



Placing the Viewer in Her Shoes: Affordances of Cinematic Virtual Reality in Women's Safety Narratives

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Abstract. This paper explores Cinematic Virtual Reality (CVR) as a narrative medium through the creation of a narrative experience titled “CYCLOGICAL” which addresses the topic of women’s safety in public spaces. The narrative follows the mental journey of a woman traveling alone through a public space and enables the viewer to experience the narrative from the perspective of the protagonist, quite literally, leveraging a key affordance of CVR.

This research examines the abilities of CVR to convey such a socio-psychological theme. A practice-based research approach was adopted and the CVR narrative CYCLOGICAL was designed, followed by navigator testing to gain insights. Participants experienced the narrative, and qualitative data that included their emotional experience, comprehension of the message and overall feedback were gathered.

The feedback highlighted the medium’s contribution to conveying the story: participants reported a “first-person experience,” and described the narration as “voices in their head.” Some noted physical reactions such as a “strong heart-beat.” Most participants reported a direct experience of fear, while some reflected on how the gendered voice shaped their association with the protagonist, making them feel like the “other” and evoking a vicarious sense of fear.

This research contributes towards understanding the unique affordances offered by CVR, allowing their effective use when designing narrative experiences. It depicts how placing the viewer in the position of the protagonist can provide a distinctive perspective of the narrative. It emphasizes the ability of CVR to enable participants to experience and reflect upon scenarios they might or might not have encountered in real life.

Keywords: Cinematic Virtual Reality (CVR), women’s safety, immersive storytelling, narrative design.

1 INTRODUCTION

CYCLOGICAL is a Cinematic Virtual Reality (CVR) experience that was designed to highlight the theme of women's safety and the sense of vulnerability that many women feel in public spaces. For this research, CYCLOGICAL is taken as a case example of a CVR narrative that explores a socio-psychological theme, and the findings and analysis of the “navigator’s” [1] interactions with the narrative is pre-

sented in this paper. CYCLOGICAL explores the ingrained fear regarding personal safety that many women experience by leveraging a unique quality of CVR to place the navigator in the shoes of the female protagonist. The experience invites the navigators to empathize with the female character through embodiment, and to understand her emotional journey as she experiences a situation that evokes a sense of fear in her. The experience was designed with the aim of increasing awareness and empathy around the issue of women's safety.

2 LITERATURE REVIEW

CVR is an emerging narrative media that integrates traditional storytelling with immersive virtual environments. Narratives can be conveyed through a variety of media, and every medium has unique qualities that contribute towards conveying the message. The choice of the medium plays a crucial role in how the story is conveyed and how the audience engages with the narrative. Narrative design as a field has been expanding with technological advancements; new methods and possibilities for storytelling are being continually introduced. CVR, an emerging media, is referred to as "a type of immersive VR 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 [2]". The potential of CVR as a medium for storytelling has been demonstrated through notable works such as *Awavena* [3], *Dragonfly* [4], *Table for Two* [5], *A New Dawn* [6] and *Till We Meet Again* [7]. Novel frameworks such as Cinévoqué [8] and possibilities like Parallel Interactive Narratives [1] have been pushing the boundaries of interactive storytelling in virtual environments.

Narratives that address social issues are prevalent, especially in cinema and literature. However, as an upcoming medium, CVR has few examples of projects exploring socially relevant themes. *Travelling While Black* [9] is a VR documentary that examines racism in the United States by placing the viewer in the context of African American travelers in mid-20th century America. *A New Dawn* [6] is a CVR experience that draws attention to the climate crisis. The United Nations Virtual Reality Series [10] uses CVR to address global issues such as war, natural disasters, health epidemics, climate change, pollution and migration. For example, *Clouds Over Sidra* [11] follows a young Syrian refugee in the Zaatari camp; *Waves of Grace* follows a young woman amid the Ebola endemic. These CVR experiences are designed to evoke empathy and raise awareness, targeting policymakers and the public to inspire action for social change.

