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EMPOWERMENT THROUGH VIRTUAL REALITY: THE CAPABILITIES OF VIRTUAL ENVIRONMENTS IN INSPIRING EMPATHY, IMMERSION, AND EMPOWERMENT

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Abstract: With the help of virtual reality (VR), users are able to experience an imaginary world they cannot experience in real life. This study examines the potential of immersive virtual environments to inspire empathy and personal empowerment, particularly regarding social issues. The design process is aided by data and information gathered through interviews and observation of project participants. This research projects include #EmpowermentThroughVR, which reflects on current issues such as the Afghanistan Crisis and the ongoing hardships women in the Middle East confront. Participants in VR simulations view occurrences from the perspective of the individual facing the hardship and are asked to consider its implications and ramifications. This study explores whether participants would remain silent or show empathy for the victims of the catastrophe. The findings demonstrate that people's perceptions and information intake are influenced by their feelings of being present in a virtual space. A real-world experience cannot be compared to a VR experience, but a VR experience is psychologically more potent than a mediated experience. VR enables users to engage with imaginary objects they cannot see or even envision in the physical world. According to the findings, people can feel empowered and experience things in virtual worlds that they would feel uneasy doing in the real world. A set of standards should be followed in VR to produce more realistic experiences that inspire and evoke empathy.

Keywords: virtual reality, empowerment, the virtual world, immersion, empathy

Introduction

According to Pastel et al. (2022 p. 1), Through careful modeling of the actual world, virtual reality (VR) is a potential technology that is being utilized increasingly in various professions, including sports, science, medicine, and other areas. Take into account where you are right now, even if you don't give it much thought. You don't doubt if you are at your workplace, a park, or any other place you could be on any given day, correct? At a subliminal level, you acknowledge its existence and feel physically present. Precisely that is what VR experience designers want to accomplish with their creations. The human brain must accept the virtual environment as accurate for VR to be engaging

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(Madary & Metzinger, 2016, p. 3). At least in the sense that you are genuinely there; nevertheless, there is another debate as to whether or not what you are seeing is real.

A few decades ago, Kim, K. (2016 p. 3-6) noted that Virtual Reality (VR) had been employed for various purposes, from entertainment to industrial and medicinal applications. In the biomedical setting, VR treats, different mental health conditions, including phobias of heights, public speaking, spiders, schizophrenia, and drug abuse. VR is also effectively used to treat post-traumatic stress disorder or help stroke victims improve (PTSD). Evidence of beneficial impacts on patient care has shown that VR can effectively change behavior subconsciously (Malinov et al., 2021). A strong sense of presence, or the sensation of "being there," is linked to the perception of a virtual setting as genuine.

Background

Paes et al. (2017), in their research work titled Immersive environment for improving the understanding of architectural 3D models: Comparing user spatial perception between immersive and traditional virtual reality systems, expressed the need for a more immersive environment has caused designers to transition away from creating immersive digital experiences in response to the emergence of immersive journalism. Nowadays, viewing the news on TV or any mediated experience does not elicit empathy. Through complete immersion and presence in action, people may become more involved and a part of the narrative (Lee et al., 2020).

In their work, Ens et al. (2021) stated that *immersive analytics* is a rapidly developing subject that integrates several disciplines, including visualization, immersive settings, and human-computer interaction, to complement human data analysis with cutting-edge technology. According to Kim (2016, p. 1-3), industry experts agree that virtual reality is a future technology that uses computer hardware and software to immerse people in a virtual environment (VE). Generally, it is a digitally produced space that anyone might enter by wearing specific computer gear. It enables users to manage their information in the virtual world more simply.

Through virtual reality, people may see and interact with information in a new, constantly changing, and dynamic manner. In a computer game, for instance, the user's joystick motions (behaviors) are monitored, and the game's objects are moved following the joystick movements. Similarly, a virtual, three-dimensional world is built around the user so that they may interact with things, people, and surroundings.

Typically, audio devices, present three-dimensional, life-size visuals around the user, and the viewpoint is changed based on their input (head or eye movements). This technology uses a variety of tools in addition to computers to build virtual environments.

Theoretical framework

This study examines significant notions from the two contrasting points of view in discussing concerns about virtual reality. This paper proposes two projects to investigate how VR could promote empowerment, immersion, and empathy. Participants are encouraged to engage with the VR Animation Afghanistan Crisis made available for this study.

