CREATING CONVENIENCE

How Virtual Reality allows for Augmented Relationships

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Chapter 1: An Easy Start

1.1. Context of Study

Recent advances in digital communication technologies decreased the distance between people by allowing them to be increasingly connected through virtual networks. Instant messaging programs allow us to be connected across the world; for example, a Skype boardroom call can bring multinational companies' managing directors into the 'same space', eliminating the need for travel and physical proximity. It can be scheduled and engaged within minutes.

Paul Virilio (1989) mentions that the advancements in technologies causes space to become a mediated experience that can be conveniently accessed. He uses the examples of F4 Phantom fighter aircraft using instrument backed firing systems to take down an enemy aircraft. The basic 'fire and forget', and over-the-horizon weapons systems allow the pilot of the F4 to lock on to a target, fire his Sidewinder missiles and move on to the next target before the missiles even hit the first target (1989, 83-84). The F4 pilot did not even have to be close enough to visually see the enemy aircraft, or physically move, to shoot it down; they were connected through mediating technologies. This is an outdated example, but the principle is still used in modern warfare.

Sherry Turkle (2015) proposes that what people socially want, is to be conveniently connected everywhere, not just to those in close proximity. She explains that this also gives people control over where they direct their attention (Turkle 2015, 24). According to Turkle (2015, 24), we value the control of where we place our attention more than having actual contact. Being connected digitally via instant messaging applications, emails and telephone calls, means we can constantly and immediately engage in conversation or choose to ignore it at our leisure and convenience. This also eliminates the need to be in the same physical space as the people we would like to be socially connected to. Our conversations are becoming engineered as we can efficiently communicate, as well as edit ourselves to get the perfect message across (Turkle 2015, 64).

Human experience and attention are becoming highly engineered and therefore entities (Crawford 2015, 35). Crawford states that the advanced economies are moving away from producing services or goods, but they rather create experiences. If human experience can be engineered, so too can the world around the experience be engineered. A shopping mall is designed to look like a colourful space filled with shops, but according to Franco Bianchini, they "confine public social life to 'certain locations', certain hours and certain categories" (1988, 1). In other words, there is an element of inconvenience associated with physical shopping malls. In contrast, another form of designed experiences, namely video games, allows the user to interact and connect with a virtual world through a gaming console (like the Playstation4) or a personal computer whenever or where ever they choose. This indicates an element of convenience.

Figure 1.1. Screenshot of Myst on the game's website (Cyan Worlds 1993).

Robyn Miller, one of the two co-designers of Myst (Figure 1.1), a video game developed by Cyan, Inc., and published by Brøderbund in 1993, pointed out that "We're creating environments to just wonder around inside of. People have been calling it a game for lack of

anything better, and we've called it a game at times. But that's not what it really is; it's a world" (McGoman & McCullaugh 1995, 120). The early graphics of computer games used pixelated graphics and low resolution, wire framed or solid-shaped vectoral graphics landscapes. Decades later, the technology allowed the graphics to get polished, details and dimensions increased, as did the intelligence and creativity behind the games (Elias 2012, 37). Layer after layer, texture upon texture, the virtual world gets constructed, replicating reality's principles in order to create an authentic space and experience. After each replication it became more faithful to the original by simulating the expected behaviour through complex code.

This advancement of technology and how far developers can create a believable virtual space and experience, brought the re-emergence of Virtual Reality (VR) technology. This advancement allowed the consumer market to catch up with the expectation of what a VR experience should be like, and overcoming the inconvenient technological lag, according to Leighton Evans (2018, 21). The technological lag is the gap between what the technology can achieve and the expected outcome. Previously virtual worlds were merely representations on the flat screen, to be explored by being a few instances (desk > keyboard or other input device > screen > window displayed on screen) away from the virtual environment (Evans 2018 , 13). The user interacts with the virtual through the use of a mouse and keyboard or other input devices and sees the interaction take place on a flat screen, but with recent developments in VR technology, the user feels like they are fully surrounded by the environment with the user's motion of the head influencing what is seen. Using a VR platform requires a user to put on a headset, called a Head Mounted Display (HMD), that covers the eyes and ears completely with a visor and earphones, blocking out the physical reality and substituting it with the virtual (Evans 2018, 91-92)(Figure 1.2).

Figure 1.2: The Oculus Quest 2 HMD with two hand controllers (Oculus.com 2020).

Michael Heim's opinion on what virtual environments should be is that the "virtual world needs to be not-quite-real or it will lessen the pull-on imagination. Something-less-than real evokes our power of imagination and visualization" (1991, 30). He continues that we should use VR as escapes from the physical and do the impossible and improbable. Our "imagination leaves behind reality... leaving behind the limits of our physical bodies to suspend our disbelief in imagination" (Heim 1991, 31). So simply put, VR lacks creativity if it only attempts to recreate reality instead of rather allowing the imagination to take flight.

Figure 1.3: The Cafe Le'Blanc chatroom in VRchat (VRChat Worlds Wiki n.d.).

In VR, people can interact with one another in a completely constructed and imagined environment of their choosing. By using VR Technology people are allowed to overcome certain physical limitations, leading to the establishment of virtual spaces and worlds. An example of this is the Cafe Le'blanc (Figure 1.3) VE in VR Chat, where people, even though they are physically apart, act as if they are visiting a real cafe. This Virtual Environment (VE) is based on a cafe from the *Persona 5* (2016) video game and the fictional owner of the cafe, Sojiro Sakura, is present in the VE as a Non-Player Character (NPC).[1] Having this space available in the VR Chat application, allows the user to interact with the space in a way that was not originally intended in the *Persona 5* game. The experience is conveniently extended to make users feel as if they are actually visiting the café .

The creation of virtual environments like the Café Le'blanc, is not limited to social environment[s] only. Virtual churches, which forms the case studies of my research, also exist where people can do everything that they would normally do in a physical church, just via an internet connection. Some online churches, like VRChurch (Figure 1.4) allows the congregation to experience the sermon through a VR headset to be more immersed in the VE. The convenience is extended to the fact that people can now have embodied religious experiences through VR. This applies for instance to virtual baptisms without the use of water. The VE can now simulate a digital body of water and the ritual happens as if it was happening physically. The VE's elements become signifiers of physical reality.

Religious rituals are not the only area where people attempt to make the experience more convenient through technology. There are cases of people entering relationships with virtual constructs, as if the constructs were physical people. These type of relationships are obviously one-sided and convenient for the consumerist individual who is basically entering into a relationship with him or herself. There is only one person present in the relationship, since the other half is an artificial construct with limited amount of scripted responses possible. Let alone having the agency to argue or disagree with the programmer.

[1] A NPC is a character in a VE not controlled by a human player.

Figure 1.4: Pastor D.J. Soto's Virtual Reality Church (Carlton 2018).

1.2. Aims and Objectives of the study

This study aims at exploring how VR technologies influence interactions between people, specifically looking at traditions where people congregate, such as religious spaces as churches where people interact in a social environment. The first objective is to give a brief overview of VR technologies and its history, as well as what has led to its recent re-emergence and popularity. A summary of commercial VR technology and its recent comeback is discussed and how it influences our experiences of interacting with a virtual world that developed from a flat 2D plane screen, through to a 3D environment via HMD. Secondly, a theoretical framework is provided in order to understand how VR technologies influence human relationships and interactions, as well as how people experience embodiment and immersion. This theoretical exploration is important for expanding the concept of convenience to not only refer to a neoliberal consumerist option, but importantly also to imply a way of understanding the world.

The theoretical framework consists of philosophical phenomenologists such as Martin Heidegger and Maurice Merleau-Ponty, as well as post-phenomenologist Don Ihde's extensions of their theories. It is in particularly Heidegger and his critique on technology

that is used as the foundational premise when discussing how VR technologies influence our way of understanding and accessing the world as a convenient resource. The theoretical framework of convenience, as both consumerist option and a more profound understanding of the world, is then applied to selected case studies. In these case studies people have foregone physical connection with others. Instead, the relationships are substituted with convenient connections via technology. The case studies therefore show how relationships are made into convenient resources through examples of the VR Church and cross-dimensional relationships.

The substitution of physical connections with virtuality and the way in which the world and others are reduced to convenient resources are explored. It is worth mentioning here that the etymological analysis of the term 'convenient' in *The Sage VII, English Dictionary and Thesaurus* shows the extended understanding of the term to also include notions of "to convene, assemble, meet together, accost, fit". It also reveals that convenience refers to being "together, as one, in concert" and to be "with, near, by, next to, beside, at, along, together". The relevance for exploring virtual congregations where users are brought together in one virtual platform, as well as the expanded understanding of turning relationships into accessible resources conveniently-at-hand, becomes evident.

The convenience allowed by substituting the physical with a virtual version is also investigated through the cases of people foregoing physical relationships with other people, and rather opting for relationships with virtual constructs. The convenience is not only in the time-saving possibilities and ease of the act, but also in the nature of the relationships being reduced to pure convenience. The technology allowed them to play out their fantasy in a more vivid experience. The study also attempts to explain how VR has allowed for the implosion of space, that people can have "social experiences" in VR, but be physically in different locations, technology has allowed for the physical limitations of time and space to be transcended. It can also argue that it has made religious relationships and rituals more accessible and interchangeable. It does not only mean that VR, and technology, saves time, and thus is more convenient, but rather that it changes the changes the "enframing" of the world.

The intended significance of this study is to show how VR influences and conveniences our relationships with others and the world. It is also to ask how VR may allow us to cross the boundaries of the physical and the virtual, adding to the debate of how technology has been "enframing" (*Gestell* in Heidegger's terms) our relationship with the world and with others. The examples selected hopefully show that the convenience of VR technology is not isolated to a single factor like time-saving factors, but rather that VR's impact affects all areas of human culture, in particular, religion and intimate traditions.

1.3. Literature review

1.3.1 Digital Technology:

Heidegger's critique on technology, from his *The Question Concerning Technology* ([1977] 1953) is used as a basis to understand how technology can impact our experiences and perceptions of the world. The essence of technology is not merely technological, according to Heidegger (1953, 1). Technology has become such a big part in the day-to-day life that Heidegger even says that "we remain unfree and chained to technology, whether we passionately affirm or deny it" (Heidegger 1953, 1). Heidegger states that technology becomes most dangerous when we regard technology as being neutral, which makes us completely blind to the essence of technology (Heidegger 1953, 1). We need to investigate what Heidegger means by firstly defining the essence of technology, then explaining how this essence operates when we interact and use technology. We then need to understand how VR technology has influenced the way in which we interact with the world and communicate with others.

Don Ihde and Mahon O'Brien are used as counterpoint to Heidegger's theories by critiquing his essentialist reading of technology and providing possible ways in which one can extend or support Heidegger's critique to be relevant and applicable to the modern era. Ihde especially states that technology cannot be broken down to an essentialist reading, but like any text, it has multiple meanings that can come from it (1997, 79). This is also where Sherry Turkle's works apply, showing how technology has changed the way we interact with one another in her books *Reclaiming Conversation: The Power of Talk in a Digital Age* (2015) and *Alone Together* (2012). They will be used to help Heidegger's critique to be applicable to

modern technology as they investigate and critique how technology has influenced our interactions with others as well as our behaviour. Herlander Elias' book *Post-Web: The Continuous Geography of Digital Media* (2012) explains how the digital information age has changed various forms of media, like books and films as well as our interactions with each. Paul Virilio's *War and Cinema* (1989) is used in this section in order to show how technology has changed the way physical space is perceived in conflicts of the 20th century. He uses examples that stretch from the First World War to the Gulf War and also draws parallels between the technology used in warfare and cinema. He also mentions the military war simulations that the United States Airforce executes to train their pilots.

1.3.2 Virtual Reality

Virtual Reality technology has re-emerged in the consumer market with affordable platforms that a wider group of people can have access to than the previous generation of VR technology from the late 1980's and early 90's. Leighton Evans' *The Re-emergence of Virtual Reality* (2018) explores the history of VR technology from the 1800s to present day. He also gives an account of his experiences in VR and how it has changed from the 1990's platforms to the more affordable 2016 platforms. Other sources are also used when discussing the panorama and stereoscope.

Virtual Reality and Augmented Reality (2018) edited by Bruno Arnaldi, Pascal Guitton and Guillaume Moreau, also explores the history of VR, but more importantly, it differentiates between Virtual Reality technology (VR) and Augmented Reality technology (AR), their applications and the differences between the two platforms. Tara Brigham (2017) and Erika Kerruish (2019) are also used to define and differentiate VR from other similar platforms like Augmented Reality.

As cybernetics is essential when discussing VR, the theorist who coined the term 'cybernetics', Norbert Wiener, is engaged. Wiener defined cybernetics as the scientific study of control and communication between the organic and the mechanical. Understanding cybernetics helps with connecting VR technology with Heidegger's theory of 'ready-at-hand'. VR becomes a tool that we can use, and as we use it, it becomes invisible in use. We embody ourselves in the VE through the HMD and the movement hand controllers. Multiple

theorists are used to explore how the embodiment occurs as well as how people experience VR's immersion.

1.3.3 Embodiment

Heidegger's magnum opus; *Being and Time* (1927) is used alongside Merleau-Ponty's *Phenomenology of Perception* (1948) to explain Being and Embodied experiences. More of Merleau-Ponty's work, like *Sense and Non-Sense* (1964) is consulted as accompanying material. It is important to understand embodiment to understand how immersion works. Immersion is defined later as it is used to increase the potential for someone to experience telepresence in a VE. Several key thinkers, like Gary Brent Madison are used to expand on Merleau-Ponty's phenomenology. Sherry Turkle's book, *Reclaiming Conversation*, *the power of Talk in a Digital Age* (2015) is used to explain how digital connectivity can influence our relationships and behaviour. Paul Virilio's *The Art of the Motor* (1995) links his theories with Merleau-Ponty's. According to Virilio, space as experienced by us is nothing more than that which extends to our senses (1995, 141); so our perception of the world does not extend further than what we experience around us. Danielle Knafo and Ulrike Schultze's theories will also be utilised when discussing how embodiment and immersion works in a VE.

1.3.4 Immersion

Immersion is defined by using ideas of Herlander Elias and Leighton Evans. Evans' book *The Re-emergence of Virtual Reality* is important in this section, as it has Evans's accounts of his time in VR. This is used as an example of how Immersion works. Melanie Chen's concepts of what makes something more immersive in her book *Virtual Reality: Representations in Contemporary Media* (2014) explains the different individual factors that can add to the experience and make it more immersive, like sound and visual representations. Erika Kerruish's experiment of adding in taste and smell to a VR experience in her article *Arranging sensations: smell and taste in augmented and virtual reality* (2019) add to Chen's concepts of immersion. Herlander Elias' book *First Person Shooter: The Subjective Cyberspace* (2009) explains how immersion operates in videogames, mostly First-Person Shooters (FPS) and what elements can assist in creating immersive environments.

Melanie Chen states that developments in computer generated images in films were intended to increase realism and the immersive qualities of cinema; however, they still fall short on immersion because they do not offer the opportunities for interaction which multi-sensorial entertainment, like video games, allow (Chen 2014, 28). Video games can thus be argued to be more immersive than traditional forms of narration because, unlike conventional forms, they allow the player to navigate a simulated world through a multi-sensorial network (Julier 2000, 179). Karen Collins (2007, 134) states that the construction of a believable realistic space is a significant factor in the creation of an immersive environment.

In video games, the player feels more pride for their virtual projection after the main antagonist is defeated than they would feel when a movie or novel hero at the end of the plot because they participated and had influence in the actions of the hero. They formed a connection to the hero and can relate more easily to the hero. Gee (2007, [sp]) claims that this is partly because playing a video game is an active experience, the player actively moves the plot along, and it is reflective because the player makes choices along the way and those choices allow the player to explore certain options while also limiting other choices (Chen 2014, 32). Interactivity is one of the key factors that leads to immersion. How immersion is created will be investigated, as well as the concept of telepresence. The more the user is motivated to interact with the virtual world, the higher the probability it is that the user might experience presence in the world (Gee 2007, 500). If the level of immersion is high enough, the user might even forget that it is a mediated experience, and experience a sense of 'being there' (Takayama 2015, 161).

1.3.5 Telepresence

Telepresence, as it is explained in this study, refers to K.M. Lee's definition of it: "a psychological state in which virtual (para-authentic or artificial) objects are experienced as actual objects in either sensory or nonsensory ways" (Lee 2004, 37). *In What videogames have to teach us about Learning and Literacy* (2007) Gee uses the concept as telepresence to explain how videogames with their interactivity can be seen as more immersive than a passive experience like watching a movie or reading a book. The concept of presence is further explored in Kwan Lee's *Presence, Explicated* (2004).

To tie the concept of telepresence to technology, Jean-Luc Rinaudo's *Telepresence in Training* (2018) and Leila Takayama's article; *Telepresence and Apparent Agency in Human-Robot Interaction* (2015) are utilised to identify what can cause the feeling of Telepresence and how it influences our behaviours.

Telepresence is the possibility that a human user can experience the sense of being teleported to a remote and distant location through the use of teleoperating systems (Lee 2004, 29). A user can experience telepresence when they are immersed in a VE. Being embodied in a VE through. VR technology can assist in a higher sense of telepresence as it embodies the user into the VE by blocking their visual and auditory senses and substituting it with the virtual. As this study looks at how users experience VEs, the concept of how telepresence operates is important to understand, as it ties in with how immersion operates and how a user can experience a VE.

1.4. Theoretical Framework

This study utilises a hermeneutical analysis because hermeneutics is the art of understanding and unpacking of the subject matter, according to Hans-Georg Gadamer (in Vieira & de Queiroz, 2017). The three main concepts that figure as a hermeneutical framework are: the essence and enframing of technology that render the world and relationship as a conveniently-at-hand, embodiment and embodied experiences, and immersion. This theoretical framework is then applied to investigate the case studies. When dealing with technology, the study utilises Heidegger's (1953) critique of technology, as well as Sherry Turkle's (2015) insights in how technology influences our social behaviours. Heidegger's theory of the essence of technology is then explored and unpacked in order to understand how VR conveniences human behaviours.