The issue of women's safety and the fear surrounding it remains a prevalent concern in the current social context. Women often feel unsafe when alone outdoors, and this significantly impacts their daily lives and movement [12]. This paper explores this issue through CYCLOGICAL, a CVR experience designed to provide people with a first-hand perspective of a woman's mental journey as she travels alone. The choice of the medium was based on literature supporting the potential of CVR in providing a sense of presence [13]. A participant study was conducted to gain insights

about the nature of level of engagement with the experience. The research aims to understand the unique contributions offered by the medium and its effectiveness in conveying such a socio-psychological theme. The research is structured around two questions: How is the CVR narrative interpreted and experienced by the navigator? What are the unique qualities of the medium (CVR) that contribute towards conveying the message?

3 METHODOLOGY

3.1 Practice-based Research: Narrative Design

To address the research questions, a practice-based research approach was adopted [14], and a CVR narrative was designed to address the topic of women's safety. The narrative design process includes aspects such as story outlining, character development, environment design, sound design and live-action filming. Navigator testing was conducted to gather insights surrounding the research objectives.

The Plot. The narrative follows a young girl, the protagonist, riding her bicycle along an empty road alone during early dawn. After cycling for some time, she experiences a scenario where she notices an autorickshaw driving alongside her at the same pace as her. The autorickshaw stays alongside her only for a few seconds, after which it moves ahead and leaves. During that brief amount of time when the rickshaw is beside her, the girl experiences a multitude of emotions. She assumes the autorickshaw to be a potential danger but also simultaneously doubts her assumptions. She reasons for other possibilities as to why the autorickshaw may have slowed down. She begins to panic as she starts feeling unsafe, and a series of anxious thoughts are triggered. She questions whether her thoughts are valid or if she is "simply being paranoid". After the auto-rickshaw passes, she stops to reflect on her experience and the cause of her fear, acknowledging that nothing negative physically happened. The story concludes with an introspective note.

Characters. The girl is portrayed as a person who appreciates the beauty of nature and is a keen observer of the sky and its changing colours. She loves cycling during early dawn and enjoys the sense of freedom that it gives her. She is depicted as a reflective and introspective character. The autorickshaw (driver) is portrayed as a mysterious character who appears in the 360-degree space and leaves. The intention of the autorickshaw driver is not revealed, making it unknown if the rickshaw is a villain in the context or not.

Execution. To convey the story from the perspective of the girl on the cycle, a live-action 360-degree video was filmed with the camera positioned slightly above the protagonist's head. This setup provided a view closely resembling the view of the protagonist while cycling and captured her surroundings in all directions. The ad-

vantage of CVR as the medium was utilized in this context by positioning the camera as the protagonist, while the surrounding space served as the antagonist (see Fig. 1). The shooting was done on a deserted road within an academic campus, chosen for its isolated atmosphere. The time of the shoot was around early dawn, during sunrise, so that the colour changes in the sky could be recorded. A local autorickshaw was hired for the shoot.



Fig. 1. A glimpse into the CVR experience CYCLOGICAL

Sound Design. A voice-over narrating the inner thoughts of the girl was recorded and integrated into the story. This provided insight into the girl's psychological state as the narrative progressed. In addition to this, environmental sounds, the sound of the bicycle and the sound of the approaching autorickshaw were added. The sound of the girl's breathing was also included to convey the anxiety experienced by the girl, as it intensified towards the end of the narrative as her mental state shifted.

3.2 Navigator Survey

The CVR experience CYCLOGICAL was screened individually to a group of volunteers selected through convenience sampling within the academic campus. Invitations to participate in the screening of CYCLOGICAL were sent to a large group of people, primarily residents within the campus where the shooting took place. The volunteers were chosen based on who showed interest. A questionnaire was designed to gain insights that could address the research questions. The survey included questions that prompted participants to reflect on their experience of CYCLOGICAL. It also covered aspects such as the participants' interpretations of the narrative's message, the emotions they experienced during different parts of the narrative, the relatability to the theme, and demographic information, including age and gender. Printed questionnaires were provided to each participant immediately after the screening to collect their responses. The screenings were conducted in a quiet room to ensure an uninterrupted experience for the participants.

