploring the 360° of the scenes. However, at least two participants in each group said this enthusiasm caused distraction from the voice-over that guides the video. Some of the users also reported Fear of Missing Out (FOMO). Participant 12 said: "I tried to look for as many things as possible, I was really looking for what was happening in the whole scene".

Participants in all groups reported perceptions such as "I felt I was there" (Participant 1); "It put ourselves really inside the video" (Participant 14) or "You feel as if you were part of the group there" (Participant 22). The use of the term "immersion" or the variance "being immersed" came out much more often in group 2 (seven times), formed by students with technology background, than in the other ones (one time in each).

4.2 The Content/The Narrative

In all groups, the scene where the camera was placed in the wheelchair provoked controversy, once it was the only part of the video where the camera was in movement. In group 4, participants 20, 21, and 23 reported discomfort while participant 22 felt excited with the sensation as if he was playing. Group 2 led a more technical debate. Some participants reported feeling a dissonance, as the actions carried out didn't get the expected response by the environment, a break of Plausibility. Participant 11 said: "It was confusing. You turned your head to one side the athlete in the wheelchair did not turn".

Participants in all groups stressed the importance of the first scenes to figure out that is possible to explore the 360°. The scene where the character talked directly to the camera was considered the best example of what helps the user follow the narrative. Users said typical sounds of the sport such as the shock of the wheelchairs should have been more explored. Participant 4 explained she had preferred a lesser use of controlled sounds, as the voice over, and the broader use of environmental sounds.

4.3 The Framing

Participant 20 said the 360-degree video approaches her to the players without feeling compassion, as she managed to see them playing with much energy. Participant 12 (athlete) said: "When I watch television, I do not feel the intensity. Here one really feels the environment, the communion that exists. It is a much closer experience of reality, of being there". As the players were very close to the viewer, the disabilities were clearly visible. Participant 8 explained he paid attention to the impairments only in the beginning. As soon as the athletes started playing hard in training, he stopped being attentive to the disability. Participant 13, who has been playing wheelchair basketball for 28 years, stated: "It (the 360 video) can contribute to push away those clichés that the media outlets traditionally use, in my opinion in a wrong way. We are athletes and, as in the non-adapted sports, there are better and worse players, not all are great stories of overcoming. I hope this technology can potentiate this, but it always depends on the framing. Technology is just technology".

5 Discussion

According to the feedback provided in the user study, the 360 video-prototype, when experienced with a headset and headphones, provides an experience that contributes to framing Paralympic athletes as players that face a hard training routine as the non-disabled ones. The study also suggests that there is no need to hide the impairment, once the disabilities are clearly seen in the video and it didn't provoke feelings such as pity.

This exploratory research has chosen the wheelchair basketball as an example of a Paralympic sport. There are dozens of different ones that include individuals with other impairments such as visual and motor disabilities and cerebral palsy. Future work should create and test 360-video experiences related to other sports, especially the ones with more severely disabled athletes. Paralympic sports played by visually impaired could be subjects of experiences conceived mainly by sounds that also are worth testing.

Our study indicates some narrative strategies for 360-degree video such as the use of introductory scenes not only for presenting the characters but also to introduce the possibility of exploring the 360°; the character as a guide for the audience talking directly to the camera; and the use of the environmental sounds to transmit intensity. However, the excitement with the 360° of the scenes is still a remarkable distraction to the story being told, and it is a narrative challenge not only for Paralympic sport's storytelling, especially when the medium is completely new for users. It is necessary to

extend the studies about the elements that direct the participant's attention to the narrative and enhance the feeling of "being there" when designing a journalistic experience to VR and particularly to its first level, the 360-degree video.

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