This framework is then supplemented by an investigation of Merleau-Ponty's understanding of embodied experiences. His phenomenological reading on experiences and perceptions is the foundation in understanding what constitutes embodied experience. Our bodies give us significance in order to understand and give meaning to cultural and natural objects (Merleau-Ponty 1948, 273). VR technology, as a medium, allows for more 'truthful'

embodied experiences in a VE than more traditional mediums (cinema, books, TV). This makes understanding embodied experiences crucial in the further investigation of VR technology and how it creates a sense of the body also conveniently accessed.

Immersion, as a concept, is used in this study when dealing with communication and VR technology. Immersion is unpacked last, since it is also subjective, multiple accounts and theorists are used to create a cohesive understanding of how it is possible for someone to experience immersion. As immersion is highly subjective, an interpretative analysis is best suited to investigate and unpack the core elements in how it can operate.

1.5. Research Methodology

This study examines how technology mediates convenient interactions between people and specifically focuses on VR. The assumption is that VR allows for virtual experiences that, arguably, substitute aand augment relationships between users. The key transformative agent here is how things and other people are rendered conveniently available and accessible. Through turning others into a convenience, the relationship between the user and the world also changes. These augmented relationships also impact traditions and religion in the selected case studies. The selected case studies show how traditional rituals that required people to physically be present, like a marriage or a church service, now instead are substituted by virtual convenience.

A qualitative phenomenologist methodology is used in this study since it is the best-suited method to understand the selected cases within their context, as well as give a complex, detailed understanding of the research question (Creswell 2007, 40). The phenomenological study also allows for an understanding of the unique experiences that can be found within the selected cases (Creswell 2007, 57). The scope of the study is limited to only selected case studies, to help with understanding the notion of convenience and augmented relationships as mediated through VR. As VR technology increases in capabilities (Evans 2018, 21), more extensive examples may appear; keeping the scope limited keeps the study focused. A qualitative phenomenological approach will give a better understanding of the essences of the experiences, instead of trying to explain it (Creswell 2007, 58).

Figure 1.5: Akahiko Konda with his Vocaloid wife represented by the plush doll (Jozuka 2018).

The first case is Pastor D.J. Soto's virtual church that he uses to connect to his congregation across the world. This VR Church is also looked at alongside several online only churches, like the Church of Fools (that later turned into the St.Pixels forum). Then the example of people marrying virtual characters are unpacked. These are Akihiko Kondo (Figure 1.5), who married Hatsune Miku, a singing voice synthesizer program in hologram form (they are called "Virtual Singers in Your Computer" on the website (Vocaloid – the modern signing synthesiser -)) and Sal9000 that married a video game character. The last case of Sgt. Hale (internet pseudonym) marrying an anime (Japanese animation) character in a virtually constructed church that he created for the occasion, is explored.

A weakness that is worth noting is that although the scope of the study is limited: it remains focused on only cases that complete the list of requirements. This leaves the scope open for improvement and to include a wider area of research to improve the understanding of VR technology's influence on traditions and religion. This study also does not delve deep into the cultural and anthropological aspects. A future study that combines the digital and anthropological aspects can expand the field of study.

1.6. Outline of chapters

To start off with, in Chapter 2 the theory framework of Heidegger's critique on technology is also explored in the second chapter. It attempts to create a well-defined framework of how technology can influence our relationships with one another, as well as how it connects us. Then the critique of Ihde and O'Brien on Heidegger's theories on technology is explored in order to keep the framework relevant and open for improvement. Sherry Turkle is used in this chapter in order to use examples of relevant modern technology and how it changes our experiences and interactions.

Chapter 3 focusses on the context of VR, especially the re-emergence of the consumer devices in 2016, like the HTC Vive and Oculus Rift. Leighton Evans's categorising and experiences in VR is used as the basis for the context, followed by other text[s] to fill the gaps and broaden the accounts of experiences in virtual worlds. This is also done after a brief history of VR is looked over.

In Chapter 4 Merleau-Ponty's concept of embodiment will be unpacked alongside the concept of immersion. Immersion as a concept will be used to cross embodiment and technology. It is important to understand how immersion can help the user experience embodiment in a virtual world through haptic devices like a Head Mounted Display (HMD) and hand controllers. Two concepts, immersion and telepresence, are also key to understand what differentiate VR experiences from other forms of virtual experiences, like videogames. How immersion is created and how it works is also discussed in order to understand why VR is seen as superior in creating telepresence in Virtual Environments (VEs). Telepresence, experiencing oneself to be present in a mediated location, will also be unpacked in this chapter.

Chapter 5 explores the selected case studies revolving around religion and religious rituals. Each case is examined, as well as the context of the cases. With moving through each case, it highlights the common grounds that each case exhibits. Many of the examples deal with how religion, marriage and other sacraments have been transposed to VR. Amongst these three major cases there will be several others to show that the above-mentioned cases are not isolated incidents.

The sixth chapter looks at the cross-dimensional relationships and how technology, specifically VR in the Sgt.Hale case, might have influenced the behaviour of the people participating in these events. The case studies are examined and the core of each is highlighted against the theoretical framework. It should also be noted that marrying inanimate objects is not a new phenomenon, but rather VR has allowed this fantasy to be experienced in a more embodied manner.

Finally, this study closes by identifying possible avenues in which this research may be applied, as well as the limitations of this study. This study did not focus on the cultural influences in the case studies, and that is invaluable to further the research in how VR technology is allowing for experiencing fantasies as if they were more real.

Chapter 2: Enframing and Technology

This chapter looks at how technology reveals reality to us by using Heidegger's analysis of the tool and his concepts of the *Bestand*, *Gestell*, and *Zuhandenheit*. These concepts are important as they explain how technology can influence human behaviour and expectations. It is also explored how the essence of technology leads to an understanding of the world and others as conveniently-at-hand. The essence of technology, according to Heidegger, reveals itself as rendering the world and resources available as a *Bestand* through the *Gestell*. Heidegger's concepts are supplemented with various other contemporary theorists, like Sherry Turkle, to make Heidegger's ideas more relevant to current technology.

As the primary technology investigated in this study is VR, it is necessary to understand the motivation behind its developments. VR as a platform attempt to make the user feel comfortable and at home in a VE and at its core is the convenient communication between the computer and the user and making it more intuitive. This is cybernetics, and its fundamental ideas are also unpacked in this chapter as it aids in understanding the workings of VR as a platform.

2.1 Technology and Enframing

Martin Heidegger (1889 – 1976) explains that we should unveil technology's essence to understand how technology influences us. In his essay entitled *The Question Concerning Technology* (1927), he provides an analysis of how technology reveals itself to us by referring tool use. Heidegger uses the example of a hammer to propose that a tool can become the means rather than the object of experience (Murray & Sixsmith 1999, 325). We can extend this to VR, as it is similarly becoming a reality on its own, instead of being an extension of reality. For instance, VRChat (2017) is an application that is described on its website as allowing for endless "social VR experiences" (VRChat 2019). These specific "social experiences" can only happen in VR as it requires the technology to mediate the experience. The history of VR follows in the following chapter, but suffice it to note already here that

modern VR has its roots in cybernetics and is inscribed in a particular human interaction with technologies, which overlaps in key aspects with Heidegger's ideas about technology.

The essence of technology can be seen as (a) revealing (Heidegger 1953, 5). It enframes objects differently to us and changes our relationship to objects. Heidegger calls this *Gestell* (enframing) (1953, 9). *Gestell* reveals to us how we can use objects as resources when we need them (Heidegger 1953, 13). The biggest problem with this way of revealing is that it obscures other ways of revealing. Reality can only be revealed now through a technological revealing, according to Heidegger.

The technological way of enframing shows how objects can become resources on standby, ready for when they are needed. This state of being ready when needed is referred to as *Zuhandenheit* or "readiness-to-hand" (Heidegger 1927, 96). For instance, when one opens a door, one rarely gives the handle any attention, unless in the case where it fails to open the door (Heidegger 1927, 96). In his exploration of the "readiness-to-hand", Heidegger inquires what the handle is like in the act of opening the door, or what the hammer is like while hitting it. He calls this the tools' way of Being, or "readiness-to-hand" (Heidegger 1927, 98). "Readiness-to-hand" means to have a resource ready for when it is needed and we may add for when it is convenient. The door handle is not a door handle with its own means of being; it is always already ready-to-be-used as a tool to open the door when needed. The handle essentially becomes invisible in the act of opening the door unless it malfunctions. The door handle exists to open the door and nothing else. This "readiness-to-hand" is grasped not when we use the tool since it becomes essentially invisible and a mere extension of ourselves. Still, if we study it and try to understand its "readiness-to-hand" theoretically, we will not grasp it either because then the object loses its intention for being (Heidegger 1927, 99).

Also when Heidegger (1953, 6) explains *Bestand* ("standing-reserve"), he uses the example of a stretch of land. Instead of viewing the ground as a farm that has to be maintained, it is now seen as a potential coal mine, to be dug up and provide ore conveniently stored for when needed. The ore brought up to the surface is not supplied to be utilised at present; instead, we stockpile it for when we require it to fulfil its designated role. Instead of having to mine ore when we need it, we make it more convenient to mine and stockpile it, so we

can only use it when needed. Heidegger (1953, 7) states that this change in how we see things through the enframing of technology applies to more than just objects we actively use. Rivers left alone (not utilised) can therefore be called up for "inspection by a tour group ordered there by the vacation industry". He calls this the "standing-reserve" (*Bestand*); the resource is refined and packaged to be ready for use when required (Heidegger 1953, 8). The resource is made available so that we can use it at our convenience. We don't have to wait for it to be refined; it is already refined and packaged for us, ready to use. We only recognise and appreciate it when we use it and forget about it again when not needed. Things and resources thus become a matter of being conveniently available and ready-at-hand.

Technological enframing reveals the possibility of technological developments. As we use technology, we are inspired to develop more technology. In other words, as things become more convenient, we require them to become even more convenient. Using the example of a silver chalice, Heidegger suggests that not only is the chalice's form indebted to the craftsman who made it. The chalice is also dependant on the material it is made from (Heidegger 1953, 3). Similarly, one can argue that VR is only possible due to the developments in cybernetics and computer processing power. VR is dependent on the development of technologies to exist.

In her paper *Telepresence and Apparent Agency in Human-Robot Interaction*, Leila Takayama states that the robot used by co-workers, working out of the office, became "invisible-in-use" to the operator (2015, 162). Using the telepresence of the robot, the users started to experience copresence, which happens through mediating technology, as Takayama explains. The sense of co-presence between people can be transferred through a technological medium. Takayama claims that this is one way of understanding how technologies have integrated themselves into our lives and became part of ourselves. More technologies that have become "invisible-in-use" are eyeglasses, wristwatches, cell phones, and even cars. The "invisible-in-use" also happens when playing a video game, where the user operates the controller with ease.

Another example is the cell phone. It is common for conversations over the cell phone to be remembered. Still, the fact that this conversation happened over the cell phone is quickly

forgotten, making the mediating technology “invisible-in-use”. This links with Heidegger’s concept of “readiness-at-hand” as the use of the cell phone becomes a convenient, although invisible, extension of the person.

Breakthroughs in communication technology changed and augmented how we see co-presence and space, as we can communicate with others across countries and continents. It also changed how we interpret our relation to space and relationships. Communication technology reveals a new way of connecting with people. Before it, the telephone and the telegraph, created a unique network that would allow for developing of new types of intimate relationships (Zhao & Elesh 2008, 566). McLuhan accordingly predicted that the new electronic revolution would allow for an even grander scale of reach for communication (in Zhao & Elesh 2008, 566). The more communication technologies are developed, the more relationships are augmented between humans, things and the world.

It has become more convenient to contact people located elsewhere via communication technologies. Yet they still have the option to respond to the communication, e.g. they can choose to answer the phone or not. For instance, we can connect with people when we desire to be sociable through mediating technologies, like VR Chat. We can enjoy someone else’s telepresence in a virtual environment for as long as we want and then conveniently log off after we are done. This relates to Heidegger’s idea that we turn objects into resources (or “standing-reserves”) when we need and desire them. Resources and even other people become conveniently-at-hand. Also, there is a distinction between co-location, being in the same physical space, and copresence, a sense of being virtually. Communication technologies mediate the experience of copresence in two different physical locations and therefore augments our relationships.

However, the predictions that telephones will bring new forms of personal relationships did not manifest as predicted; it did not exactly create the “socialising societies of telephone friends” (Pool 1977, 376). Telephone networks merely support already existing social networks and allow easier access to the network. The expectation was that the telephone would create new relationships because people can now contact others that they might never have met in person. It was anticipated that new networks of people who only know each other through telephones would be established. The fact of the matter is that to

communicate with someone in another location, both people still need access to the essential tools and infrastructure to connect. Ubiquitous social connectivity requires complete access to communication technologies and a prior established social relationship intact. There is a biological limitation on human social connectivity. The number of people that one can personally and intimately interact with is roughly estimated between 150 to 290 people (Zhao & Elesh 2008, 568).[2] This may sound like many people that one can possibly befriend, but it is still limited in terms of the possible number of people available.

It is also essential to distinguish between two types of connectivity. The first is electronic connectivity, which refers to the connectivity between communication devices. An example of this is two people with cellular phones, but without knowing the other person's contact details. They have the potential to be electronically connected because their devices are connected to a network. The second form of connectivity is social connectivity. This can be understood as co-presence, or connection between people through a medium, an already established personal network that is just made more convenient with communication technologies (Zhao & Elesh 2008, 569). They can also be located at a distance, but are connected immediately to one another through communication technologies.

Communication technological developments, like electronic mail, mobile smartphones, and social media, allowed for faster and more efficient communication forms. But more efficient forms of connection also allows us to decide when and how we want to respond to other people via communication technologies. In other words, there is a strong sense of convenience associated with these forms of communications. It has "liberated" copresence from time and space. When we receive a message, we can conveniently decide, if we want to answer, where to answer it, and when (Zhao & Elesh 2008, 571). New communication technologies have turned co-presence, or availability, into a resource for us to tap into when we require it. It is now a matter of convenience for us. The hammer allows for more comfortable nail hitting, the car allows for more accessible transportation, VR allows for more effortless communicative experiences as if the communication is shared physically. More importantly, VR turns our relationships with others into a matter of convenience and a resource ready to be tapped into when required.

[2] This number is relevant to physical, face to face relationships and will be discussed later on. It is named after anthropologist Robin Dunbar (1992), who created the theory.

VR creates disparate online worlds, some of which solely exist for people to meet and be sociable, and becoming a world on its own (Dyehouse, 2009, 281). William Gibson, who coined the term cyberspace in his novel *Neuromancer* (1984), calls it a "consensual hallucination" which seems a fit description if applied to some virtual spaces found today like *World of Warcraft* (2004) and *Destiny 2* (2017). It is a virtual world that can only exist if everyone plays a part to make the virtual space and the virtual economy work. But instead of being a blank 2D screen with just text, these virtual worlds are 3D rendered spaces where the users can walk around. Having this 3D space helps make the "consensual hallucination" accessible and believable to newcomers as everyone plays his/her part as if it is a natural state of things.

Part of the consensual hallucination is 3D space. According to Mark Pesce, "without space, we are lost. Surfing the internet is a nice turn of phrase, but most of the time none of us know where we are going, or how to get back there again" (1995, xxvi). When navigating the current internet, we just navigate seemingly unlinked 2D pages instead of navigating a coherent 3D space. Pesce wrote two user manuals on using Virtual Reality Modeling Language (VRML) in 1995 and 1996. VRML was a reaction to the early web presented through 2D lines of text and flat images only. Cyberspace, as we experience it today is different from its aspirations when VRML was created.[3] VRML was intended to create a world on its own that could be navigated in 3D space, thus a "coherent reality" (Dyehouse 2009, 282). The developers of VRML believed that the 3D space would be more user friendly and easier to navigate than the 2D web (Dyehouse 2009, 294).

VRML responded to what John Keane calls a "communicative abundance" (Dyehouse 2009, 295). This abundance is related to the communication technologies that started to be used widely in the 1990s, like satellite networks, the internet, and cellular phones. The communicative abundance includes the technologies themselves, and the amount of time people spend using these technologies to communicate (watching television that uses the satellite networks to 'communicate' various programming to the TVs). The communicative abundance led to information overload according to Keane (Dyehouse 2009, 296). The infiltration of every aspect of our lives also ties in with what Heidegger means by saying that

[3] VRML was called the "Cyberspace Protocol" by Mark Pesce. It would allow users to browse the World Wide Web in an open 3D space (Dyehouse 2009, 286).

“we remain unfree and chained to technology, whether we passionately affirm or deny it” (Heidegger 1953, 1). Technology develops, the more it gets used, and the easier it gets to use it, the more convenient it grows. In a world of “communicative abundance”, technology makes communication more accessible and more ubiquitous, turning the world into a *Bestand*.

VRML, however, was not generally adopted precisely due to its difficulty of use. It was though to develop anything using VRML, since they did not have a standard means of operating. Each program was built using different protocols and required different setups to run, making it hard for consumers to operate (Dyehouse 2009, 286).

People adopt technology especially when it makes their life more comfortable and more convenient. Communication over a phone can be seen as a more efficient form of communication than sending letters or even physical conversations. Turkle argues that “digital media encourage us to edit ourselves until we have said the ‘right thing’” (2015, 102). Relationships deepen not because we necessarily say anything in particular, but because we are invested enough to show up for a conversation (Turkle 2015, 102). Turkle mentions that conversations are not about what is said, but about what is felt, and adds that “[w]e are vulnerable: [g]oing to technology starts to feel easier, if not better, than going to each other” (2015, 128).