4 FINDINGS

Thirty-six navigators volunteered to take part in the survey (18 males and 18 females, mean age=21.8, SD=6.2).

4.1 The interpretations of CYCLOGICAL

When asked what they believed CYCLOGICAL was trying to convey, participants shared various interpretations. Most of the participant reports discussed the fear aspect of the narrative. Some reports from the participants regarding the theme of the narrative are listed below.

“Ingrained fear that something bad will happen”

“Experience of travelling alone at night”

“Stranger-danger scenario”

“Thoughts that occur to a woman influenced by the society she lives in”

“Emotions that a girl experiences every day, even when nothing has happened or needs to happen”

“Women’s safety and the related mental turmoil they go through regularly”

“Impact of daily news on our lives”

“Awareness about women’s safety”

4.2 The experience of CYCLOGICAL

The narrative was segmented into three parts, based on where the rickshaw was - while the protagonist was cycling before the rickshaw appeared, while the rickshaw was beside the protagonist, after the rickshaw had left (see Fig. 2). The emotions experienced by the participants during the three segments of the story were noted by prompting them to describe the feeling or emotion they experienced using a maximum of three keywords. During the part of the experience when the autorickshaw was in proximity to the cyclist, the most recurring keywords that were recorded were “fear” and “anxious”. This was followed by “confused”, “curious”, and “uneasy”. After the autorickshaw had left, however, a vast majority of the participants reported feeling “relief”. A complete list of the keywords listed by the participants are depicted in Fig. 3 and Fig. 4. Two participants reported that they were “breathing heavily” towards the end of the experience. One male participant mentioned having “a vicarious experience of fear... I did not feel fear”.

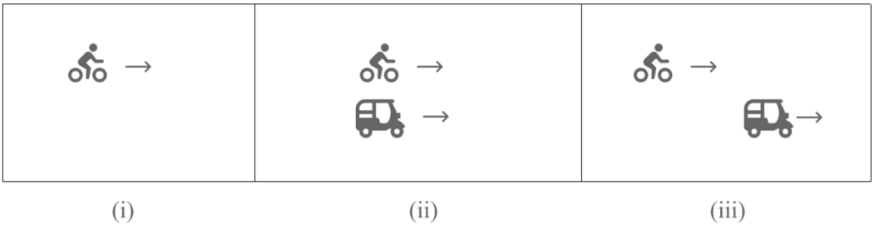


Fig. 2. The three parts of the narrative, segmented based on the position of the rickshaw: (i) while the protagonist was cycling, before the rickshaw appeared, (ii) while the rickshaw was beside the protagonist, (iii) after the rickshaw had left