Virtual Empowerment is part of my MFA thesis paper at the University of California, Santa Cruz (Khatibi, 2020).

The Afghanistan crisis is immersive journalism and is made for this research in 2022.

To provide feedback on whether people feel they are there and score how empathic the tales were, Virtual Empowerment provides the innovative concept of building my imaginary world in a digital environment equipped with magical power. By creating a virtual world where people can interact with space and objects and encounter stories in this fictional universe, they have access to experiences that are not accessible to them in the actual world. Participants can compare the real-world experience with 3D virtual worlds with human characters and animation to feel as if they are a part of the story. The theoretical underpinning of this study is based on participant feedback obtained via observation and open-ended interview questions (Christopoulos et al., 2020).

What is VR technology?

According to Pottle (2019, p. 181), creating an immersive virtual reality environment involves using computer software. In contrast to conventional user interfaces, virtual reality (VR) requires users to don a head-mounted display (HMD). This immerses the user in the experience, allowing them to interact with the virtual world and its inhabitants in a realistic manner. More than any other technology that has ever existed, virtual reality (VR) has a special ability to give users the impression that they are in an entirely new world. This enables them to gain knowledge from experience just as they would in the real world (Bailenson, 2018). The strength of VR is found in its capacity to provide experiences on demand. With virtual reality (VR) technology, users may immerse themselves in a wholly imaginary environment and feel like they are there. Virtual reality (VR), a computer-generated environment, allows the player to engage with, become involved, and immerse in a three-dimensional (3D) world. Virtual reality may help put your ideas and notions into context.

Virtual Reality (VR) triangle

The three components of a VR experience are Interaction, Immersion, and Imagination, according to Burdea and Coiffet (As cited in Rebelo et al., 2012). The player and the virtual reality environment are connected via Interaction. Technology utilized to provide real-time Interaction includes detecting gloves and motion trackers. Immersion was described by Dorado et al. (2019, p. 1652–1657) as the player's sensation of participation in the virtual space. To feel as though the user is truly "there," imagination is required. The player interacts with things in the virtual environment (VE) as if they were there, despite not actually being there.

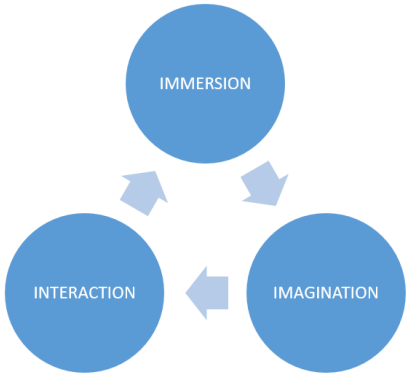

Figure 1: Virtual reality triangle

Experience

Shin (2017, p. 1826-1836) showed that when using VR, experience is an important concept. Although experience takes place in the actual world, we can tell a significant distinction between "mediated experience" and "genuine experience" thanks to virtual reality. A VR experience is cognitively more powerful than mediated experiences like television or movies; however, a real-world experience and a Virtual Reality (VR) experience cannot be directly compared. In virtual reality, Slater (2018) stated that we might interact with made-up items that we would never observe or even conceive in the real world. With VR, users could completely immerse themselves in the setting. In his book Experience on Demand, Bailenson (2018) discusses tracking, rendering, and display technologies as three approaches to establishing a virtual reality presence.

The person will experience discomfort, sickness, and distraction when one of these elements is malfunctioning, according to Bailenson. (2018). Imagine tilting your head to gaze around a virtual world and lagging between what you anticipate and what you actually observe or encounter. In tracking, the X, Y, and Z coordinates of a person's movement are measured. The necessary information of the senses, including hearing, smell, touch, and vision, is rendered, such as via 3D modeling, and displayed, replacing the actual senses with digital information. (Rambach et al., 2017) The player's separation from reality and the number of senses used in the interaction define the level of immersion.