When children experience a face-to-face conversation, they learn that practice does not necessarily lead to perfection, but that perfection isn’t the point. However, perfection may be the goal in a simulation—in a computer game or over text messages, for example (Turkle 2015, 64). Certain videogames rank the player’s progress, like the first *DOOM* (1993) (Figure 2.1) to even more modern games like the reboot of *DOOM* (2016) (Figure 2.2) or *Devil May Cry 5* (2019). They allow the user to replay a section, reward perfect score, or use a leader board to rank players against each other. Reality does not allow for replays and editing.

Figure 2.1: *DOOM* (1993) end level summary screen.

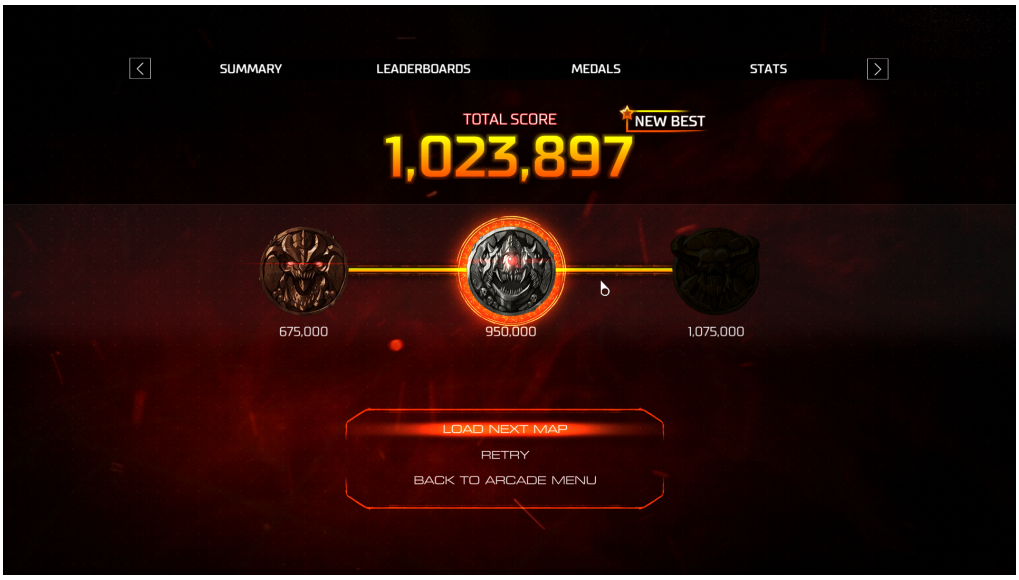

Figure 2.2: *DOOM* (2016) end of an arcade level summary screen.

Technology and Speed

Sherry Turkle's argument that using technology to communicate is more convenient, and in a sense more efficient, than physical communication links with Paul Virilio's explanation of our over-reliance on technology. It is used for the search for efficiency, like how telephones made communication more efficient and convenient. To Virilio "Speed is Time saved" (2006, 46). Time saved becomes time that can be spent on more activities instead of being wasted

by doing something ineffective and time-consuming. Reality and relationships are more time-consuming, for instance.

Speed has become the measure of success. The highways and roads are producers of speed, allowing people to travel large distances in a short amount of time, eliminating or shrinking physical space and connecting towns and countries to each other (Virilio 2006, 30). He uses the example of the display windows for Dutch prostitutes to explain how the street is designed for efficiency. Passers-by could see inside the windows while walking towards and when they have passed it due to the outward curve of the window (Virilio 2006, 33). Speed and efficiency are sought after while being stationary or slow is seen as unnecessary or unappealing**.** Military engineers use a fortress, or strongpoint, to facilitate the enemy's movement or to simply contain them, slowing them down to win the battle (2006, 38). For instance, the Maginot Line, a static line of fortresses between France and Germany, constructed after the First World War, was intended to contain any possible future invasion of France by Germany. The Germans, however, just drove around the Maginot Line, through Belgium, when invading France in the Second World War, using fast and efficient forms of mechanised warfare.

Where speed and efficiency are propagated as useful, Virilio mentions that being static can be used as an act of resistance (2006, 32). A local example of this can be seen as the #imstaying Facebook movement that started in South Africa in September 2019. The #imstaying movement was created in response to the recent negative news of the country (O'Ryan 2019, 1). The group's name is a statement of not moving; "I am staying, and not moving away". This spirit of resisting ultimate efficiency is also present in *The World Institute of Slowness*, founded by Geir Berthelsen in 1999 as a think tank (Berthelsen 2010, 1). Berthelsen states that technology was developed to do the tasks that "we do not like to do, as fast as possible", but without a basic understanding of what is essential. Technology has also "made us fast" and more stressed (Berthelsen 2018, 1). He calls for developing technologies that will slow us down i.e., becoming less busy and less stressed (Berthelsen 2018, 1). This movement can be seen reaching areas like slow food, instead of buying take-away and fast food, artisan and culinary traditions are celebrated (O'Donnel 2008, 1). There is also the slow gaming movement. *The Path* is a psychological horror game developed in 2009 and seen as a proof of concept for the slow gaming movement. Instead of rushing

around, the game requires the users to “stop shooting and start soaking in their surroundings” (Sullentrop 2009, 1). A more recent, and critically more successful video game, is Campo Santo's *Firewatch* (2016). As Andrew Webster, a video game critic for the online magazine The Verge,[4] notes: “[t]he roteness of the treks perhaps is purposeful. With nothing else to think about beyond the beautiful road ahead of you” (Webster 2016, 1).

For Paul Virilio, dromology is vital in understanding the course in which technology advances. In his book, *Speed and Politics* (1977) *dromology* is explained as being the constant moving force that changes the “raw material” of the world into a more appropriate and efficient form, to be ready at hand (Virilio 1977, 10).[5] He talks of a “Modern administration-by-calculation” that constantly categorises and charts lands and the inhabitants, ready to manipulate it to make the region more efficient (1977, 12). For an example of how speed and efficiency are used in propaganda, Virilio uses Joseph Goebbels, the Minister of Propaganda in Nazi Germany who was also a promoter of audio-visuals which include both sound and visual components, like propaganda films. Goebbels focused on feeding as much propaganda to the ‘masses’ as quickly as possible, and in effect, denying them the time to critically engage with the content (Virilio 1977, 31).

Reading something allows for more time to critically reflect on the text than a piece of cinema, for instance. The reader can think and engage critically with the work (Virilio 1977, 31). Technology can be seen as something that allows and demands more efficiency. It enframes our lives by allowing us to be more efficient, but also, this efficiency changes how we see the world. “[I]nformation networks”, like Facebook, Google, and Wikipedia, connect people to information and is relied upon. Still, if they crash or become unavailable, the bonds that they mediate as well as the wealth of information that they store will be lost (Virilio 1977, 21).

[4] The Verge is a multimedia magazine focusing on digital consumers, founded in 2011 and owned by Vox Media.

[5] Douglas Kellner critiques Virilio, especially the notion of Virilio's dromology. Kellner states that Virilio is overly pessimistic about technology and that he focuses on the substitutions to human embodied experiences caused by the advancement of technology (1999, 114). Kellner calls Virilios’s rhetoric as one-sided, technophobic, and hypercritical of technology. Virilio, however, states that there is a need for a counter to the predominantly positive and optimistic discourses surrounding technology. Using only Virilio can be problematic due to the one-sided nature, but it is still important as it raises a lot of concerns on the overreliance of technology.

As previously discussed, we now communicate with others using a cell phone, immediately connecting to them. The distance (space) between people is removed, as one can easily have a conversation with someone in a physically different place. Ruth Rettie (2005) argues that this allows us to be present in two different places simultaneously. The first is the body's physical place; the second is the virtual space where we have a conversation over the phone with that someone else (Rettie 2005, 19)**.** Modern social media appears to have significantly improved our ability to have social relations by allowing us to communicate more efficiently and conveniently. It has also given us the ability to be connected with someone physically situated in a different location (Goncalves, Perra & Vespignani 2011, 1).

However, as indicated above, biological and cognitive restraints limit a human being's social network size to be around 100 to 200 people (Goncalves, Perra & Vespignani 2011, 1). This amount does have leniency as it is also valued at roughly 150 to 290 people (Zhao & Elesh 2008, 568). This amount of the average social network for an individual is called Dunbar's number, as anthropologist Robin Dunbar proposed. We are, in other words, convenience beyond our limits by our tools. Dunbar claims that humans can only maintain limited stable social relationships because the neocortex places a limit on the number of people that one can personally and intimately interact with (1992, 22).

Goncalves, Perra & Vespignani (2011) investigated whether social media can indeed improve and help us transcend biological and cognitive limitations. It is argued that since it allows us to communicate more efficiently, so we save physical time. After examining six months of information gathering of people's Twitter accounts, they argue that social media did change how we communicate. However, it did not change our inherent capabilities (Goncalves, Perra & Vespignani 2011, 7). It is important to note that Dunbar's theory also focuses on physical contact with other beings. It is also described as the amount that an individual will keep track of and have face to face communication (de Ruiter 2011, 561). Technology has us to increase the number of interactions, even if it comes at the price of sacrificing depth to those engagements (de Ruiter 2011, 563 – 564). Just like transportation technology allowed us to move faster, more efficiently, and break the physical limitations of the body, so too can communication technology allow us to create more extensive social networks, but at a cost.

Sherry Turkle explains in her book: *Reclaiming Conversation: The Power of Talk in a Digital Age,* that "I hear a desire for distraction, comfort, and efficiency" (2015, 15). She adds: "We readily admit we would rather send an electronic message or mail than commit to a face-to-face meeting or a telephone call. A face-to-face conversation is the most human—and humanising—thing we do. Fully present to one another, we learn to listen. It's where we develop the capacity for empathy. It's where we experience the joy of being heard, of being understood" (2015, 10). A better understanding of what conversation accomplishes and how technology can get in its way is important (2015, 30). Turkle argues "[t]echnology does not provide a sentimental education," but people do (2015, 44). She states that "there is the risk that we come to see others as objects to be accessed – and only for the parts that we find useful, comforting and amusing" (2011, 228). Having a face to face conversation with someone is more than just taking turns talking. It involves reading expressions, body language, and tone of voice. When we express our anxiety about a conversation, we express our anxiety about our ability to do all of this (Turkle 2015, 47).

As Turkle mentions, we have a desire for efficiency and convenience. This desire can be seen in our perceptions of other people when communicating via a cell phone. The person needs to be constantly available and conveniently-at-hand for any contact, becoming a resource ready to be used for when we require their company. If the person cannot be reached, this communication failure draws attention to them for not being so. Just as the hammer and the door handle become unnoticed when in use, so other become an extension of us. Only when they are not readily available can they draw attention to them not being convenient as a resource.

Technology and Knowledge

As technology develops faster and more efficient means, the new standards also bring new problems that only exist due to the technology that brought them. Virilio claims that technology leads to new ways of control, and new accidents (1977, 8). The recent accidents are technologically dependent; a plane crash can only exist if there is an aeroplane to crash.

Accidents are naturally not the only technologically induced events. Don Ihde states that much scientific knowledge is also "technologically dependent" in his article *The Structure of Technology Knowledge* (1997). He explains that most scientific knowledge is gained through

the use of technology (1997, 73).[6] He uses the example of Galileo looking through his telescope. Galileo sees the rings of Saturn, as well as the mountains on the moon, but he also sees an 'aura' around the stars and believed that to be authentic as well.

This 'aura' was instead an instrumental artefact created as a by-product by using the telescope, and it was not a natural phenomenon. Ihde states that the telescope acted as an extension of Galileo, enhancing some aspects of his sense of embodiment and environment. Still, it also reduces other areas of our sense of embodiment and understanding of the environment (1997, 75). Galileo's technological mediated vision allowed him to see the previously unseen, but he also claimed that whatever was seen through the use of the telescope, is real, even the 'auras' around the stars (1997, 74). Ihde confirms that the advancement of scientific knowledge is dependent on the development of technological knowledge and better and more accurate equipment (1997, 79).

The link between technological and scientific knowledge verifies Heidegger's argument that technology allows for a specific revealing of the world as an enframing. Heidegger is very critical of the use of technology and the influence it has on our worldview. Ihde is similarly critical of the knowledge gained through technologies but believes that "[t]here never is one single 'reading' of a text precisely because the 'text' can have multiple readings" (1997, 79). He calls technology: "*relativistically* transformational", as the knowledge gained from using them, as embodied beings, can change the world around us (1997, 74, original emphasis).

Galileo's telescope is an example of what he means when he calls technology "relativistically transformational". It can be understood as using the telescope was incredibly hard, and Galileo cautioned that no one should use it without instruction, so one had to become skilled in using the instrument. They first had to understand the device before they could use it. Also, holding the telescope by hand, with its narrow line of sight, would allow the user to become aware of the slightest hand movement that usually would go unnoticed, making the user more aware of their body (Ihde 1997, 79). If the user did not use the telescope, he/she might not have experienced the awareness of his/her slight hand tremors

[6] Technoscience is the field that looks at the social impact of technology using scientific methods. It also looks at how the success and efficiency of technology is a consequence of scientific progress (Latour 1987, 174).

as he/she did when using it. This can also tie in with Heidegger's idea of 'nearness'. Having something close does not mean that it is in focus, "[n]earness maintains farness" (Heidegger quoted in Eiland 1984, 44).

A good example of this is reading glasses that someone requires to read. The person does not focus on the glasses but rather on what he/she sees through the glasses (Eiland 1984, 44). We do not realise the glasses' presence, unless they get a smudge on and interferes with the process of reading. The slight micro-hand movements, even though it was attached to their bodies, were far away, as they only realised it when it started to impede the activity of looking through the telescope.

Ihde states that the perception of knowledge through technology falls into two categories; we either fall prey to Faustian hubris by attempting to gain power through something we do not want to take responsibility for. Or technology and the knowledge gained from it becomes the salvation that will break the bonds of the body (1997, 73). Since technology changes the user and the object observed, e.g. in the case of Galileo, he was able to see the previously unseen through the "*technologically mediated vision*" (Ihde 1997, 74, original emphasis) afforded by the telescope. However, this only occurred after he became experienced in using the difficult to use the telescope and his awareness increased of how slight hand movements are amplified. Ihde states that this double transformation is "the phenomenological result" of a technological intervention, "which simultaneously and reflexively [transform] both the object of the observation and the subject doing the observing" (1997, 75). Technology, according to Ihde, transforms our embodied experience because it changes how we interact with and understand the world. This links with what Heidegger calls technology's essence, that it enframes the world in a specific technological way.

Understanding what Heidegger means by saying that technology's essence is how it enframes the world, helps us to understand how it influences our relationships. This influence on our relationship with the world also shows that early VR technology was intended to make user-to-computer communication more efficient and more comfortable. Mark Weiser, head of the Computer Science Laboratory at the Xerox Palo Alto Research Centre at the time, supports the integration of technologies in our everyday life by stating

that the most “profound” technologies are also the ones that disappear or become invisible to the user. The technological devices become such an essential part of the user’s life that they “weave themselves into the fabric of everyday life until they are indistinguishable from it” (Weiser 1991, 94). When the devices become invisible, the users use them without thinking about it, and they focus on different goals than using the equipment (Weiser 1991, 94).

As described by Mark Weiser above, ubiquitous computing can then turn people into resources that are like Heidegger’s tools (Takayama 2015, 162). Weiser writes at the dawn of the 21st century and expresses an optimistic view of what computers can achieve. Ubiquitous computing is more than technology having the ability to be mobile and go anywhere, it “does not mean just computers that can be carried to the beach” (1991, 94). He states that two things are necessary for ubiquitous computing to become a reality, namely scale and location. Location refers to the computer knowing where it is and scales referring to the device’s actual size and non-intrusiveness (1991, 98). Ubiquitous computing has changed from a theory (or fantasy) into a push to have technology present in every facet of everyday human life. As described by Antti Ruhanen, et al., (2008) ubiquitous computing is having technology placed “naturally” in the environment to perform a service or support function non-intrusively (2008, 27).

As seen above, technology allows for more convenient and efficient ways of interacting with the world and others. As technology creates more efficient ways, and we get used to it, technology develops to service those convenient methods even more. It augments our interactions with each other as well as how we view the world.

2.3 Conclusion

The next chapter will explore the history of VR technology to show that it is not a new technology, but rather that modern VR is the latest development in the lineage of people attempting to create and present a mediated version of reality.

Heidegger is critical of being over-reliant on technology as the enframing that technology offers, mutes any other way of being. Along with Virilio, who criticises technology for

promoting efficiency and speed above all else in our daily lives, the contemporary is over-technologically reliant. As expressed by Virilio, technology allows for a search of efficiency, making things go faster and easier. It has probably been established that this study looks at how technology has influenced human interactions and made more accessible modes available. As Sherry Turkle mentions, technology allows for more convenient means of conversing, but that does not necessarily mean they are not as humanising. She states that people desire "distraction, comfort and efficiency" (2015, 47) in conversations, and those three things are something that technology allows.

But with efficiency, the conversation may lose its empathy. Virtual Reality allows people to have conversations virtually face-to-face; it is still not an actual presence but telepresence (controlled and edited presence). VR technology can place the user closer in the VE, allowing users to experience a new form of technological embodiment, making virtual experiences easier, connected to a technological device like a VR HMD. However, what is lost when making an experience more efficient and convenient is probably the human depth of the experience.

Chapter 3: Virtual Reality's lineage

The chapter explores the history of VR, as it is not a new technological development, and there are multiple examples of creating and presenting virtual environments from as early as the 19th century. New devices can be seen as the evolution of the experiments of the 1950s, which in turn are based on the stereoscope in the late 19th century. Evans (2018, 25) states that the historical and contemporary discourse for VR is about a medium that attempts to revolutionise immersive properties when compared to other mediums used by people.

Understanding where VR comes from will help in understanding the case studies discussed in later chapters. As society desires more means to convenience everyday life, technology develops to increase everyday life convenience. It is essential to know the circumstances in which VR was created and identify the supporters of the technology. VR has had many attempts at becoming mainstream, but the recent re-emergence (the mid-2010s) seems to be the iteration with staying power for the time being.