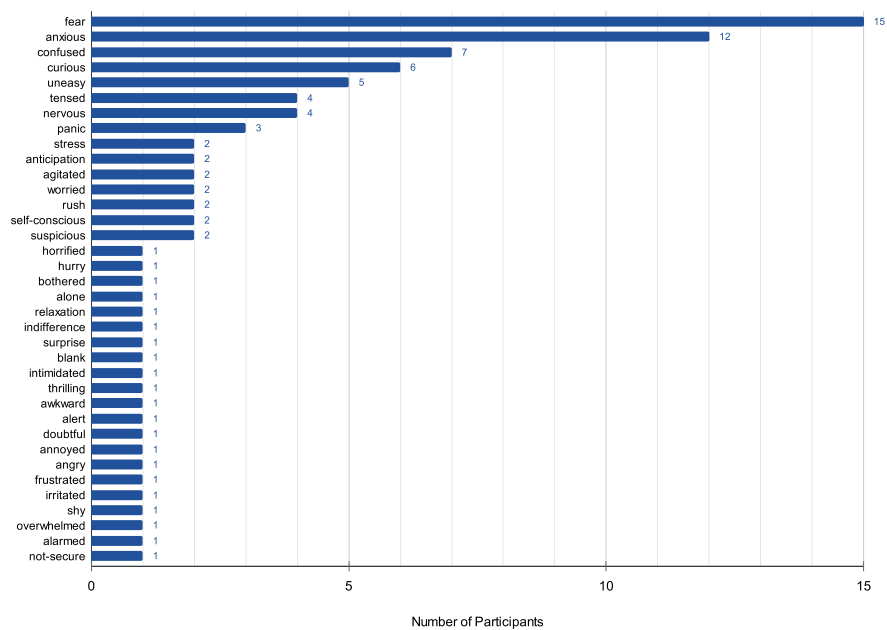


Fig. 3. The most common emotions/feelings reported by the participants while the autorickshaw was beside the protagonist

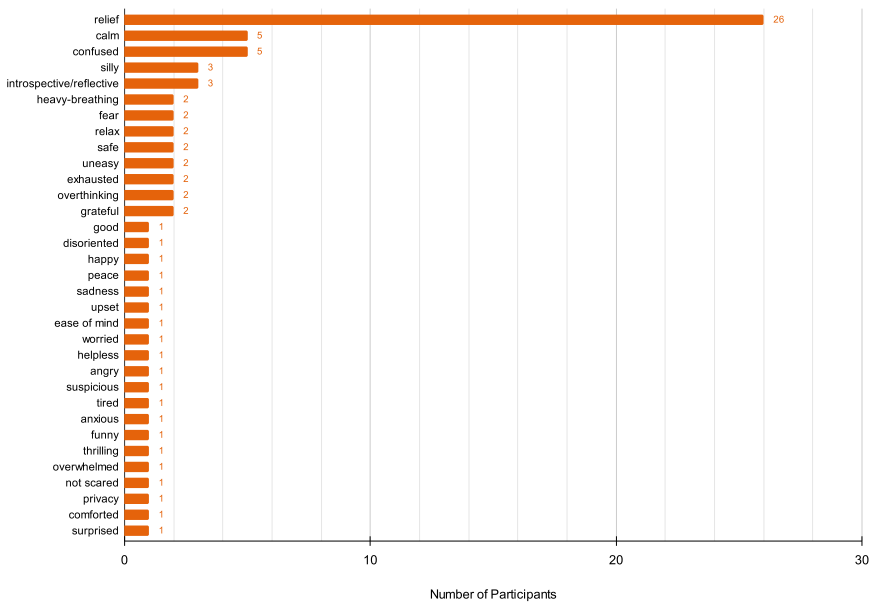


Fig. 4. The most common emotions/feelings reported by the participants after the autorickshaw had left

4.3 The role played by the medium and narrative design in conveying the message

From the survey responses regarding the experience with the medium, several participants reported that they “felt like they were in the shoes of the main character” and that they had a “first-person experience”. “I felt like I was in the situation... I was overthinking with the protagonist”, said a 19 y/o female participant, who also stated that she would “always be alert and on the lookout” whenever she is walking alone, in real life. One participant reported, “definitely more immersive, but I had to keep looking around to ensure I don’t miss any part of the story”. Another participant observed the metaphor in the narrative structure. “...the constant movement of the cycle felt like the story was moving in one direction... the stopping in the end had a lot of weight...”, he said. Several participants mentioned that the sound design played a crucial role and was very impactful in conveying the narrative. Some participants commented that the narration “felt like the voices in my head”. One participant reported that the audio caused them to feel more stressed and that the experience left them with a “strong heartbeat”. They also noted that, at one point near the end of the experience, their breathing “matched with the character’s.” One male participant said that the female voice made him feel like the “other” immediately. “The voice and the gender it represent made me feel like an immersed voyeur or the “other” spectator.

Perhaps that could be why my own feelings took a back seat while vicarious experiences were dominant”, he stated.

4.4 Relevance and relatability of the theme

When asked about whether the participants had had any real-life experience in the past that was similar to the theme conveyed in *CYCLOGICAL*, 12 out of 18 female participants and 8 out of 18 male participants responded in affirmative. Several participants described real incidents that had happened in their lives that had close similarities with the narrative depicted through *CYCLOGICAL*. A few male participants reported, “I didn’t know women felt this way,” highlighting the importance of the message conveyed through *CYCLOGICAL*.