Presence

Selzer et al. (2019, p. 9-15) in their studies, explained that Presence is essential in VR since the main objective of a Virtual Reality (VR) designer is to completely submerge the user in the new space they built and change their viewpoint. Hence, they lose awareness of the actual location they are in. According to Weech et al. (2019), immersion is the player's perception of being thoroughly involved in the virtual environment. When a 3D environment with realistic characters, animations, and music is used, immersion occurs. A work should employ all three technological components of virtual reality (VR) (realistic characters, animations, and music) to establish appearance and thoroughly engage audiences.

According to Flavián et al. (2019, p. 551), reading a book, listening to music, watching a movie, or playing a video game can all cause individuals to feel present. The user's psychological perception of what is presented to them is crucial in creating a sensation of presence, even though the medium is essential in fostering presence. In the same way that users' awareness is moved to a location entirely distinct from their current location, the presence is connected to transportation in that users behave and feel as if they are in an actual location.

Being physically present in a virtual world is called presence, a critical component of virtual reality. Personal presence is all about being present and involved at that moment. Ying et al. (2021) defined social presence as the prominence of the participants and their social communication during a supervised discourse. The two essential elements of social engagement are closeness and proximity.

Three types of Virtual Reality

Chang et al. (2021) showed that there are three different degrees of immersion, with absolute immersion being the most intense; simulations that are non-immersive, partially immersive, and fully immersive fall under the three main types of virtual reality.

Non-immersive: Virtual Reality (VR) often refers to a 3D simulated world that may be viewed through a computer screen. The best examples of non-immersive VR include computer games and sites that enable users to alter the appearance of a room.

Semi-immersive: This type of VR provides a limited virtual experience through a computer monitor, a set of glasses, or a headset. Instead of emphasizing the physical movement required for ultimate immersion, it focuses on the visual side of virtual reality.

Fully absorbed: This kind of VR, which provides the most significant level of virtual reality, completely immerses the user in the virtual 3D world. Hearing, seeing, and sometimes touching are all part of it. There have even been some experiments done with the inclusion of scent. Users are entirely functional when using specific equipment like gloves, goggles, or helmets.

Empathy, Immersion, Empowerment

The definition of empathy, according to Bertrand et al. (2018, p. 26), is experiencing the same feelings as another person without fusing them with one's own firsthand experience. Empathy enables one to feel obliged to assist another and is closely tied to social connection. Multiple brain networks involved in motor, cognitive, emotional, motivational, and behavioral tasks interact to form this affective state. According to Nilsson et al. (2019, p. 110–112), immersion is therefore seen as a characteristic of the system that can be observed objectively rather than the outcome of the user's reaction to being surrounded by technology. Being or sensing surrounded by something is a component of immersion.

User experience in VR

In a virtual reality setting, the player enters a new dimension. Instead of scrolling, a VR participant must move, and engaging in the 360-degree environment necessitates picking up, pointing, or gripping. Perspective is vital since individuals are "inside, from the inside, gazing out" instead of "on the outside looking in." In virtual reality, things are autonomous and allowed to interact freely. When creating VR content, designers should have a sphere-centered stance and be knowledgeable about skyboxes (Men et al., 2017, pp. 235-236).

Advantages and disadvantages

The advantages of using VR encompass data supply, availability, and safety, according to Minderer et al. (2016). There are downsides to utilizing virtual reality technology, including motion sickness, simulator sickness, and cybersickness. As a designer, now is an excellent time to develop user experience patterns that motivate and support people searching for novel experiences and lifestyle upgrades.

VR teleportation

Rahimi et al. (2018) noted that VR works well for training and education because body mobility, or the notion that we behave naturally in VR as we do in reality, is crucial. Our brain processes events in a manner comparable to how we perceive the outside world. In virtual reality, there are three forms of movement. Users travel about the environment when stationary and utilizing the joystick, which causes the most significant motion sickness and nausea.

In real life, when you grip anything, your hand produces a feeling that simulates touch or haptic feedback; in virtual reality, we may add vibration sensation to the controller. A small amount of haptic stimulation may enhance immersion. Selecting the right set of locomotion for virtual reality is crucial since it directly causes a feeling of motion sickness and simulator sickness in the player.

Room-scale or real-world movement is the most comfortable approach, similar to your natural movement patterns. The following kind of movement is continuous, or controller based. Since the body is not moving in the real world, using a controller to move or rotate the player around in the virtual space frequently transmits conflicting signals to the brain and causes motion sickness and simulator sickness.