It is important to clarify and expand on, what is meant by Virtual Reality as used in this study. VR, as explained by Bruno Arnaldi, in *Virtual Reality and Augmented Reality* (2018) is when a user exercises real tasks and gets feedback in the VE (Virtual Environment) that leads to an interaction between the user and the VE (2018, xxiv). The interaction is created through the immediate feedback that the user experiences while exercising a task. An example of such an exchange could be if a user attempts to throw a virtual ball in the VE. The ball's movement should follow the expected outcome of being thrown according to the force exerted by the user, and adhere to our understanding of how gravity affects the ball (2018, xxv).

From the outset, it is important to note that VR should not be confused with AR (Augmented Reality). AR is the superimposition of virtual images and information onto the natural vision and real-life (RL).[7] An example would be the Google Glasses or even a GPS

[7] The Pokemon GO (2016) and Jurassic World Alive (2018) apps are examples of AR video games.

device that uses our physical position and places it onto a map generated from where the device expects us to be (2018, xxv). Arnaldi explains that the most significant difference is that in VR our actions influence the VE, but in AR our actions can be taken as real (2018, xxvii). Tara Bringham's definition of AR and VR agrees with Arnaldi, but she adds an extra layer, which she calls Mixed Reality (MR) (Figure 3.1). According to her, MR attempts to use the best elements of VR and AR to bring responsive virtual objects into the physical. The most significant difference between AR and MR is that MR allows for objects to be 'placed' in the physical environment, and accessible to someone using the correct software to interact with the virtual object (2017, 174).

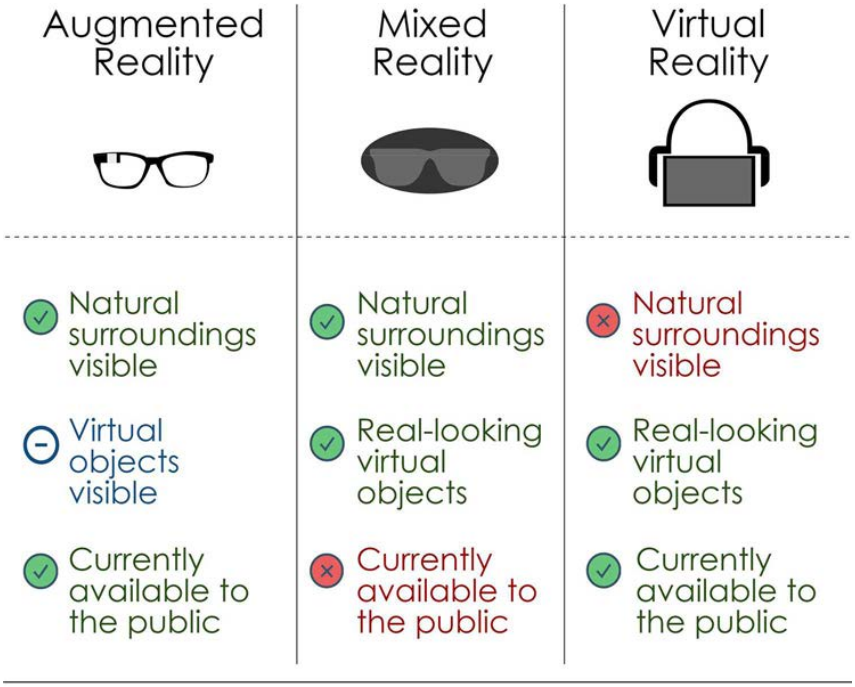

Figure 3.1: From Tara J. Brigham's article: Reality Check: Basics of Augmented, Virtual, and Mixed Reality (2017).

In what follows, this section explores the different generations of VR devices throughout the decades. It also attempts to explain what each device's intended purpose was, why it is vital in the lineage and why it was successful or failed. Cybernetics is also discussed as it allows for communication and interactions between the computer (virtual) and human, which is essential as contemporary VR is built upon cybernetic principles. Throughout its history, the

various applications of VR attempted to create a mediated form of reality for the user, from the primitive panorama to the contemporary Oculus Rift.

Early VR: 19th Century Virtual Worlds

As already indicated, VR is not a new technology; instead, it has a strong lineage that can be traced back to the 18th century. The 360° panorama invented by Robert Baker in 1787, used in Georgian amusement parks can be seen as one of the first pieces of VR equipment (Evans 2018, 36). The panorama's aim was immersion; to enclose the viewer's perception in a (virtual) environment, completely covering the inside and illuminated by concealed lighting (Grau et al. 1999, 143). The painted canvases used for the virtual environment would be transported to as many locations as possible and would end up getting shredded due to wear and tear. It was a mass medium that influenced the spheres of art, entertainment and political propaganda. The potential of using these (virtual) environments as propaganda was recognised by amongst others, Napoleon and Lord Nelson. They would commission the panoramas to illustrate spectacular battles and landscapes of colonial conquests (Grau et al. 1999, 143). Many of the witnesses of these panoramic immersive virtual environments claimed that the "deception" was so strong that they experienced the battle as a physically real event (Grau et al. 1999, 144). It can be argued that the viewers experienced telepresence, a sense of immersion into virtual environment, when entering the panorama as it "transported the observer into an artificial world" (Grau et al. 1999, 143).

An example is the panorama of the Battle of Sedan, which opened in the centre of Berlin in 1883 by von Moltke, Bismarck and the Kaiser Wilhelm II. This panorama showed the potential of manipulating the viewers' emotions to make them more susceptible to state propaganda (Grau et al. 1999, 144). The panorama's popularity eventually declined through the 18th century as other mediums rendered it outdated, like the stereoscope. The stereoscope attempted to give the same illusion of (virtual) space through the use of mirrors and much smaller paintings than Barker's panorama. It is already easy to see that contemporary VR and the panoramas had something in common: to replace reality with an artificial version, a form of hyperrealism where reality is replaced by the medium (Evans 2018,37).

The panorama can be seen as a symbolic form of expression for the bourgeoisie, because it represented an ideal world constructed by its creator (Oettermann 1997, 127). The vistas were expensive to create, making the landscape depicted reliant on a market, mainly the upper classes, as they could afford to pay for admission (Grau et al. 1999, 143). The panorama was a recreational novelty item used at amusement parks that also changed audiences' relation to reality. It brought exotic landscapes to the spectators while completely obscuring the outside world. The virtuality created by the immersion in the panorama was all that remained visible to participants.

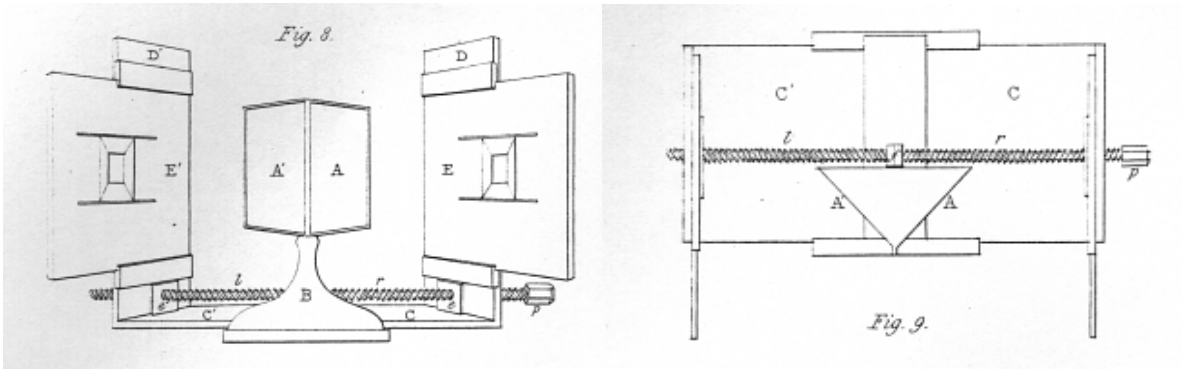

Figure 3.2: Charles Wheatstone's diagrams explaining how his stereoscope works (371, 1838).

Sir Charles Wheatstone invented stereoscopic images in 1838 (Figure 3.2), and it uses a similar method to modern VR to create the illusion of 3D by having each eye see (the virtual) through a slightly different perspective. Wheatstone's original design used mirrors angled at 45 degrees to the viewer's eyes to reflect a picture off to the side (Evans 2018, 38). Wheatstone used this stereoscope to investigate the mental aspects relating to depth perception. Its applications were a fundamental contribution to experimental psychology, a field that became popular in American and European universities in the late 19th century (Silverman 1993, 730).

Even though the stereoscope was initially designed for laboratory work, it became popular as a Victorian amusement product, like the kaleidoscope[8] and zoetrope.[9] The stereoscope managed to amuse the users and demonstrate scientific principles (Silverman 1993, 730). The overall tone of the contemporary writings about the stereoscope was that of excitement at the visual spectacles. Simultaneously, the stereoscope also evoked admiration about the scientific principles at work and sparked debates around the visual physiology and philosophy of human perception (Silverman 1993, 733). At the time of the device's conception, "natural theology" was prominent and used for arguments regarding the use of technology of vision.[10] Natural Theology is a line of thinking that claims the universe and all living things were perfectly designed by God (Silverman 1993, 733; Paley 1851, 14), and therefore people could only develop imitations of the perfect natural tool. The idea was that the natural eye was the "perfect optical tool" and hence infallible (Silverman 1993, 733). This led to the belief that the use of the stereoscope was a substitution to the natural eye in scientific studies, which showed how valuable the use of technological tools could be when studying nature (Silverman 1993, 734).

Sir David Brewster invented a handheld version of the stereoscope (Figure 3.3). This handheld version brought the principles of stereoscopy to photographs placed into the handheld viewer. This was the first portable stereoscopic device, and it operates similarly to how a Google Cardboard, or similar device, works (Evans 2018, 38). Brewster initially designed the portable stereoscope in an attempt to mechanically (technologically) reproduce the human means of binocular vision. Natural theology would explain it as the only true and correct way of seeing nature (Silverman 1993, 739). The handheld version worked exactly like Wheatstone's original design for the stereoscope, except it was portable and producible to sell to the public (Evans 2018, 38). It also marked to move from the public space to the more private handheld VR device that shows a representation of a virtual world (Evans 2018, 37).

[8] The kaleidoscope was invented by David Brewster. It uses reflective plates to "create and exhibit beautiful forms" (Brewster 1819, 1 -2).
[9] A zoetrope contained a series of illustrations or photographs in a revolving drum. This produced the illusion of movement of the illustrations or photos (Bordwell & Thompson 2003, 14).
[10] This included primarily photography but also extend to stereoscopy.

Brewster's device also brought about technological advancements to develop photography. He stated that if improperly used, the camera would desecrate human vision instead of attempting to emulate it since human sight is seen as the perfect means of vision (Silverman 1993, 740). The stereoscope, and the natural theology thinking prevalent at the time, pushed photographic technology to improve and develop smaller lenses and be able to operate with smaller apertures. The eye was used as the foundation to create a more 'accurate' means of photography. As the eye does not have a large lens, the large lenses utilised by photographers of the time would distort the subjects by showing grotesque details that the eye would not capture (Silverman 1993, 740 – 741).

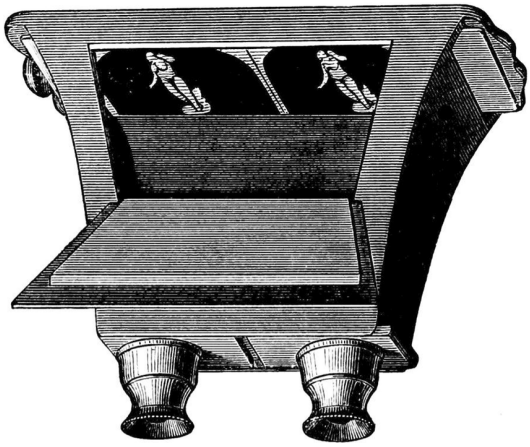

Figure 3.3: An illustration of Brewster's handheld stereoscopic device (Stevens 1882, 47).

The end of the Victorian era also brought another advancement in what can be seen as significant to the early lineage of VR technology, namely Thomas Edison's Kinetoscope. The Kinetoscope was a single-person viewer of a strip of backlit film that gave the experience of movement. This invention would be outdated quickly by the advancement of film and cinema. Still, its importance in the lineage is significant to note, according to Evans, as he states that the earlier technologies and the Kinetoscope and cinema, showed the demand and market for immersive technologies used for amusement (2018, 39-40). It also showed a slice of mediated reality that could be made available on-demand in a much more portable format than the panorama. The Kinetoscope, and early cinema, showed how a piece of the

world can now be seen (virtually) moving instead of just using two eyes to create the illusion of depth. The sliced reality could now move on its own as well. We can directly interact with the virtual world presented to both eyes, allowing for spatial depth perception, and the VE's time is also independent of physical reality's time. It can be sped up or slowed down, even stopped until we return to the VE.

Digital Virtual Worlds: 20th Century Technology

The first iterations of what can be identified as the "modern VR technology", can be seen in the 1980s. This iteration of VR technology was developed with human-computer relationships at the core (Evans 2018,35). This relationship is known as cybernetics. VR can be seen as both a response and part of cybernetic theory, namely that the relationship between machine and animal/human and can be summarised as the sending and receiving of messages (Evans 2018, 40; Weiner 2019, xi). Norbert Wiener, an American philosopher and mathematician, defined cybernetics as the scientific study of communication and control within the organic and machine (Weiner 2019, 6; Hauben 2007, 2). He states that control engineering and communication engineering are inseparable when studying messages and how they are sent, whether electronically or organically (Wiener 2019, 14). Weiner identified three main concepts in cybernetics; control, communication, and feedback (Hauben 2007, 2).

Wiener uses the example of someone who wants to pick up a pencil when explaining the principles of cybernetics. By picking up the pencil, certain muscles need to move in a specific manner actually to be able to pick it up. Still, the message consciously sent from the person is to pick up the pencil, not directly contract and move the muscles to achieve the goal (Wiener 2019, 12). The event can be broken down into communication of the will to pick up the pencil, control the muscles and then hold the pencil. Weiner noted that for a human to communicate through technological means by sending a message, the device needs to be easy to use.[11] In addition, there needs to be a reduction in background noise that might interfere with the message, and finally, the result should have the predicted outcome (Wiener 2019, 14 – 16). The method should become invisible in use, as not to draw attention to itself, but rather feel like an extension of the user, like Heidegger's hammer.

[11] How the act of picking up a pencil is unconsciously done.

When sending an email, or a telegraph, the sender indicates that the message will arrive at the destination when sending the message. When typing on the keyboard, the expected result is displayed on the screen. The predicted route that the device will go through is achieved and our information is relayed through communication technology. Sending a message should be efficient enough that the only way to exert less effort should be by not sending a message at all (Wiener 2019**,** 16).

Cybernetics rapidly developed in World War II as a means to design accurate communication means as well as develop anti-air systems (Lister 2003; 353). It was later seen as not just a means to understand machine communication, but also human communication (Evans 2018, 41). It allowed for the development of unguided rockets into homing missiles (Palumbo 2010, 2). Homing missiles can intercept and destroy unpredictable targets, with the help of a human operator or weapon control system (Palumbo 2010, 3). Examples of contemporary guided missiles include the US Navy's RIM-66 and the US Army MIM-104 Patriot family of anti-ballistic missiles (Palumbo 2010, 3).

During the Falklands war of 1982, the British military was criticised for generously using MILAN guided missiles as bunker-buster weaponry because the missiles were seen as expensive. The British military responded that it is even more expensive to train a good infantryman, and if something goes wrong with the missile, it does not leave behind a widow and family. Today guided weapons are used as common practice when dealing with fortified positions (Dougherty 2008, 302). These missiles allow the operator to strike a target beyond his visual field and from a safe distance, effectively extending the operator's range beyond their senses. It replaces humans on the immediate field with drones and guided missiles that are controlled through cybernetic methods.

As cybernetics evolved, the possibility of having a human communicate with a computer through a feedback loop that allows for haptic and tactile output became a reality (Evans 2018, 45). The big step forward for modern VR from previous generations is that the computation of the medium allows the viewer to 'move' through the (virtual) world and have audio linked to the visual environment. WIMP (windows, icon, mouse, pointer) is the primary method of human-computer communication that is still in use today, and most personal computers use it (Evans 2018,44). Ivan Sutherland worked on and formulated the

principles of WIMP already in 1963. Sutherland then started working on a headset in 1965 that would use human action to be fed to a computer that would then display an image based on the person's activity (Sutherland 1968, 763). The headset used stereoscopic principles to provide the user with depth perception.[12]

The research was supported at the time by ARPA (Advanced Research Projects Agency) of the United States Department of Defence. Sutherland wanted the Sword to replace the WIMP interface of computers. Still due to the heaviness of the HMD and being extremely expensive, WIMP remained the standard computer interface. However, his work in the 1960s, however, later formed the basis of flight simulators that would use the input of the aircraft controls and then give tactile feedback (Evans 2018, 45).

Commercial VR devices: 20th to 21st Century

The first wave of commercial VR would emerge in the 1980s.[13] Virtual Programming Languages (VPL), a company based in San Francisco and led by technologist Jaron Lanier, developed some of the first iterations of surgical simulators and multi-person virtual worlds (Evans 2018, 51). VPL emerged out of the Atari Research team that was interested in finding new ways for a human to computer interaction and game design (Evans 2018, 52). VPL's intended to create virtual worlds that express fantasies. Lanier believed that since everything is seemingly infinite in a virtual world, creativity would be unleashed. The devices developed by VPL, the EyePhone and HRX, used HMDs and Data Glove to deliver the VR experience to the user. The HMDs used the same principles of stereoscopy to immerse the user into the VE. This allowed the user to see the VE displayed on the screen through bi-ocular vision, providing the virtual environment with a sense of depth.

According to Lanier(2017, 193), using these devices looked like "you are having interesting experiences but look preposterously nerdy and dorky to onlookers". Also, their prices locked them out of casual households with the EyePhone[14] fetching a price of $10 000 and the HRX, which according to Lanier had similar capabilities to today's new devices, going for $50 000 (Evans 2018, 53).