5 DISCUSSION

The survey results provide valuable insights into the effect of CVR as a narrative medium. The discussion is structured around the research questions, focusing on the role of CVR, its contributions to the narrative experience, and its effectiveness in communicating the intended message in *CYCLOGICAL*.

The emotional turmoil that the protagonist in the narrative goes through has been reflected well in the experience of most of the participants who experienced *CYCLOGICAL*. Positioning the viewer’s vantage point spatially congruent with that of the protagonist appears to have contributed towards participants stating that they experienced the narrative from a first-person perspective, feeling as though they were the cyclist. Unlike traditional films, CVR enables viewers to freely look around in all directions, mirroring real-life perception. This sense of embodiment thus created is a unique affordance of CVR. The feeling of being 'present' in the environment and the perceived physical proximity to potential danger may have enabled many navigators to resonate with the protagonist’s fear and anxiety, as if experiencing it themselves. Although, one male participant reported disassociating with the protagonist because the narrator’s female voice did not match his identity. This suggests that mismatches in gender or character identity could potentially weaken the sense of embodiment.

The sound design and voice-over played a significant role in shaping the overall experience. The inner thoughts of the protagonist, the panting, and the environmental sounds contributed towards the emotional responses of the participants. The sound of panting and heavy breathing caused some of the participants to breathe at a similar pace, which, according to them, made them feel anxious. The audio also served as a mechanism for strategically directing attention. This ability to precisely design sound within a 360-degree space is another key affordance of CVR.

CYCLOGICAL aimed to explore the ingrained fear within women that something bad or tragic may happen to them. It depicts how this fear often leads to perceiving strangers as potential threats, even in situations where nothing dangerous may have happened. The interpretations of *CYCLOGICAL* reported by the participants offered insights into how effectively the message was conveyed. Most participants discussed

the innate fear within the protagonist that was brought out through the presence of a stranger. Some participants considered *CYCLOGICAL* to be a strong message to spread awareness about women's safety and emphasized how, in the case of this cinematic VR experience, an everyday incident was used to bring into light the deeper problems within society.

In the current context, with the reports of crimes being announced through media, even though people may not have experienced anything like this in the past in their real lives, being engaged with media that report crimes has played a role in this fear being ingrained within people. Among the participants, the percentage of female participants who have had an experience similar to that depicted through the CVR narrative was more than that of male participants. This also reflects on the gendered aspects of this issue.

5.1 Limitations

The study utilized a convenience sampling method, which may limit the generalizability of the findings. The filming took place within an academic campus, and many participants were students who lived within the campus. The familiarity with the location could make the situation appear less threatening. Some participants experienced CVR for the first time during the screening of *CYCLOGICAL*, and their reactions could be influenced by a fascination with the medium itself.

6 CONCLUSION

The issue of women feeling unsafe in public spaces is relevant in the current social context, and this narrative sought to address that concern through the medium of CVR. The narrative leveraged the unique abilities of CVR, which positively influenced how the experience was received. The theme was such that conveying it as an embodied experience rather than a conventional story was judged to be more effective. The affordances of CVR, such as its ability to depict the world through the perspective of the protagonist, and to use sound to convey the protagonist's inner thoughts, among others, contributed to the narrative experience.

The study analyzed the novel attributes of the medium for conveying the message by assessing how the navigators received the story. The medium allowed individuals to experience a specific situation first-hand that they may not have encountered in real life, allowing them to reflect on the perspectives and realities beyond their own. The immersive qualities of CVR thus provided a distinctive narrative approach to communicate a significant social message. In the case of *CYCLOGICAL*, it effectively communicated the message of women's feelings of fear regarding personal safety in public spaces. This study encourages the exploration of new narrative methods and formats, such as CVR, as a means to address societal concerns. It also encourages the application of the understanding of the medium-specific affordances of CVR, to the practice of narrative design.

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