The most pleasant method is teleportation, which instantaneously transports individuals there without giving the sensation of motion sickness. Simulated sickness occurs whenever the frame rate is lower, and it takes a long time for each picture to load, causing the video to cut in and out.

3D spatial audio vs 2D audio

Spatial audio is an auditory experience designed to increase immersion by replicating a surround-sound system. While establishing the surround sound in your house requires strategically placing several speakers across the space, spatial audio allows you to copy the effect with only a pair of headphones.

2D AUDIO	3D SPATIAL AUDIO
It has no spatialization	It has spatialized audio
It is a non-diegetic sound	It is a diegetic sound
It sounds the same as if an individual were playing it via a media player. The sound effects don't necessarily depend on the placement.	It has panning depending on the position of the event instance concerning the direction the listener is looking, as well as loudness attenuation based on the separation between the event occurrence and the listener.
Effects include the Doppler effect, Reverberance, Volume roll, and spread.	Effects include volume, pitch, left/right stereo pan, and sometimes elaborate filter effects like low pass, high pass, flanger, volume duck, etc.

Literature review

Immersive Journalism

Immersive journalism is a method that immerses people in tales that are developed in a simulated, enhanced, or mixed reality rather than the actual world (Soler-Adillon & Sora, 2018). Thus, designers point to various visual journalistic techniques while discussing immersive technology. A developing style of news reporting that aims to use the technological advancements made possible by virtual environments and Virtual Reality (VR) screens is known as immersive journalism. It creates a link between the viewer and the news narrative. Immersive journalism is an extension of long-standing, continuing news reporting procedures. Immersive journalism is more than just taking the reader to another location. The user must exert more effort during immersion, the user needs to socialize with the story at various aspects of the story, and those actions must be highly motivated.

In 2012, USC Annenberg Journalism Professor Nonny de la Pena's creation of Hunger in LA (2012), which merged narrative, journalistic values, and technology to develop a new field of journalism storytelling, produced the first mainstream virtual reality journalism stories. The New York Times Google Cardboard effort, CNN VR, Euro News, and many others in the US and Europe want to embrace this new variant of journalistic interaction, which Chris Milk, a VR producer, named the "ultimate empathy machine" in 2015, all resulted from De la Pena's work. (Stubbs, 2018, pp. 81-90).

According to Murray, J. H. (2020, p. 12) in their research work "Virtual/reality: how to tell the difference" Nonny de la Pea, a pioneer of documentary VR, does not just put a 360-degree camera at a far-off refugee camp or mountain view and expect immediate empathy or exquisite astonishment. Instead, she concentrates on dramatic scenes that captivate the audience via the exact spatial arrangement. De la Pea inserts the interactor amid a lengthy and slow-moving food bank queue near a person who abruptly falls from diabetic shock or has them pass a line of vocally abusive, hate-filled abortion opponents to access a women's health clinic, or adds them as an unseen witness to a family quarrel in a Georgia living room. As in any other medium, these instances need a dynamic craft

practice that continually extends, adapts, and refines complicated sets of widely used social and media norms to achieve immersion.

Virtual Reality (VR) Fantasy Games

Interactive narrative is the favorite genre in video games; it has been observed that the gaming industry is doing all it can to get gamers to play and explore the worlds they built. The latest phase of gaming immersion is VR (virtual reality). VR has a unique offering; it enables the gamer to play as the protagonist instead of merely playing as some faceless, nameless character. The combination of the player's physical motions and what is viewed in the headset results in an almost unmatched level of immersion (Serino et al., 2016).

Social issue

Women's freedom and rights have long been crucial issues in the Middle East. Women are required to wear a hijab and remain silent and hidden in many countries. However, many social activists, including female artists and filmmakers, have recently come to light. Moreover, many women have been motivated by new feminist movements to fight for their rights. In Afghanistan, women are required to wear hijabs and are prohibited from attending school.

Research Methodology

In this research study, data and information were developed through observation and open-ended interview questions from the participants engaged with the VR project. The research uses a qualitative method to gather data and results.

Research main questions

- Does the viewer's capacity for long-term memory enhance because of virtual reality?
- Does virtual reality support behavioral change in individuals?
- Does the viewer's freedom to look around enhance their understanding of the information, or does it confuse them and divert their attention?
- Does Virtual Reality help to make participants feel they are in the story and develop empathy about a particular topic?