[12] This headset would be known as the Sword of Damocles.
[13] The early stages of commercial VR are re-mediations of existing mediums into VR. There are three important mediums, video games, social networking, and pornography (Evans 2018, 127).
[14] The Eyephone was the first commercially available HMD device, even though the price was a barrier to most of the public (Mandal 2013, 304).

Even though VPL's devices might have been out of reach of the mass market, video game companies of the time took note and started experimenting with similar devices. SEGA and Nintendo both experimented with VR with mixed success. SEGA's VR device never made it to the market; however, Nintendo's Virtual Boy (Figure 3.4) was released in 1995.[15] The Virtual Boy used stereoscopy to give the user the illusion of 3D space in the virtual environment. This was the first time that a home gaming console maker attempted to bring VR to the broader public (Seibert 2017).

Figure 3.4: The Nintendo Virtual Boy device (Seibert 2017).

However, the Virtual Boy, however, suffered from several shortcomings, including only displaying in red (Figure 3.5), where its competition displayed in 15-bit (32, 768 colours), albeit 15-bit that was not shown in VR. It was also marketed as a portable device since it was battery-powered, but it was a large and cumbersome device making its portability questionable (Zachara and Zagal 2009, 102). Another negative element of the Virtual Boy is that it was uncomfortable to play the console since the user had to hunch to properly use

[15] It has been referred to as Nintendo's most famous failure as it was pulled within a year of release (Zachara & Zagal 2009, 101).

the display. It was also reported to have caused motion sickness and eye strain after extended periods of use (Zachara and Zagal 2009, 103).

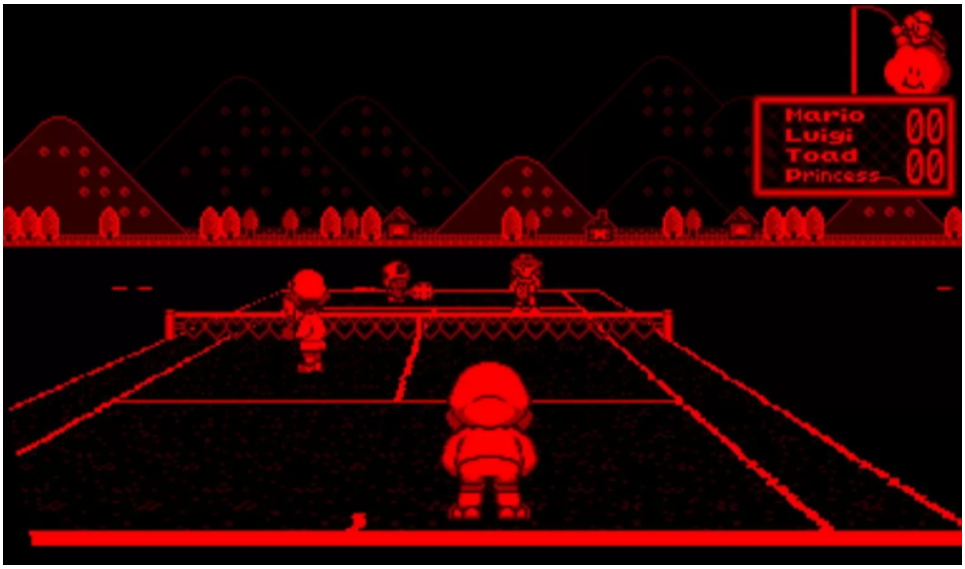

Figure 3.5: The Virtual Boy display (Steiner 2017).

VR did not become commonplace in the 1990s, which can be attributed to the deficiency of computing power. VR could only render the bare minimum to make a virtual space recognisable (Walsh 1995, 116). VR had to wait on Moore's Law before it could be actualised (Lanier 2017, 122). Moore's law is understood as the fact that the speed of computers doubles every year or two (sometimes the period has been defined as 18 months) due to the number of transistors placed on a processing chip. This law became the foundation for predicting processing power in both academia and in the mass media. This also is the baseline used when predicting production outputs (Mollick 2006, 62). Like the Virtual Boy, the first few VR headsets can be seen as nothing more than novelty items attempting to do the same thing through different lenses (Harley 2019, 4).

According to Evans, there are two critical components in the recent re-emergence of VR. The first is computing power, and the second is adaption (2018, 63). This is where embodiment comes in, the ability for the body to adapt and operate the technology. In 2010, small computational devices, i.e. smartphones and other wearables, became

increasingly entangled in our everyday lives.[16] Our contemporary society requires information and data at our fingertips, which is reflected in the advancements of mass-market technology (Evans 2018, 61). Processing power means the processing capabilities of consumer personal computers (PC) and other mass-market consoles (like the PS4), to provide high-quality VR experiences. PSVR (Playstation Virtual Reality) utilises the PS4 as its primary source of processing power. It gives an experience similar to an HTC Vive or Oculus Rift, both of which use their computational strength as well as a consumer PC (Evans 2018, 63).

The technological lag can finally be overcome to give a VR experience closer to that found in fiction like *Ready Player One* (2018). The technological lag is the gap between what the technology is expected to do, and what it is capable of doing, closing the gap between what is the expectation (or fantasy) and what the technology can produce.[17] The investment opportunities also allowed the technology to progress to the point where contemporary VR is viable. The first few headsets developed by Palmer Luckey for Oculus were nothing more than a technology demonstration of what is possible. Still it accumulated interest from industry giants like John Carmack, Micheal Abrash and Valve founder Gabe Newell and Epic Games' Cliff Bleszinski. Carmack would eventually even port one of his games, *Doom 3 BFG Edition*, to one of Luckey's early prototypes for the Electronic Entertainment Expo (E3) in 2012 (Harley 2019, 4). The interest from the industry showed some credence to VR's latest attempt as well as a financial interest in the promotion of this latest wave of VR (Harley 2019, 5).

The advancement in technology can also be seen in how virtual environments have developed outside of VR. As technology improves, so too does the representation and immersive capabilities of a virtual world. *Wolfenstein 3D* (1992) (Figure 3.6 left) uses sprite-based graphics and a simplistic three-dimensional game engine to provide a world for the player to interact with and explore. A decade later, certain videogames would boast of having an open world with more complex interactions available. *Far Cry 2* (2008) (Figure 3.6

[16] Apple Watch, Fitbit, Google glasses, etc.
[17] Price is still an obstacle to VR adoption, as having a PC to run VR requires a high-end GPU (graphics cards) and CPU (processors) and an HMD, which together is still in the range of $5000.

right), set in a fictional war-torn nation in Africa but in the same genre as *Wolfenstein 3D*, is an example of how video game worlds evolved. *Far Cry 2* had a game world that the player could traverse freely, completing missions as they want. The world had towns the player could visit, checkpoints with hostile guards littered across the map as well as having animals traverse the globe in non-scripted ways.

Figure 3.6: *Wolfenstein 3D* (1992) in comparison to *Far Cry 2* (2008). Screenshots by author.

Role-playing games like *The Elder Scrolls IV: Oblivion* (2006) series included a world where the player could interact with the game world in more immersive ways. The map had several towns scattered about; in each town there would be NPCs (non-player characters) that the player could interact with. This can lead to a form of immersion through traditional media, where the user is separated from the virtual world by a flat 2D screen that does not overwhelm their vision because they can still see the physical reality surrounding the screen.

VR can be more immersive than its traditional media counterparts due to its fidelity and feedback. However, a VR experience can be immersive to one person, and not for someone else. Immersion relies on presence, and presence is subjective (Evans 2018, 86). With its unique positioning of player perspective, VR can revolutionise immersion since it can place the player in a virtual body inside the virtual environment, making it easier to experience immersion (Thrift 2008, 95). Evans explains the process in which immersion can be created by using an example of playing a video game: “as one becomes more interested, amused and attentive to the tasks in the game, you forget the environment outside of the game

environment, and attend to the computer-generated environment as the primary area of attention" (2018, 87).

Thus, it can be noted that electronic connection media only acts as a sensory extension of embodied experiences and not creators of new ways of connecting or building new relationships. Being in range of each other is not the same as being available to each other, someone can be reached through a phone call, but they might be engaged in other activities and be unavailable (Zhao and Elesh 2008, 569). Adaption, the second necessary element to the re-emergence of VR, can be seen in the multitudes of entertainment software and available experiences on VR platforms. Valve, a company known for developing *Steam*, an online game distribution channel, has partnered with HTC and launched *Steam VR* in 2016 (Evans 2018, 65). On this platform, a user can browse and purchase several VR games and experiences. [18]

The major companies behind the recent re-emergence of VR all have links to social networking platforms. Oculus, one of the contemporary VR leaders, is owned by Facebook (Evans 2018, 72), and data giant Google is also developing VR technology. If VR is conceptualised not just as a technological medium but also a socio-technical system, issues regarding the agenda of the developers' agenda need to be assessed (Evans 2018, 69).

The medium enables and constrains social activities, which produce information on the user, or data, which then is harvested and refined. It allows for certain types of social activities while limiting others. This refined information is used to structure human agency within the "logic of a particular technological system" (Evans 2018, 70). Hansen (quoted in Beer and Burrows 2013, 56) states that the "media today mediates the conditions of mediation". The data that is generated is recursive in nature; it informs the as well as captures the cultural trends. Online retail stores, like Amazon or Takealot, and online music players, like Spotify, generate "back-end" data of the user's consumption (Beer and Burrows 2013, 52). This data can then be harvested and mined commercially to adjust the automated recommendation lists so that the user can consume similar products (according to the algorithm). This is also called "behavioural advertising" (2013, 59). The data that the user generates by consuming is used to create a profile of consumption. Data aggregators

[18] There are cheaper alternatives available, like the Google Cardboard device. It uses similar concepts to the Brester Stereoscope, but instead of the backplate with the image on, it uses a mobile smartphone.

can then use these profiles to show overviews of trends as they emerge (2013, 64). These data aggregators can be used to then "shape culture and the cultural practices" (2013, 65), as commercial entities can use the data to see what is popular and adjust their products to align with the popular trend.

Technological ways of enframing reveal more relevant and accessible information but only through the use of technology. Facebook was involved in a data breach scandal in 2018. The company allowed Cambridge Analytica to harvest people's data for use in political advertising. Personal data allows companies to target users with tailored information then to play on their psychological and personal profile to persuade users to take particular courses of action (Cadwalladr and Graham-Harrison 2018, 1). If a user has searched for specific vehicle types, an advertisement from dealerships might start to appear promoting specials on vehicle sales. For example, for advertisement to appear on Facebook, the company has to pay for ad-space, and algorithms run in the background to link users with relevant advertisements. It starts to associate the person's profile and browsing data as a product to sell to companies (Beer and Burrows 2013, 61). Another form of this is the YouTube relevant results algorithm. If a user searches and views certain types of videos such as video gameplay videos, then the user's YouTube recommended list will start to consist of similar content. The data on what the user is watching is used to provide that user with similar content.

As a company, Google is attempting to make every bit of information available to its users that it can, and in doing so attempted to revolutionise the search and storage of knowledge. By attempting to allow humans to perceive more than just their own physical experience, it also attempts to virtualise experiences and bring them to every user to represent the full cybernetic potential of humanity in its extension through language[19] and technology. This comes at a cost; one needs to submit their data to Google to access the wealth of information that it guards (Benjamin 2019, 8). We can access the library of information that Google collected only through Google. It has allowed for new ways of connecting people to information, but only through itself is it accessible.

[19] Google has become a verb when used as a go word to acquire information online, "quickly google it".

Google undertook a massive exercise in making the entire earth "googleable" by using satellite photos and Google street views to virtually present the whole planet in Google earth (Benjamin 2019, 11). A person can now see the view of Time Square in New York, without ever being there or see what Tokyo looks like from the street without ever having been to Japan. The movement in Google Earth's street view mimics the direction of a human walking, or riding, down the street, so it remains embodied and recognisable, not just photos artistically taken to present the best view possible. The 'pegman' the user would use to activate the street view, becomes their avatar; it is a generic placeholder for all the users. We can interact with the information that Google accumulated, but in doing so, we also feed data to Google (Benjamin 2019, 14). Registering to use any of the Google applications requires us to give it some personal data. Google also gathers data based on how someone uses their applications. Google is attempting to turn everything into accessible data, but this is underpinned by the economic gains of advertising to the users or using personal and behavioural data for its own benefit (Benjamin 2019, 16).

The major digital companies, like Facebook and Google, have recently fallen under the critique of using their users as commodities to collect and sell personal and behavioural data (Evans 2018, 72-73). According to Evans, contemporary VR is re-emerging into a "wider context where a few companies dominate the digital economy, and their dominance is predicated on establishing and maintaining vast data harvesting facilities that allow for the generation of vast revenues" (2018, 77). He continues by saying that VR should be described as the game-changing medium, as it was in the 1980s. The major corporations (Google and Facebook) are positioning themselves in the early stages of the medium predicted to change and increase their operational and profit margins (2018, 77). VR enables new opportunities to capture the user's attention in an immersive VE, which enables new economic possibilities for the developers (Evans 2018, 79). The problem with contemporary VR is that it is made and controlled entirely by an organisation that is harvesting personal and behavioural data, to profit from the collected data (2018, 80). This application of VR by the corporations that develop it is one of the reasons why this current wave of VR has developed further than its 1980's predecessors.

However, the limitations to immersive VEs are that the virtual objects have no intrinsic value or effect on the user. A virtual beer acts more as a cosmetic item than an actual drink,

but people still grab a beer or glass of liquor in a virtual bar, even if it is more just a symbol and visual simulation of the item in the virtual world.

3.3 Conclusion

The history of VR technology also showed that it is not brand-new technology, but rather VR has had long development from panoramas to the HMDs that we can find today. It is also important to note that this study focusses on VR, as mentioned in this chapter. From the early generation of VR, the panorama, the concept was to block out the user's physical sense of presence, and substitute it with an artificial layer. With the panorama it was the canvas and lights that substituted the sense. Modern VR uses digital displays, but it still works to block out the sense and substitute it for the artificial. Even the principle of how it is achieved is not brand new.

Today, VR is still built upon the understandings of the Brewster handheld Stereoscope, as the contemporary generation still uses it. Cybernetics and technological advancements also assist to create VR experiences that are more accessible than the previous generations.

Contemporary VR incorporates visual stimuli as well as sound. How these two stimuli can be used to create immersive environments is discussed in the next chapter. The next chapter will also look at embodiment, telepresence and how they function to create a sense of immersion in the user of VR. When exploring how immersion can be experienced in a virtual environment phenomenology is crucial to understand the process.

Chapter 4: Embodiment, Telepresence and Being-There

In this chapter embodiment, telepresence and immersion are explored. Telepresence and immersion stem from embodiment, which is the main theory. Immersion is a phenomenological concept that deals with how believable an artificial environment is to the user. This can include the fictional world of a book, film, or video game. It is not exclusive to VR or cybernetics. Telepresence can allow people to experience embodied experiences in distant locations, as well as experience embodiment in a fully virtual environment.

To understand telepresence, this study first uses Maurice Merleau-Ponty's phenomenological theories of how people experience embodiment. Merleau-Ponty's *Phenomenology of Perception* (1948) is used to discuss how our perceptions influence our experiences. This manifests in embodiment and allow humans to experience telepresence, or a sense of "being-there" in a virtual or remote location, separate from the physical body. It is important to understand how someone can experience a sense of "being-there" in an environment.

This chapter also investigates how technology can help to create a sense of telepresence by giving feedback directly to the users as well as positioning the users' perspective in the VE or distant location. The fundamental elements of what can make a virtual environment immersive, are also investigated. Since immersion and telepresence are subjective, some users might experience a stronger sense of "being in the virtual" than others. Some applications of VR and how they are used are also explored to understand how embodiment and immersion play a part in convincing us of VR's realness.

4.1 Embodiment

What makes our bodies different from other objects that exist, is that when we touch something, or something touches us, the body reflects on itself and identifies itself as separate from the encroaching object (Merleau-Ponty 1948, 107). When we touch a glass, the glass also touches us. This sensation of touching and being touched is the transaction between the body and the object, a form of "communion" (Merleau-Ponty 1948, 246). This transaction is not a mere physical impression of the object onto the body. It is because our bodies co-exist with the object that a form of dialectic transaction between the two can happen (Madison 1973, 28). Merleau-Ponty says that this dialectic side of the body keeps it from becoming an independent individual being. It remains just an "opening" through which one can make a meaningful life (Madison 1973, 26). Merleau-Ponty (1973, 27) claims that the 'lived body is in the world as the heart is in the organism'. Our subjectivity, called a "radical subjectivity" by Merleau-Ponty, of our experiences in the world is unique and truly our own (Merleau-Ponty 1964, 93). Our bodies provide the understanding to give meaning to cultural and natural objects (Merleau-Ponty 1948, 273). So, we create meaning through our bodies that direct our perceptions of the world. Our bodies are the means through which we operate and experience the world.

The world and the body constitute a system; the body needs the world to exist and the world needs the body to experience it. Our bodies are lived bodies, vehicles we experience the world through, which changes when interacting with the world as well as changing the world (Simonsen 2012, 16). It is a dialogue that allows us to experience the world (Merleau-Ponty 1962, 72). Madison (1973, 28) explains by saying that the qualities of objects perceived are therefore not objective facts, but they get meaning from our subjective perception. He continues that qualities can appear as concrete facts because our bodies co-exist alongside them in the world. This mode of being-in the world, "being-for-me", is a unique way that only one person can experience. One person's perception of the world will differ from another’s, from the 'they', even if similar events are experienced.