Research hypothesis

Participants feel immersed in a three-dimensional environment with three-dimensional physical reality and three-dimensional spatial audio. It is necessary to outline the requirements for producing an entirely immersive experience. Physical satisfaction and a sense of presence are achieved whenever the animation's speed closely mimics real life.

Technical elements

The most widely used engines in the sector are Unity and Unreal, while Maya, Cinema 4D, and Adobe After Effect are primarily utilized for rendering and animation.

Unity software was introduced by Unity Technologies in 2005 and has simplified the creation of video games for a broader spectrum of game creators. Due to the language's simplicity and intuitiveness, Unity has a massive community of game production companies (Trost et al., 2021).

Unreal Engine is acknowledged as the AAA game engine due to its visuals and lifelike quality, showcasing firms that develop successful games all around the globe. Using Unreal Engine, users can execute everything they can imagine.

Blender is used to create 2D and 3D models, simulations, animations, and more, it is a free and open-source graphics application, and due to Blender's open-source nature, designers may quickly adapt it to their requirements.

Autodesk's Maya is a 3D simulation, modeling, and animation program that has drawn much attention from the video gaming and film industries. Its excellent animation options contribute to its appeal, particularly when giving figures life.

Maxon created Cinema 4D, 3D modeling, animation, and rendering programs. Like Maya, Cinema 4D may be used to manipulate objects or create visual effects. Its motion graphics capabilities make it exceptionally intriguing and famous for making TV commercials and advertisements.

Interview/ Observation

Virtual reality's environment, or the setting where the experience takes place, is a crucial component and must be correctly designed for a realistic experience. For instance, the whole experience may be ruined if the slightest piece of a virtual reality environment is off. It must reach at least some degree of immersion to be believable (Radiantiet al., 2020). One of the main objectives of virtual reality is immersion; thus, while designing a virtual world, it should be designed with immersion in mind. The outside world may often be ignored when absorption occurs.

Here are some interview questions, including demographical questions and some open-ended questions for the participants to share their insights about the experience. How would you describe your gender? What is your age? What is the highest level of education you have achieved? What is your ethnic background? Where are you located? Would you consider yourself to have a disability? How effective do you think this experience is? Does this experience change your mind about social topics? Do you think watching the news in a virtual environment (6 degrees of freedom) is more effective compared to watching the news on TV? Do you feel empathy for the victims in this experience?

What criteria could be added to the experience to make it more believable as you feel you are really there? (1 or 2 sentences) Does the narrative help to understand the concept better? (People’s situation in Afghanistan) Do 360 Degrees of freedom to look around the virtual environment make you feel immersed in the story? How do you feel about experiencing other people’s suffering (putting on

someone else's shoes) through virtual reality? Based on the narrative after the experience, do you feel empowered to do something to help these people? Or would it change your behavior and mind about a similar issue in the future? Do you feel nausea, motion sickness, or any simulation sickness? How comfortable do you describe this experience? Describe your feelings and thoughts about the experience. (2 or 3 sentences or less)

VR interactive experience

Interactivity in the context of virtual reality describes the specific connections made between the users and the digital model. It suggests that the user could participate in the information transmission process facilitated by the computer. Therefore, a medium is interactive if it enables the user to modify the form of communication. There are many communication degrees: the lowest empowers the user to do nothing more than choose information; the intermediate allows the user to add content, and the highest causes the virtual environment to react appropriately to the user's input. Project 01, Virtual empowerment presented in this research is an interactive experience engaging participants to contribute to the story.

Non-interactive virtual reality is a virtual reality in which you manage some of the characters or activities inside the experience via a computer. Still, the virtual world does not directly interact with you.

A computer game like Dota 2 is a great example of virtual reality that is not interactive. Your control over a character's attributes will affect how the game's virtual environment plays out, which is what the game's protagonist does. Because they are only spectators and are unable to engage or take part, the members of the audience are unable to affect or transform the experience directly. Project 02, Afghanistan Crisis, as the research experiment sample, is a non-interactive virtual reality animation in which people do not contribute to the story and are passive participants in the virtual environment.

Interactivity

When individuals participate in interactive entertainment, they may alter, restructure, investigate, or exert influence on the plot; the story cannot be completed without your input.

It is an active experience, as the term "interactive" suggests, which means to take actions or to take steps, "interactive" is focused on the user and the material having a direct dialogue with one another. "

Additionally, the word "inter," which means "between," indicates that we are referring to a dynamic interaction between the user and information. It is a two-way conversation; when the user takes action, the content responds, or the content can demand the user to execute, and they will comply in the same manner (Miller, 2004, p. 56). We seldom refer to the audience when discussing folks viewing interactive work since the gap between interactive and passive entertainment is so significant. Alternatively, we may use several terms to characterize this individual; when discussing someone who is playing a video game, we will often use the words "player" or "gamer," yet when talking about someone who is browsing the Internet, we frequently use the phrase "visitor." In immersive settings

and simulations, we often refer to the individual as a "participant." Additionally, some experts may use the all-purpose phrase "user" or the generic term "interactor" (Miller, 2004, p. 57).

Because each user's path is different, we name these people singularly. In reality, the user is made the narrative's focus and travels on their own through an actual, real-world situation. So far as I can tell, this author believes that interaction is a personal experience that a large group of people cannot share. "Participant" is the best term for my project since people engage with it, yet they are neither players nor users.

PROJECT 01 VIRTUAL EMPOWERMENT,

An immersive experience and visual narrative in the form of sociopolitical fiction.

In this project, I criticize the patriarchal realities of modern Iran by juxtaposing them with a tale of strong female characters from Persian mythology. By critiquing the constraints and challenges that Iranian women face on a daily basis, I hope to raise awareness of current issues while offering an alternative—even fantastical—representation of real-life events. Virtual reality serves as a potent tool for transporting users to a world they would not otherwise be able to experience. Through the use of virtual reality, I may give imaginative alternatives (introducing goddesses) and demonstrate the possible influence of mythology and legendary figures from old tales, on contemporary society.

Participants will gain an understanding of gender equality in modern Iran by integrating this goddess i nto virtual reality. Social awareness is what I want to achieve. I believe it is crucial to influence traditi onal people to adopt an "equality"-focused mindset. One of my research questions is whether or if virtual reality can assist people to change their behavior by enhancing their recall of information over time.
Does the viewer's freedom to glance around enhance their understanding of the content, or does it co fuse them and distract their attention? (Khatibi, 2020, pp.5-7).

Figure 2: MFA Show, VR experience, Scene 1 to 2; Scene 1: Player meets Anahita. Scene 2: The player gets the holy flower and rescues all women (Khatibi, 2020). VR programmer: James Lewis Byron. 3D model: Evie Chang.

Physiological comfort

When designing a VR experience, (Khatibi, 2020) ensures that the player's comfort is the most crucial factor. This is also one of the most challenging tasks in creating a fantastic, one-of-a-kind VR experience for the player.

You may have noticed or heard that after wearing a VR headset for a while, you start to feel tired, queasy, or motion sick. Virtual reality (VR) impacts your brain because, when the player is wearing the VR headset, their body is not changing; instead, they are seeing a moving world in the headset. Controlling some moving characteristics, such as the pace at which a player must travel and the sorts of motions (such as leaping) that a player may be required to employ, might solve this issue (Pan et al., 2018, pp. 409-410).

Immersion can have a different meaning in regard to my project 01, Virtual empowerment. To completely immerse viewers, a work should include all three technical aspects of virtual reality (VR) that create presence, Bailenson highlighted this. The user may not feel completely immersed in the setting of my work, but the purpose is to achieve inclusion as if they are a part of the narrative or a character who has the power to change in the plot (Khabiti, 2020, pp. 20-21). The participants of this project do not walk in other people's shoes; while they may witness women's pain and suffering, they also add to and shape the narrative. The process of building strength by embracing the miraculous plant energizes participants or players in a world of imagination made up of 2D animations and a 3D landscape. By offering the participants the chance to become involved, influence the tale, and come up with a happy conclusion, I believe I have overcome the difficulty of utilizing virtual reality (VR) to view other people's suffering and terrible sentiments in my work (Khatibi, 2020). My participants like the sensation of having the ability to turn adverse circumstances around. The participant feels like they are a part of the narrative because of this encounter.