In *Being and Time* (1927) Heidegger says we can understand that human life does not just happen, it is owned by someone. There is an intimate connection between the person and his/her life (Braver 2014, 23). A rock is also something that is, but unlike a person, it cannot

take a stand and understand that it is (Braver 2014, 24). Heidegger uses the concept of *Dasein* ("being-there") to explain our subjective perception. My *Dasein* is something that can only be experienced by me, where someone else can only experience their own *Dasein*. It is unique and has in-each-case-mineness (Heidegger 1927, 43). Heidegger speaks of living a life that is authentic, meaning that living an authentic life is a full actualisation of the always present mineness (Braver 2014, 24), taking our life's responsibility as our own. *Dasein* is concerned with what Heidegger calls its "ownmost" (Heidegger 1927, 36). This is that *Dasein* acknowledges its own state of Being concerning the world. This "ownmost"[20] is similar to Merleau-Ponty's idea of "radical subjectivity" experienced through our lived body.

Heidegger attempts to differentiate the way in which *Dasein* experience "being in the world" from the non-*Dasein* objects (present-at-hand objects) by stating that they have different modes of "being in the world" (Braver 2014, 26). Being-In, we are in a location-relationship with something else, treating others as some form of thing that is 'present-at-hand together alongside us' (Heidegger 1927, 81). You do not place any significance of other people sharing the location. For example, the vodka is in the bottle. Heidegger uses the term *Sein-bei* ("being-amid") to explain that *Dasein* is not just in the world, but finds itself alongside it, surrounded by it and it can interact with it (Braver 2014, 26; Heidegger 1927, 55-56). Being-With means that we share the location with something else. The world is always a place that we share with others (Heidegger 1927, 155) You have knowledge of someone's presence in the same location as yourself. This leads to what Heidegger calls *Besorgen*; we are not only in the world because of our location relationship with it, but instead we also have specific *Sorge* (cares) that we need to attend to (Braver 2014, 27 – 28). Braver (2014, 28) explains this by saying it is the difference of being in a classroom and being in a class. When we are in the classroom, we have a location-based relationship with the surrounding environment, but if we are in class, we have some 'cares', or motivations, to be in the environment and interact with it.

This is similar to co-presence, as we share presence in the world with others. Compared to VR chat, people have the option to participate in the co-presence with others from different countries in dedicated programs like the VR Chat app. It gives a sense of presence since the

[20] An authentic existence of Dasein understands that its existence is its own and is defined by itself or "something of its own" (Heidegger 1927, 68).

user has more control over their avatars, where regular virtual chatrooms are either 2D message boards or a virtual representation on a flat plane.

Our actions, and *Sorge*, in a lived body help us to experience the physical world around us and have interactions in meaningful ways. The world, as we perceive it, is then made from our bodily experiences in the world and our experiences make up our ‘comprehension' (Merleau-Ponty 1948, 273). Merleau-Ponty says that "I am sure that there is being- on the condition that I do not seek another sort of being than being-for-me". In a video game, the developers allow the player to control the player’s character, allowing him/her to decide where the character should go and take responsibility for any actions taken. This "embodiment" of a virtual character allows the user the opportunity to experience embodiment in the VE, allowing the user to exercise actions of the physical body in a virtual space (Schultze 2010, 437). This allows the users to generate a virtual 'lived' experience as they are embodied by a virtual body in the virtual environment. Our bodies are the means through which we give meaning to cultural and natural objects; so the virtual body gives meaning to virtual cultural and created objects.

Controlling the virtual avatars requires the use of an input device, like a mouse and keyboard combination, or using controllers. Using Merleau-Ponty's phenomenology we can then argue that the controller becomes an extension to the player and that the player experiences a sort of telepresence of bodily experience, through the controller. This can also explain why immersion is still possible for third-person games that do not share the same viewpoint as the controlled character, but instead have the camera behind it. Figure 4.1 shows a third-person shooter with the 'over the shoulder' viewpoint (left), where the first-person shooter the player sees the VE through the eyes of the player’s character (right).

Figure 4.1: Third-person shooter *Ghost Recon Future Soldier* (2012) on the left, with first-person shooter *Far Cry 5* (2018) on the right. Screenshots by the author.

In her paper to investigate video game realism, Hanna Sommerseth uses Merleau-Ponty's phenomenology to understand how a player's action can help to legitimise the virtual world in the eye of the player (2007, 765). What aids in creating a believable world is the action and interactions allowed to the player and that their outcomes match the player's expectations (2007, 767). These expectations are important in creating believable spaces, but I will discuss it in more detail later in the chapter. As the joypad can be argued to be an extension of the player's senses, the experiences in the video game can be seen as a "subset of the player's experienced reality" (2007, 767). Sommerseth (2007, 767) states "[t]he world on the screen in front of me is imaginary, yet my actions within it are real". She also argues that the character controlled by the player becomes the player in the world, "I do not become Lara, but rather Lara becomes me". It becomes a form of embodiment by extension (Sommerseth 2007, 767). Lara does everything that the player commands through the controller.

First person shooter (FPS) games according to Michael Heim, can be seen as creating an immersive environment more successfully than its counterparts (1998, 30). FPS games place the player in the shoes of the player's character. The player sees through the eyes of the character, embodying them in the player's character (Elias 2009, 13). In certain games, like *Halo: Combat Evolved* (2001) or *Wolfenstein: The Old Blood* (2015), the player can see more than just the arms of the player's character. When the player interacts with an object in the game world, the arms of the player's character interact directly with the object, as can be seen in Figure 4.2. In the case of *Wolfenstein The Old Blood*, the player sees the entire game

through his/her own eyes, so to speak, except for the opening minutes of the first cut scene and the last few moments of the ending cut scene through BJ Blasckowic's eyes. *Half-Life* (1998), another FPS videogame, allows the player to only see the game world through the eyes of the protagonist, also embodying the player as the character by showing the VE only through the eyes of the protagonist.

Figure 4.2: B.J. grabbing unto a machine gun in *Wolfenstein: The Old Blood* (2015).

An example of how embodiment can be achieved by creating avatars for the users in a VE is the VR experience created by the Spanish company Virtual Bodyworks in 2015. The team wanted to find out if VR can be used to assist the users with advice or solutions by embodying a different, separate body from their own (freud-me.com 2018). The user was equipped with VR gear and in this virtual world, they embodied a virtual representation of themselves. The avatar for them was a virtual recreation of how they looked in the physical world. They were then told to talk about personal problems or emotional issues to a virtual representation of Sigmund Freud, that would take the role of a psychiatrist.

The virtual Freud was not controlled by another person, but acted just as a character created to listen to the user. After the users explained their issues to the NPC (Non-player character, a term used in videogames to denote when a character is not played by another person, but a construction of the world) they could switch to embody Freud and listen to their avatar explaining its problems. This is role-playing therapy, something that has existed in traditional forms of psychology. Roleplaying aids to set expectations of oneself as well as others into concepts that help to separate the patients from their situation (Corsini 2010, 21).

Participants can then respond to their avatar by giving advice or solutions and switch back to listen to the virtual Freud now giving them their own advice. The team at Virtual Bodyworks claimed that people responded more to suggestions when they came from someone in authority or if the person is perceived as an expert. The researchers also found that when the users were embodying someone else and listening to their own problems, they could understand the situation better and give better advice (Slater et al. 2019, 7 -8). They turned themselves into a resource to listen to their own advice, just from a different embodied avatar (the Freud avatar that they embodied during the second phase). They used embodiment to change the way in which they understood their own problems and advice.

Another thing that is important during an embodied experience, is the 'communion' between the body and the world with which it reacts to. As explained by the developer of *S.T.A.L.K.E.R. Shadow of Chernobyl* (2007), artificial intelligence (AI) in videogames is all about tricking the player in thinking that there is an intelligence behind the AI's actions as well as a system that operates independently from the player's actions, giving it a simulated sense of 'being'. For example the enemies in *S.T.A.L.K.E.R*. are almost always encountered in groups. If one of the enemies survives, he may start roaming the virtual world alone or link up and join a different squad of the same faction. The action of the NPC seems to be reactionary to the player's action, but it appears as if the NPC acted intelligently and in accord to its own will. This makes the virtual world, which the player embodies, seem more reactive to the player's action (Champandard and Kumar 2008, 1). Another example is when the player encounters the character Wolf in the opening level, he acts as a guide by giving the player information about the world, as well as a few missions. When the player progresses through the story and returns to the first level, Wolf is no longer found at his

usual spot; instead, he started to wander the game world as well, in an attempt to reach the centre of the Zone. The player might run into him, or find his corpse, in the later levels.

Moving from a screen to an HMD, allows VR to embody the player closer to the virtual world in a more immersive manner than other forms of media. Where playing *Resident Evil 7* (2017) on a regular console removes the player at least with one level (player > controller > screen > game), playing the same game through VR allows the screen to be removed from the telepresence process into the virtual world since the HMD acts as the screen, but it covers the player's entire field of view as well as acting as headphones. Evans's account of playing the game in VR is an example of how VR allows for better immersion. He states that at first, he struggled to get used to the controls as well as dealing with the dissonance between what he is seeing and the movement of the player. The more he played the game, the more instinctively he controlled the character, and subsequently, the more invisible the controller (tool) became to him.

This combination of a created, and complex world, combined with embodying the player into the game world, gives FPS games increased capabilities for immersion, allowing to create a stronger sense of finding oneself in the VE. VR technology can enhance this by allowing the player now to also control the character through the use of motion controls; the physical actions are translated into virtual actions, reducing the gap from user to VE (user > HMD + wrist controls > VE). The consumer VR consoles mostly consist of an HMD and two wrist controls. The player's head movement is tracked using the HMD and both arms are tracked using the wrist controllers, which the player holds in his/her hands. The fingers can also be tracked by pressing the buttons on the wrist controllers.

4.2 Telepresence and Immersion

Telepresence can be understood as the user being in an environment, physical or virtual, through the means of computer mediation (Schultze 2010, 437). The term was coined by NASA as being transported to a different location through telecommunication technologies and experiencing a distant location in real-time (Schultze 2010, 437). Over time this definition was relaxed to include VE, that can be found in contemporary VR. Regenbrecht and Schubert (2002) adjusted the term to spatial presence,[21] to indicate a subjective unlinking of presence and the body, by having the user feel embodied in the virtual space (Schultze 2010, 437). Draper states that the term telepresence as a term is favourable to spatial presence, since it communicates the core concept better through using the prefix "tele" since it is mediated presence through the usage of communication technologies (Draper, Kaber & Usher, 1998, 355). This study will use the term "telepresence" when dealing with the perceived embodied experience in a VE.

Telepresence and Apparent Agency in Human-Robot Interaction, by Leila Takayama, investigates how telepresence is created by distant operators using communication robots to interact with an office space. The robots allow the operators freedom of movement as well as a voice and eyes for the operator. The robots consist of an LCD screen to show the operator's face to the people in the office, motorised wheels so that it can move freely, as well as speakers and a microphone so that the operator can speak with the office 'locals' and it stands 1,57m tall (Takayama 2015, 160). Employees at the firm, who are working from a distant location, used the telepresence robots during the day to day activities like meetings and "face-to-face" communication.

According to Takayama, *apparent agency* is a factor in allowing users to experience presence through mediated technologies (2015, 161). She describes it as the amount of agency that someone is allowed during a mediated experience, in other words, how much an "agent" (a subject and thus a human being) can interact with the environment on its own will. Someone having a Skype call to business overseas might not have a lot of *apparent agency* since they can only interact with the world through audible means, whereas someone using a mobile platform to manoeuvre at will around the office has more agency;

[21] The prefix 'tele' was dropped, to accommodate for the subjective experience of "being there" in any virtual environment.

therefore, a greater sense of presence in that environment. A conference call through Skype acts more of a window that allows the person to see and be seen in a meeting (Takayama 2015, 164). Even though someone can request that the device, through which the Skype call is being held, be moved around in the space as well, this immediately draws attention that the person is communicating through a device, thus breaking the illusion of presence. This idea of *apparent agency* links in with how immersion is generated in video games; the more interactive the virtual world is, the easier it is to have an immersive experience.

This brings me to immersion which, as a phenomenological concept, is highly contested. There exist several different definitions of the concept and how it is generated (Evans 2018, 89). One definition suggests that flow, the ease of completing a task, and the optimal experience of the situation, lead to immersion (Csikszentmihalyi and Robinson 1990, x). An example of which in video games is how easy the control scheme is to understand for the player. Easier controls, controls that the player can adapt to faster, can be seen as helping along with flow, whereas non-intuitive controls, control schemes that constantly draw attention to themselves, can disrupt flow. Another definition states that immersion is the illusion of a mediated experience as if it is not mediated (Lombard and Ditton, 1997, 1). In video games, the player might feel almost as if they are present in the virtual world. Marie-Laure Ryan (2015, 73) adds to the notion of immersion by saying that it requires the direct engagement from the individual and a directed focus on another world as a conscious direction of presence from one reality to another; therefore, a dynamic phenomenon that takes place between the individual and the medium. It can be seen as the hammer in Heideggerian terms. As the hammer is used, it becomes invisible in use, unless it acts in a way that betray our expectations, then it draws attention to itself. If a VE operates as we expect it to, the way in which it is mediated almost becomes invisible to the users, unless it experiences a glitch or acts in a way that the user did not expect, which then decreases immersive qualities of the VE.

Video games allow users to immerse themselves in fantasy worlds. People can become special forces commandos with games like *Call of Duty Black Ops 3* (2015) or they can even participate in the Formula 1 racing championship in the videogames licensed by Codemasters, a British based company, that painstakingly recreates a year's cars and drivers exported from the real-world FIA Formula 1 championship. People can also use videogames

to embody a different gender and explore areas of their being through this experience (Huh and Williams 2010, 165).[22]

Coherence is key in creating a believable and immersive space, whether it is realistic or more stylised (Evans 2018, 95). According to Evans, an experienced VR developer aims not at complete simulation, but rather visual consistency to create a sense of immersion for the user (2018, 95). This sense of visual consistency lays the foundation for the programmer to craft the experience, without having to painstakingly attempt to recreate a hyper-realistic environment. Consistency also means that the experience has as little as possible visual glitches that can be immersion-breaking. It is critical for the VR experience to maintain a glitch-free, visually consistent, experience; otherwise, immersion is difficult to achieve (Evans 2018, 96). Commercial VR can be seen as creating an alternative to the physical reality, by not fully simulating it, but rather creating mediated experiences.

An important factor that can make VR more immersive than traditional media, is the visual element. The HMD of contemporary VR devices completely blocks out the physical environment, showing only the digital environment to the user. Evans states that the "pattern of neurons that fire when one watches a three-dimensional digital recreation of a supermodel are very similar - if not identical - to those that fire in the actual presence of a model (2018, 93). The brain can be tricked by the virtual, as it does not inherently make a distinction between virtual and physical. This ability of the brain to be tricked is the foundation of the experiences in VR (Evans 2018, 94).

Ulrike Schultze in her research article *Embodiment and Presence in Virtual Worlds: A Review* (2010), explores how this trickery can be created in VR. She states that a Virtual Environment is an environment that is dependent on man-made technology and can be experienced using the user's sensory system alone (vision, hearing, etc) (2010, 434). Our physical bodies have inherent limitations to them and are the first level of identity creation (race, gender, appearance) and it is "not surprisingly, we seek to eliminate the constraints of corporeality through technology" (2010, 435). This elimination will also allow us to be "ubiquitously present" by being able to participate in conversations that include individuals

[22] Hussain and Griffiths (2008) did a study on gender swapping in Massive Multiplayer Online Role-Playing Games (MMORPG). A possible outcome is that it changes how the player is perceived and trying out different ways of presenting themselves (2008, 51).

from different parts of the globe as if they are in one location (2010, 435). However, they are mostly focusing on visual and audio perceptions, and not on other senses like smell.

Oliver Baus and Stephane Bouchard attempted to find out how much the sense of smell can aid the sense of presence in a VE in their paper *Exposure to an Unpleasant Odour Increases the Sense of Presence in Virtual Reality* (2016). They found that without obvious cues in the VE, odour can still increase the sense of presence in the users (2016, 70). They created an exercise where participants would be given a visual task to complete in VR and then an odour would be released to see if the participants would identify the odour and experience a higher sense of presence in the VE. They noted that the participants in the exercise focused more on the visuals and did not always identify that they were exposed to an odour (Baus & Bouchard 2016, 71). Erika Kerruish notes in her paper *Arranging Sensations: Smell and Taste in Augmented and Virtual Reality* (2019) that using smell and taste in VR and AR devices are successful when used in conjunction with a strong visual element (2019, 40). From this research it is suggested that the sense of smell is then not as important to create a believable space as the visuals, or sound.

The sound design of any video game is an important aspect when it comes to the creation of an immersive environment according to Karen Collins (2008, 134). Sounds can create an illusion of a living world, built up by several noises played that alludes that there is more going on than what they can immediately see on the screen; the illusion of a virtual living environment. The choices of sound in the development stage of a game are as much an aesthetic choice as a reproduction of the VE (Collins 2008, 135). The noises in the game are treated and a simulacrum of different noises to become more ‘real than real’ for the player and fitting for the VE that it will inhabit (Collins 2008, 135). This is a form of the "hyperreal", a "generation of models of a real without origin or reality" according to Jean Baudrillard (1994, 1). It is a sign without something that it points to or is based on. In regard to VR, sound locates the user within the virtual environment (Evans 2018, 97). The HMD of the contemporary VR devices also includes stereo headphones that place the user in a 3D sound environment. Sound works with the visuals in VR to assist in creating a believable and immersive environment (Evans 2018, 98) making the experience feel more real.

The closer a VR environment gets to simulating the physical, the easier it is to create immersion, as our familiarities with the physical and experiences in it are our framework for how it operates, are used as a basis to navigate the simulated environment in VR (Evans 2018, 94; Julier 2000, 183). This also can be a detriment if recreating the physical reality gets close but falls short, it enters the Uncanny Valley (Mori 2012, 3). [23] The complete simulation of the physical reality might not be desirable as small differences and glitches might completely impair the experience of immersion into the virtual. This means that the virtual world requires a balancing act of creating a believable space that is not too realistic to cause dissonance when users experience the "not-quite-right" aspects of the virtual world (Evans 2018, 94). In video games it is not uncommon for the player to see glitches occur, where a NPC's programming stops working or objects clipping through walls, immediately breaking immersion, and confirms that the video game takes place in a simulated VE, and not in physical reality.