Virtual Reality (VR) as an empathy machine

The emergence of virtual reality (VR) as the "ultimate empathy machine" coincides with an explicitly xenophobic, racist, misogynistic, and Islamophobic period in the US and elsewhere, claims Nakamura (2020, p. 47). Its development coincides with the internet sectors' efforts to protect themselves from criticism becoming louder. To combat and control the perception of digital industries as cold and greedy, VR has taken on a new beginning as a technology that is against racism and sexism that constructs the correct type of sensation.

In her essay "Feeling good about feeling bad: Virtuous Virtual Reality and the Automation of Racial Empathy," Lisa Nakamura (2020) refers to the two sides of the debate concerning the criticism of VR and discusses VR as an empathy machine (Nakamura, 2020, pp. 47-64). When Facebook acquired Oculus VR in 2014, it was considered an "excellent" piece of technology. The company's goal was to foster connection and compassion among individuals. Virtual reality is dubbed a "transformative and disruptive technology," allowing users to "experience the impossible" and advancing the company's mission to "connect the globe" via social media (Nakamura, 2020, p. 48). VR represents a significant investment in developing a new technology of emotions. Mark Zuckerberg said, according to Tarnoff (Nakamura, 2020, p. 48), that "Oculus has the opportunity to develop the most social platform ever" (Nakamura, 2020, p. 48). In addition, Nakamura discusses the cultural significance of VR as an

empathy tool for experiencing societal issues, such as being blind, discovering what it means to be homeless and poor, and being a refugee. "Virtual reality is the ultimate empathy machine," claims Chris Milk (Nakamura, 2020, p. 49). These encounters go beyond mere documentaries. They provide the chance to "walk a mile in another person's shoes."

In his work of the same name, Paul Bloom, among other philosophers, comes out "against empathy." Nakamura also refers to these individuals. Bloom does not deny that empathy exists, but he is true that it is dangerously overestimated as a method of alleviating the suffering of others because of its overlap with the concept of compassion (Nakamura, 2020p. 61).

PROJECT 02 AFGHANISTAN CRISIS

U.S. Military withdrawal on August 30, 2021, and the Taliban takeover of Afghanistan.

This VR animation puts the participants in the middle of a tragic scene of people trying to flee from the country, a mother passing her kid to the U.S. Troops over the Kabul airport fence. Showing people holding their passports and trying to get on the U.S. airplane to leave the country. The narrative shows people suffering, crying, and desperately asking for help from the U.S. army. The participant will stand in the middle of the scene behind these people as they feel they are one of these desperate people. The sound of a crowd, crying kids, and screaming is heard in the scene. The participant is free to look around with 6 degrees of freedom, but there is no interactivity. The participant does not contribute to the story, but they are the passive viewer. The purpose is to investigate the difference between watching news and events through virtual reality space versus TV.

Figure 3: Afghanistan Crisis. 3D Animator: Saeed Mohammadi Yazdi

Observation result

According to Barreda-Ángeles et al. (2020, p. 685), multiple definitions and interpretations of the concepts of immersion and presence exist in the field. In their article, they employed the method of Slater and colleagues, who define immersion as a technological feature of the medium coupled with its capacity to give the user genuine sensory implications (For instance, a wide field of vision or an instantaneous update of the visual system as the user turns their head). According to this method, the powerful illusion of actually existing in the virtual environment is known as the "spatial presence" or "place illusion" resulting from the system's immersive features. Previous studies have shown that 360 video gives consumers a sense of spatial presence when seen via a VR headset.

There are many grounds to believe that immersive media experiences and the resulting sensations of presence may enhance viewers' sympathetic reactions. Both a cognitive aspect of empathy, the capacity to assume the point of view of another person, and an emotional reaction to that perspective, empathic concern, are involved. Construal level theory (CLT) states that psychologically proximate events are represented in more precise and in-depth methods than distal occurrences, regardless of how far away they are in time, space, or society. Immersive journalism tales enable the user to develop more solid depictions of the characters' viewpoint on the world, therefore enabling perspective-taking by giving the user the impression that they are in the setting where the characters are present at the same time and space as the events. The case study, “Afghanistan Crisis” a virtual reality animation interviewed 20 people from different demographic backgrounds. The participants of this study are nine middle eastern, six white/Caucasian, four Hispanic, and one Asian. Thirteen females were between the ages of 25-44 and one female participant was over 50 years old. Seven male participants between the ages of 25-44 have been interviewed and observed for this study. The major number of participants are educators and students with high-level degrees.