Figure 4.3: Paddington Bear, a virtual character that interacts with physical actors in *Paddington* (2014).

[23] The Uncanny Valley is a phenomenon described by roboticist Masahiro Mori. It describes the effect if the replication of a human, in animation or a robot, imperfectly resembles a human it creates a sense of unease or even repulsion from the human observers (MacDorman & Ishiguro 2006, 300 – 301).

Developments in computer-generated (CGI) images (Figure 4.3 and 4.4 are examples of developments of CGI in cinema) in films were intended to increase realism and the immersive qualities of cinema. However, they still fall short on immersion because they do not offer the opportunities for interaction which multi-sensorial entertainment allows, like video games (Chen 2014, 28). Atmospheric FPS games, like the S.T.A.L.K.E.R. or Metro series, combine the FPS element of placing the player directly in the player character's eyes, but by also creating a virtual game world with complex systems. The environment is alive with sound effects, wind bristling through the nearby foliage. In the distance, gunfire can be heard.

Figure 4.4: The T-Rex breakout scene, featuring a completely computer-generated T-Rex, in Jurassic Park (1993).

VR can be seen as a branch of video game technology as the way in how both mediums create virtual worlds, are similar, except how the user is embodied in the VE. In traditional video games, the user controls the player character with an input device (controller or keyboard) and sees the VE on a screen. VR's use of virtual environments is similar to how video games use and build environments since a lot of commercial use of VR is as an added platform with which to play video games on. During the VR experience, that body is connected to the virtual environment through an HMD and input controllers that take physical movement and translates it to digital movements (Evans 2018, 110).

In a 'perfect' VR experience, according to Evans, the user's body would be replicated in VR similar to how the users embody their physical body. But with modern VR we do not

disembody our physical body and then completely embody the virtual version (Hayles 2010, 28). Full immersion is still challenged as the VR experience is currently happening through a virtual body without legs, causing cognitive dissonance due to the uncanny valley of the experience being present (Evans 2018, 112). This leaves current VR more of an extension of the user into a VE than being a replacement of physical reality with full VR.

The Colorado state prison uses VR systems to reintegrate their population into society (Figures 4.5 & 4.6). It is part of their "re-entry" program teaching the inmates how to operate technology that they are not familiar with during their incarceration period. They use VR devices to immerse the inmate into a simulation of a social situation and instruct them on what the correct behaviour is (Mitchel 2019). The program does not only involve social situations. They have a simulation of what it is like to buy products in a supermarket. As one inmate explains, “there [are] so many choices, it [kind off] is overwhelming” (Mitchel 2019). These simulations turn the scenarios into "ready-at-hand" training exercises for the prisoners. It makes it easier for the prisoners to run social situational exercises as all they need is the headset and an operator (and permission). The social situation is constructed in VR, so there is no physical location necessary. Having this VR technology available turns the social situation into a resource for the prisoner to experience and embody themselves in.

Figure 4.5: The inmate undergoing VR social training for how to order food in a restaurant (Mitchel 2019).

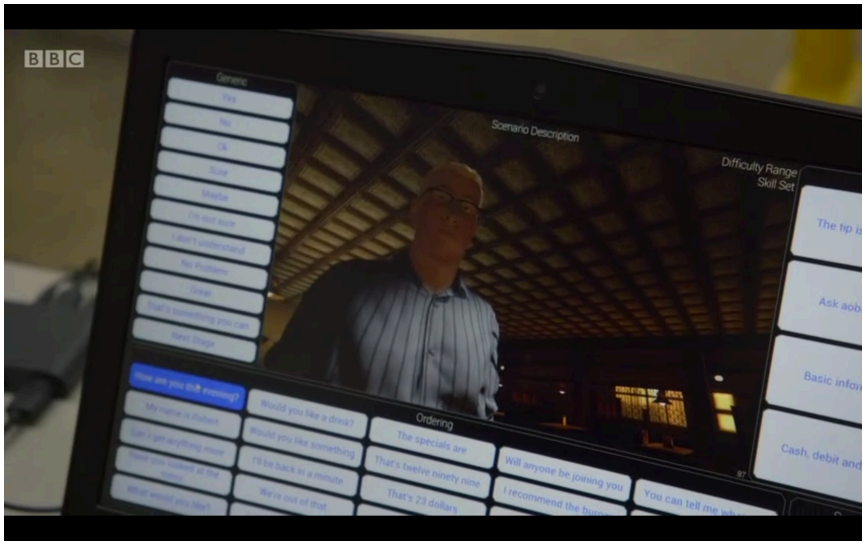

Figure 4.6: The screen that the operator uses to select the waiter's responses and scenarios for the inmate (Mitchel 2019).

During the Persian Gulf War, US pilots would make use of VR to rehearse missions. They would mention feelings of déjà vu during the missions as well as afterward their memories would mix the virtual and physical stimuli (Heim 1996, 77). This disorientation is what Michael Heim calls Alternate World Syndrome (AWS). AWS can lead to something more serious, according to Heim, called Alternate World Disorder (AWD), where the expectations of the VE bleeds over to the physical world and vice versa. Heim says that "AWS shows the human being merging, yet still out of phase, with the machine" (1997, 422). Heim says that AWS is the consequence of having our "bio-body" constantly recalibrate between the physical and virtual worlds (1997, 422).

In physical reality, when we touch an object, we get a sensation from it. We feel the texture, the temperature of the object, and other haptic feedback from the experience to tell us that we are touching something specific. Haptic feedback in VR is currently lacking since the technology to deliver a truly realistic haptic feedback does not exist yet. Just like the technological gap had to be overcome with the processing power for VR, the next technological obstacle is the technological gap to immersive haptic feedback technology (Evans 2018, 99). Haptic feedback, however, is not seen as essential by all the developers of VR devices yet, according to Evans (2018, 98).

Haptic feedback can assist in immersive experiences by manipulating the materiality of the virtual objects and give feedback to the user. In this way, the virtual object will have an output as if the user interacted with a physical object (Evans 2018, 101). As Evans mentioned, the brain reacts similarly when the user sees a virtual object, as it would when the user sees a physical one. To create an immersive experience, the entire sensorium does not have to be tricked, as most VR developers are only focusing on the audio and visual elements and managing to create immersive experiences with it. It is like a stage magician show. The viewer enjoys the performance, but understands that it is all done through sleight of hand and visual trickery. Heim states that the senses alone are not enough to create a full immersive experience, the psyche needs to be immersed as well. VR also needs to develop further than the HMD and projection room limitations (Heim 1997, 423). SIMNET (Simulation Network) used the principles of static VR station for one of their implementations for the Canadian Army Trophy of 1987 (CAT 87) competition.

In this implementation, three different tank companies were selected from the USAREUR forces (U.S. Army Europe) to participate in simulated training for the 1987 Canadian Army Trophy (CAT 87) competition, which was held at Grafenwoehr in Germany (Bessemer & Kraemer 1987, 1). The tank crews operated four SIMNET M1 simulator modules (built to represent the inside of an M1 Abrams MBT) and conducted training with the landscape and target data simulating the CAT Range 301 (Bessemer & Kraemer 1987, 17). Initially, the performance of the tank crews was substandard, with crews stepping on each other's transmissions, failing to report remaining rounds after engagement as well as the targets engaged (Bessemer & Kraemer 1987, 20). After five weeks of training, the crews were comfortable in the simulation that the above-mentioned operational errors did not occur. They performed as they did during live-fire exercises (Bessemer & Kraemer 1987,21) The tank crews reembodied themselves in the simulated environment. Noticeable advantages that the SIMNET CAT 87 training had on the crews were that they could familiarise themselves with the location that the competition was held at Bessemer & Kraemer 1987, 30). Something else was observed as well, and this was directly linked to the performance of the tank crews during the SIMNET training. The simulated training helped platoon leaders and sergeants develop their command, control, and communication skills to execute their fire plans during the simulation (Bessemer & Kraemer 1987, 30).

The SIMNET training systems would later move from DARPA inspired training tools to civilians. One of the first such systems known as a Location-Based System (LBE), which opened in Chicago in 1990 is the BattleTech Center from Virtual World Entertainment, Inc. Like SIMNET, BattleTech Center comprised a networked collection of futuristic cockpit models with VR gear (Manovich 1996; 3). However, the majority of navigable virtual spaces, like the virtual landscapes utilised by the BattleTech systems, merely mimic existing physical reality and does not create its own version of what reality will look like (Manovich 1998, 20). It is using the actual cockpit frames of the tanks (or aeroplanes) and by simulating the feedback, through hydraulics, the user would feel in a physical tank. The built-in displays also show computer-generated images of what the surrounding environment would look like, just like in a video game.

4.3 Conclusion

Using embodiment, telepresence, and immersion to examine how people interact with virtual experiences helps in understanding how someone can use VR as a means for extending their interactions with other people as well as experiencing fantasies more vividly. A few examples of embodied experiences in a VE was given, such as how the Colorado State Prison is using VR as a simulation device to help the inmates reintegrate into society by immersing them in everyday situations.

As discussed, believability of the experience is important in creating immersion. If the VR experience is attempting to be a simulation, the VE needs to react in a believable, and expected, manner. If it does not, it will fall into the uncanny valley. This will draw attention that the experience is mediated, which is counterproductive to telepresence and immersion.

VR can become the connection, the relationship; it has replaced the physical connection with actual people in some cases. The next chapter will investigate how technology, specifically VR, is used for the convenience of religious groups.[24] A brief look at online churches is followed by a case study of an online only VR church that participate in the

[24] The cases selected are all from the Protestant Christian faith. Different religions and denominations, and their stance on VR religion, is something that can be something to investigate further.

traditional sermons and other religious rituals, like baptising the congregation through technological means.

Chapter 5: Virtual Sacred Rituals

In this chapter, the first few case studies are unpacked, specifically those dealing with virtual scared rituals or virtual churches. I will investigate churches that make use of the internet to connect to their congregation, specifically the Church of Fools, as well as focus on a VR church that is operated or constructed by DJ Soto. Each variant of a virtual church has its own level of immersion. Since the Church of Fools is presented on a flat monitor/screen, the user is separated from the VE, and they also experience it from a third-person perspective. The VR Church of DJ Soto, embodies the user directly into the VE and thereby increasing the likelihood of experiencing immersion.

Throughout the chapter, the churchgoer's virtual experience will be investigated using the frameworks of Heidegger's notion of "ready-at-hand" and Merleau-Ponty's ideas about embodiment. It will also briefly look at how traditional religious leaders view these online worship practices. The selected cases deal with how technology influenced people's behaviour by allowing for more convenient, or *Zuhandenheit,* "ready-at-hand", modes of living everyday lives.

Space and time no longer limit us to being sociable as we have a method of tapping into a version of sociability through mediating technologies. Churches had television sermons before, with people either watching from home or congregating in a church to watch a sermon from a different location. We could be present in a location that is separate from our physical bodies through the use of mediating VR technologies**.** Another important factor to understand, is that online churches are not a new phenomenon, but rather a development that the internet and, in some cases, VR technology supports. Without these technological mediations, the virtual churches examined here would not be able to exist.

The goal of this chapter is to examine how technology has made the church going experience more convenient to the congregation in how it changed their perceptions of the rituals (a baptism is used as an example). It will also explore how technology has changed the way in which the congregation interacts with one another. Examples will be used to substantiate how the rituals and interactions among the congregation are influenced. It also

explores how VR has allowed churchgoers to have a virtual embodied experience while attempting to keep a sense of individuality for the user or congregation without substituting the quality of the experience.

5.1 Convenient worshipping

Having distance while worshipping and during church events is not a recent phenomenon. Before television, letters were sent as correspondence between church leaders and their congregation. The Epistles of Paul can be seen as early distance communication between the Christian church and its community. Writing letters are a form of technology in itself. It can be seen that since the 1950s, the spread of the electronic church as television became more prevalent in public. Pastors and evangelists used this form of media to spread their sermons and teachings to audiences they could not physically reach. By the 1980s, there were over two hundred faith-based television stations (Robinson-Neal 2008, 230).

According to Robinson-Neal, online churches attempt to fill the gap of going to a physical church if the user is unable to, or it becomes a virtual extension for the user who does go to physical worship (2008, 240). The church would hold a physical sermon and have digital extensions. American megachurches[25] now host "online campuses" that allow international visitors a platform so that they can interact and listen to the sermons with other digital functionality like message boards (Hutchings 2010, 65). The online campus allows the church's sermons to reach a larger audience. Still, at the same time, the physicality of the experience is lost, making the experience a mediated contained experience. It makes the church and its message something that the congregation can experience when they decide they have the time to do so, making it ready at hand.

The Vatican has a strong stance against using online meetings as substitutes for physical churches. On February 2002 the Vatican's Pontifical council for social communications released *The Church and the Internet.* In the document they state that social media and the internet can be seen as the technological next step from sending letters (Foley 2002, 1).

[25] LiveChurch.tv is an example of a megachurch. A megachurch is defined by the Hartford Institute for Religion Research as having 2000 or more members in the average weekly attendance (Church Sizes 2010, 1). It may also include a variety of educational and social activities.

They do not claim that the media should be ignored, but rather used in cooperation with the physical church to reach and connect people who might otherwise be hard to reach (Foley 2002, 1).

The first example to be examined is the Church of Fools, an online church run by the Ship of Fools magazine. Ship of Fools is a magazine launched in the 1970s by a group of theology graduates from the United Kingdom. On April Fool's day in 1998, they relaunched it as a web-only magazine. They focused on asking critical questions about the Christian church and satirising the "unintentionally laughable side to the Christian faith" (Jenkins 2008, 95). In 2003, the Ship of Fools launched The Ark, a fully 3D space where 12 people would role-play as some of the most known figures from the Bible, for example, John the Baptist, Moses, Paul, etc. (Jenkins 2008, 97). Every day for 40 days, The Ark would go online for an hour, and the people selected would then role-play as their character.[26]

This experiment proved popular for the Ship of Fools followers. They started work in 2004 on a fully 3D church to host sermons and called it the Church of Fools (Jenkins 2008, 99). Three weeks before the Church of Fools was launched, a Catholic Mass was attempted in the online role-playing game *Second Life* (2003) by an unaffiliated group. [27] The Lord's Prayer was led by Rafin Grimm (username), who virtually built a Catholic Church building in *Second Life*. The sermon was given by a user called OmegaX Zapata (Jenkins 2008, 99 - 100). Zapata said, "I am certainly not a real minister, nor do I do this sort of thing in real life [...] I wanted to bring more real-world things into Second Life so people could experience them if they couldn't in real life" (Jenkins 2008, 100). They bring elements found in physical reality, like the church building and other iconography, into the virtual.

The Catholic Church in *Second Life* is different from the Church of Fools in two main aspects. The first difference is that the Church of Fools is sustained and hosted by the editors of the Ship of Fools magazine. Instead of building on an already existing infrastructure that is available to all users of that platform, like in the case of *Second Life*'s user base. Secondly, the Church of Fools is built to explore if an online church is feasible and sustainable for the Ship of Fools community (Jenkins 2008, 100). It is important to note that the Church of Fools

[26] Six people were selected from the UK, four from the United States and two from Canada (Jenkins 2008, 97).
[27] Second Life is a vast virtual world according to their homepage (2020, 1) that allows its users to "express themselves without limitation."

satirises traditional church practices. The name already hints that when one chooses to participate, you stand the risk of becoming a member of “the ship of fools”. There are, however, other more sincere and authentic examples that include the ALM Cyberchurch and the House of Prayer (Figure 5.1), both available in *Second Life*.

Figure 5.1: Screenshot of the House of Prayer on *Second Life’s* website (Second Life 2020).

Due to the technological limitations at the time of the constitution, which was 2004, the human interactions in the Church of Fools only occurred through text-based interactions (Jenkins 2008, 103) (Figure 5.2). There were also elements of the church’s virtual representation interface that could distract the sermon users. Another limitation was the number of available and visible avatars in the church; it could only host 30 avatars per session. The rest of the guests were invisible and could only interact through the chat window.

Figure 5.2: A screen grab during a sermon in the digital Church of Fools (Jenkins 2008).

Figure 5.3: The Church of Fools control panel (Jenkins 2008).

The participating avatars were given the option to select religious gestures to, for instance, 'bless' and 'pray' (Jenkins 2008, 104). There are accounts of participants experiencing the virtual gesture of 'praying' as a substitute for actual prayer (Jenkins 2008, 105). One US visitor stated that they would leave their avatar kneeling at prayer while working nearby on unrelated things (Jenkins 2008, 113). The convenience of participating in religious practices allowed participants to feel simultaneously present in two places. Instead of dedicating a specific time for prayer, participants can have their avatar do the praying through the mere pressing of a button. This while they then dedicate their real-time to other things and feel satisfied that they have effectively used their time for both prayer and work. It makes the

devotional activities, like prayer, into something that the user can access through a mediated means and ready for when the user needs it, even if it takes place somewhere in the background. It also makes the church-going experience a resource that the user can conveniently use from their own homes. It removes the space that the online churchgoer needed to traverse to reach a place of worship by bringing it into their homes.[28] Online churchgoers embody themselves through their avatars in the VE and remaining 'present' in the physical by focusing on something else. Many visitors, however, did see it only as an extension of their physical church life and not as a substitute (Chen & Kluver, 2008, 117).

The Church of Fools was only an experiment to see if online church services are viable and would have lasted for only three months. Still, it got extended to 6 months due to its popularity and additional financing that allowed it to remain online for the extended period. The Church of Fools eventually had to shut down in September 2004 (Jenkins 2008, 114). Due to popular demand, they reopened the church in a different, 2D text-only form called St Pixels, which includes a discussion board, a chat room and blogs (Jenkins 2008, 114). The Church of Fools attempted to fuse a material sense of spirituality with a virtual world created online. The interface allowed users to connect to the congregation no matter where they were situated physically (Chen & Kluver, 2008, 117). This can be seen as a version of making "religion online" convenient.