25% of participants think that the experience was very effective, and 75% said that this is an effective experience in raising awareness about social topics through virtual reality.

65% of participants say the experience changes their mind about social topics, 30% say it does not change their mind, and 5% prefer not to answer. All 20 people said yes to the question of whether they had been able to feel empathy for the victims after the experience and whether the narrative helped them understand the situation better. All 100% of participants feel immersed in the story when they were in the virtual space. 70% of participants feel empowered to do something to help the victims, but 20% do not feel empowered after the experience. Also, 10% prefer not to answer.

Most people feel sad, sorry, and angry after experiencing other people’s suffering through virtual space. 85% describe the experience as comfortable and very comfortable. 5% describe it as an uncomfortable experience and 10% answered a neutral feeling. 90% of participants had no sign of nausea, motion sickness and or any simulation sickness after the experience.

Observation Results

What criteria could be added to the experience to make it more believable as you feel you are there?

Creating more believable and realistic figures/animations will improve the quality of the project. The number of white people in the experience disconnects the feeling of being in Afghanistan. Adding

some information about the event, in the beginning, will help understand the topic better. It would be better if the environment was a bit dense and filled with more items such as people, buildings, wrecked vehicles, and the U.S. military.

The SFX could be improved by a bit of adjustment and be tuned to help the user experience. Sound can be more persuasive. If there were a dialogue that would be better. If some motions could be added to the people, it could be more impressive and livelier. The environment, sound, and senses were very realistic and compelling. Adding more animations, better scaling, and the ability to move and explore.

Describe your feelings and thoughts about the experience.

To me, it was the end of the world. Even watching it over the VR is sad. I cannot imagine being there! It is a good way to understand what the place looks like. I feel like Afghans are my brothers and sisters. I am them; they are me! I think it is one of the ways to make people feel connected. I believe it is a great/modern way of storytelling. I found myself as one of those innocent people seeking help to live a basic/normal life if it is not for them, but for their children.

The scene was an impressive tragedy that could lead me to think about the possibility of happening such events in our today's life. I was aware of the situation in Afghanistan and is understandable for me since I come from a country that is a neighbor of Afghanistan. It placed me in the heart of the scene. I want to know more about it. So sad! I usually avoid putting headsets on my head because they scare me. But I did not feel scared using this one since the visuals put me in a place as an observer, and I did not have to do anything. Given time and development, the social impact could be incredible. Feeling shocked and stressed. It was so real. This helps me support them better and be their voice. It's a believable way to depict the tyranny, cruelty, and brutality of the regime.

Results

The participants in this experiment liked how they were immersed and involved in the virtual space. Interactivity is an essential component of modern society. It pushes individuals to be more active and lets users explore a virtual environment that closely resembles reality. The user imagines himself/herself in a virtual environment where they may interact with various personalities and things in countless ways. They need a great deal of attention and mental focus, and in certain instances, they even engage the majority of the five senses: sight, hearing, touch, and sometimes even smell. In other words, participants need to see a fully immersive experience to understand the topic better. In contrast to non-interactive entertainment like a movie or book, it delivers something fresh, enables us to create original tales and worlds, and allows us the flexibility of engagement and choice.

Conclusion

Video gaming and pornographic sectors are where VR has the most potential for utilization. In order to find a new definition for social connection, a new visual genre of virtual reality for social good or virtuous virtual reality had to be identified. (Nakamura, 2020, p.49) For instance, as indicated in Nakamura's article, VR can be the most beneficial way to perceive and solve hardship in the real world. According to psychological studies conducted in virtual reality labs, people can adjust their opinions by seeing films on deforestation and deciding to use fewer paper towels after viewing

beautiful woods. However, it is more challenging to envision topics about racism and sexism in real life. (Nakamura, 2020, p.61) As a result, our desire to experience these subjects in VR guides our perception of hardship or horrifying experiences. The 3D assets and space were more convincing, but the research participants liked the story and storyline of both imaginative and realistic environments. The participants felt involved and immersed in the setting due to the realistic 3D objects, 3D spatial sound, and animation.

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