Christopher Helland distinguishes between "religion online" and "online religion". "Religion online" is mainly informational and hierarchical and an extension of the physical organisations; "online religion" requires the participation of the internet user and is mostly organised by non-religious professionals (Helland 2000, 2). This distinction is essential when looking at online churches' viability to distinguish their goals from people merely connecting through a social media site to discuss themes and topics they are passionate about.

Helland inquires to what extent it is possible to create a spiritual experience through a technological medium and what action online can be considered a "genuine religious action" (2000, 6). The Catholic Church announced in 2002 with the Pontifical Council for Social Communications that there cannot be any online sacraments because the physical presence of the "faithful and the manifestation of his faults to the priest is indispensable"

[28] It can be argued that this is not a new phenomenon that appeared with the internet, but rather a new development that started with TV church sermons and even long-distance correspondence through letters.

(Chen & Kluver, 2008, 119; Foley 2002). It is important to know that during the COVID-19 epidemic, the Catholic Church did resort to live-streaming their public masses after cancelling all the physical gatherings (Mares 2020). Pope Francis had to broadcast his morning masses to "be closer to those who are ill, in quarantine or, for whatever reason unable to leave their homes" (Vatican News 2020).

It appears as if the physicality of engaging with others is crucial, as the participants can't hide by using avatars or place their avatar in a position that allows them to devote time to something else.[29] The Vatican's manifesto does, however, state that technology can be used as an aid to religious devotion by extending the reach but still focuses on the importance of physical congregation and connections (Chen & Kluver, 2008, 119).

When various religious leaders were interviewed regarding the use of online worship,[30] they unanimously agreed that online worship was not an acceptable replacement for physical worship. They argued that worshipping is an extremely interpersonal experience, and the artificiality of online worships "does not bring one into contact with God" (Chen & Kluver, 2008, 119). They also claimed that devotion is an embodied matter, and being alone in front of a screen, even with others' interactions, is qualitatively different from hierarchical worship (Chen & Kluver, 2008, 120). Physical worship seems to be a vital part of the religious devoted, and substituting it with a virtual alternative allows the user to be devoted to his/her convenience. The rituals become as convenient as just clicking a mouse to experience it.

"Communion" is a term that refers to a specific ritual that re-enacts the last meal that Jesus had with his disciples according to the New Testament. This ritual signifies the Christian's solidarity with the suffering of Christ as well as each other. Communion, however, does not just relate to the ritual but also the intimacy that can be achieved when interacting with each other physically (Chen & Kluver, 2008, 131). The physicality of the ceremony, and any interaction, can lead to a greater sense of intimacy and solidarity, and an online church cannot allow for such physical interaction (Chen & Kluver, 2008, 131). It becomes easier to go through technology than doing it physically (Turkle 2015, 128). It is easier to quickly log

[29] Later on when discussing VR churches, the use of avatars and the anonymity that it allows will also be discussed.

[30] Christian, Buddhist, Hindu and unique Buddhist faiths from Singapore (Chen & Kluver 2008, 119).

on to a church service and watch it on your computer than go to a physical church and listen to the sermon. When watching an address at home, you can also have something to drink or eat and even be preoccupied with another task. Whereas in the physical church, such actions can distract the rest of the congregation, and you might be asked to stop.

It has already been established that contemporary VR has strong ties to social networking and interaction (as already indicated with Facebook being one of the major companies behind VR development with the Oculus device). VR Churches are more immersive as the users experience the VE through the embodied means of the HMD and movement sensitive controllers.

Embodied participation in these online churches is not restricted to just utilising avatars; in fact, many participants prefer signing and moving like they would during physical worship (Hutchings 2010, 72). People also often integrate their offline worlds by inviting friends and family to join the online worship session (Hutchings 2010, 72). It then becomes a sort of extension of the virtual into the physical, and the digital interface becomes the centre of worship. This section dealt with online church services. The following section will focus specifically on the VR church and its influence.

5.2 VR Church of DJ Soto

People relate more to the sense of embodiment in a VR environment than an online 2D chat room or isometric displayed church. The amount of immersion that VR allows compared to earlier text dominated means gives people a heightened sense of presence in the VE. According to Tim Hutchings, online churches, like those established in *Second Life*, can be seen as missionary work in a new virtual world (Hutchings 2010, 66). It brings the familiar from the physical world and simulates it in the virtual world so that it is recognisable. This familiarity does more than just building the VE's identity as a virtual church; it demonstrates the "authenticity" of the church to visitors who know the physical space (Hutchings 2010, 77). This virtual world is also more freely accessed as the avatars give them a sense of anonymity, which can apparently allow for more sincere expressions. The VR church that is investigated is the VR Church that D.J. Soto started.

D.J. Soto is the founder of the *Virtual Reality Church*. D.J. Soto received his BA in Theology in 2002 and helped launch a multi-site campus for a megachurch in Pennsylvania (vrchurch 2019, 1). Later, he was one of the campus pastors for a physical church in Pennsylvania (Tate 2019). With video games being a large part of his family's relaxation activities, he started to investigate the feasibility of a church in VR. Soto travels America in a campervan and hosts his church on a VR platform. He got influenced by Social VR, specifically the VRChat application, where he started to plan the first VR Church sermon with his wife in 2016. His church now has an average of 150 people attending each sermon (Tate 2019). He migrated to the AltspaceVR social media application when he established the *VRChurch* (Houde 2019). His church now includes the traditional service and performing baptisms in VR (Figure 5.4 & Figure 5.5). Having the possibility to baptise someone in VR removes the limitations of finding physical water to perform the ritual. Instead, the pastor and the person can perform a baptism in VR whenever they need to, changing the ceremony from a physical exercise to a virtual resource "ready-at-hand" whenever the need for it arises. It no longer requires a lot of preparation; it has become something to conveniently perform whenever it is necessary.

Figure 5.4: Real Pastor In Virtual Reality Baptises An Anime Girl 2019 (Syrmor 2019).

Figure 5.5: D.J. Soto's advertisement for his VR baptism. (D.J. Soto. 2018a).

As already suggested, virtual churches aren't new; they have a lineage that comes from tele-evangelists, which can be seen as the starting point for electronic churches. VR, however, has the added element of increasing telepresence by allowing the users to embody a virtual avatar in a VE. This avatar's movements and vision are based on the user's physical actions, not just button inputs. DJ Soto's church is not the only type; as mentioned earlier, *Second Life* has similar virtual churches created and maintained by non-clergy as an amateur project (may I suggest, even a passion project). On the other hand, Soto's church is similar to the virtual campuses of American megachurches, both in layout and design (Figure 5.6).

Figure 5.6: D.J. Soto's *VR Church* (D.J. Soto. 2018b).

Soto strove to create a church that is as inclusive as possible to spread his message to as many people as possible, being as efficient as possible. Just like advertising, the goal is to reach as wide a group as possible. The church exists only in VR with no physical counterpart. In other words, it is not an extension of a physical church but a complete stand-alone virtual church. Part of Soto's motivation is that the reach he has with VR is much larger than what he would have with a physical church. According to Soto, a physical church service mainly attracts only the people who belong to that church's denomination. Still, in VR, it might attract a broader audience of even atheists or people from other religions (Tate 2019). Rosalind Hackett claims that "cyber-spirituality holds more of an attraction and affords less of a stigma than attending a formal place of worship" for many women and young people (2006, 70).

Approaching a virtual location is more comfortable for most users as they use avatars, which allows for a sense of anonymity that makes exploring strange spaces more comfortable. This can also be seen by examining the incident where a group of 'internet Satanists' would constantly be shouting "Praise be to Satan" in the Ship of Fools virtual church (Jenkins 2008, 111). They would later receive emails apologising for the misbehaviour during the sermon, with one stating that they have been Satanists for most of their life and would never disrupt a physical church service like they did in the Ship of Fools service (Jenkins 2008, 111).

Soto claims that within VR, the experience feels real, and it allows the user to be more immersed in the VR and gets "transported to a different place" (Tate 2019). Physical movement gets translated into the virtual, as users embody themselves in the VE. He claims that the virtual connections are expressions of the material in the VE. Soto also expresses the need to engage in VR and AR to keep spreading the church's message as the culture grows. According to him, the church needs to adapt to remain relevant and enhance the spread of the church's message (Tate 2019).

D.J. Soto claims that the connection's quality matters, not whether the contact is physical or virtual. He also states that his VR church is similar to a physical church. The connection made with the congregation makes it successful or a failure (either physically or virtually). As Tim Hutchings notes: "[f]amiliarity achieves more than simply signalling identity and

expectations"; it allows the church to demonstrate a sense of "authenticity" (2010, 77). Hutchings also mentions that the connection is essential for a community. Some users in the *SecondLife* LifeChurch. tv's congregations state that being able to see others and be 'present' in the virtual church that resembles a real church, helps to make the online church's community "feel more like a community" (2010, 77). The user embodies an avatar in the VE, surrounded by other avatars that are also embodied by users. This makes the experience more natural as the avatars in the environment have individual agency.

Soto states that when asked what VR church is like, he responded, "it is like your church, just in VR" (Tate 2019). The church is built like a physical church, there is a reception desk, the hall where the sermon takes place, and a screen showing a countdown before the sermon begins. With VR, the user controls their avatar using the HMD, which uses the user's head movement to interact with the VE. This allows the user to feel a greater sense of presence and an increased interaction with the sermon. This makes it easier for them to have an immersive experience in a VR church. Both are recognisable as churches since they use the same signs and symbols (crosses, seat layouts, screens).

Another thing that was mentioned in helping to make an online church resemble a physical church is the presence of user avatars in the VE. Being able to interact with other people in the VE helps to create a sense of community. The ability to use avatars is one way to embody the VE user, as stated beforehand, but the avatars also provide the users with anonymity. Soto says that because the avatars give people anonymity, it allows them to be more authentic and more sincere (Tate 2019) because they don't feel personally judged.

He states that using avatars is similar to going to church but wearing a metaphorical mask to your best self. In VR this is more efficient than merely pretending as the user can literally be something else (Figure 5.7), for example, a robot or a cartoon character. As Turkle mentions, technology, like instant messaging and social media, allows us to 'edit' ourselves; we can decide how to respond and present ourselves (Turkle 2015, 102). She also notes that just showing up for a conversation shows the investment that someone has made, and that can cause connections to get stronger (Turkle 2015, 102). With avatars, this develops from just our words but to our appearances as well.

The problem with using avatars is that they allow for anonymity. There have been many studies that focused on the negative aspects of anonymity in groups. The results include that anonymity can increase aggressive, anti-normative and anti-social behaviours (Christopherson 2007, 3040). Zimbardo's (1969) deindividuation theory describes how anonymity can negatively influence someone's behaviour and is influential in the studies regarding anonymity. This theory states that anonymity can lead to a decrease in self-observation, self-concern and concern for social conformity (Christopherson 2007, 3044).

The theory has been expanded by Prentice-Dunn and Rogers (in Christopherson 2007, 3044) to add a distinction of two types of self-awareness; public and private. It is explained that by being anonymous, there is a perceived decrease in accountability for their actions. Anonymity also allows people to decide whether they will represent themselves virtually as they physically are as people tend to treat others based on race, gender, social status, etc. (Christopherson 2007, 3045). Being able to represent oneself as something different from what they physically can also lead to decreased personal awareness (Postmes et al. 2001, 1244). In this regard, the SIDE theory (Social identity model of deindividuation effects) is a reinterpretation of Zimbardo's original theory (2007, 3047). The SIDE theory acknowledges that identifiability can increase accountability and thus influence someone's behaviour (Postmes et al. 2001, 1244).

Figure 5.7: Variations of different types of VR avatars available in VRChat (Virtual Reality Pop 2016).

VR technology allows the user to experience a greater sense of presence, making the immersion in a VR Church sermon feel similar to a physical sermon. This is the case, at least, in terms of interactivity. The user's inactivity also becomes more evident as the avatar will contort in strange ways if the HMD is taken off or becomes utterly immobile as the avatar in VR depends on the user's movements positions of the input devices (HMD and hand controllers). Soto mentions that the difference between the average online churches and VR churches is that the people present are fully present in the VR churches (Tate 2019).

With thew online church, you can switch browser tabs or do something else (place your avatar on praying and work on something else on your screen). With VR Church, you are fully present since your avatar's actions are directly linked to your physical activities, mediated through the VR controls. Soto explains that the experience is what makes the church successful if it is VR or physical. With VR, the user can have a form of mediated embodied experience in the virtual church. This can allow the user to feel more present in this type of church than through other forms of mediated church experiences since the user

is embodied in the VE through the HMD that covers and replaces their vision with the HMD screen.

Soto states that using emerging technology is essential for churches to utilise as the culture develops and relies on it more. He uses the example of a website, as contemporary businesses all have some website or a digital footprint, and VR can be the subsequent development that will get a mainstream culture where AR and VR might become commonplace in use (Tate 2019). He argues that future generations will be more digital, so the church needs to adapt to technologies as soon as possible.

VR Church can be seen as an example of making the church-going experience more convenient to both the pastors and the congregation. It makes the pastor's goal of reaching people more effortless, as the physical restraints of distance are (seemingly) removed. It does, however, introduce various technological limitations.[31] It also makes it easier for someone to enter the church, as the virtual space might be seen as more inviting and open than the physical space. People feel more confident to enter and explore a virtual church, Soto remarked. People can also experience a sermon from the comfort of their home, with an avatar that they can customise to express or hide with and interact with church members.

It turns the church-going experience into something that is ready-at-hand by having an increased possibility to create a sense of being there through the use of the HMD to interact with the VE. The congregation no longer needs to meet at one location, but rather the place is brought to them since it is available online. They merely have to log into the application to enter the church virtually. It makes the church experience available and convenient wherever they may physically be located. It also allows people to create interpersonal relationships with others in an area that they might not have even interacted with them. The online church and the VR Church break down distance by allowing people who are physically located in separate locations to assemble in a single VE. The pastor also does not have to construct a physical space, as he is holding the sermons from his travelling trailer at times. It changes how the congregation views the church-going experience by turning it into a resource that they can tap into at their convenience.

[31] Access to the hardware to be able to enter VR, the internet connection, etc.

The virtually mediated churches are built using the signs and symbols from their physical counterparts. Tim Hutchins states that these signs and symbols are valuable as a code of familiarity to explain visitors' behavioural expectations (Hutchins 2010, 63). It also adds legitimacy to the virtual space by presenting the area as being set aside for worship. Even if the virtual environments are mediated through technology, they look familiar enough to the physical spaces so that people can identify them as spaces for worship.

Both *VR church* and the physical church requires the participant to be actively engaged in the space.[32] As DJ Soto mentioned, with *VR Church,* the user can't look at a different screen or do something else as the HMD and motion controllers digitally translate the user's actions into the VE. For instance, if the user steps away from the VE and HMD, the avatar might be contorted in unnatural ways. With online churches, like the churches in *Second Life*, the user can pay attention to something outside the display window's boundary, and it becomes easier to get distracted from the sermon. VR churches are closer to have similar mindfulness and presence than physical churches. As mentioned above, the avatar's posture is directly linked to the user's physical body. It is harder to get distracted, and the VR headset blocks out any physical visual, and audio stimuli, and substitutes them for the VE's stimuli.

The embodiment and sense of telepresence in VR are more potent. However, it still lacks the definition of a physical connection that traditional religious leaders believe cannot be replicated in a VE. During the baptism, performed by DJ Soto, the baptised user had to lower himself in sync with the pastor's movement, and the symbolic water's physical experience could not be simulated through VR.

[32] It becomes obvious when someone is not engaged in VR.

5.3 Conclusion

This chapter investigated online churches from televised evangelists to more contemporary examples that use chat rooms and 3D rendered virtual environments. Virtual practices make going to church easier by allowing you to watch it in the comfort of your own home. It also enables distractions to interfere and will allow you to conveniently step away and return without people noticing your absence. As with the Church of Fools, people are incorporating their avatars to do devotional activities, like prayer, while they can then focus on something else, placing the activity on reserve for when they feel it is necessary. The use of avatars also allows the congregation's individuals to select how they would like to present themselves at the church.

Soto claims that this level of anonymity allows for more sincere expression. Still, the Vatican believes that this presentation is not accurate. They feel that physical contact means that the pastor and the congregation members cannot hide their faults, leading to a more sincere connection. It is also shown that avatars' use can result in negative behaviours by looking at Zimbardo's deindividuation theory. It allows for less self-awareness and a reduction in the responsibility of actions.

Even if avatars can be used negatively, Soto believes that the congregation's connection is most important to him, and it can still be just as sincere in *VR Church* as with physical churches. It can be argued that VR and online churches make the process and rituals of religion more convenient and approachable. Still, it can also be argued that this convenience allows for something to get lost. We can decide how to present, edit and improve ourselves. VR adds immersive qualities making a VR church sermon feel more like an embodied experience than watching a televised sermon or participating in something similar to the Church of Fools. It can be said that the VR church makes the experience more convenient for the congregation by bringing the sacred ritual to them, making it ready at hand.

It is interesting to note that many religious leaders believe that this type of worshipping should only be used as a supplement and not the only form of worship. According to them, something gets lost when the physicality of the connection becomes a mediated exercise. The next chapter will look at how the virtual becomes an essential part of the ritual instead of merely mediating the ritual experience.

Chapter 6: A Virtual Marriage of Convenience

This chapter will explore relationships and how people are substituting physical elements for the virtual in an effort to convenience themselves. This chapter briefly looks at internet dating before moving on to the cases of people marrying virtual characters. Virtual weddings are also briefly mentioned, as they can be seen as the predecessor to marrying the virtual. How technology, and VR, facilitates this is explored in this chapter.

I have identified two forms of marriage to the virtual. The first is the person bringing the virtual into the physical and having a relationship called "cross-dimensional". The user marries an already existing virtual character and then bring a physical representation of the character into their physical environment. The virtual partner accordingly gains has a physical presence in the user's day-to-day life.

The second case is where the person creates both partner and relationship in VR, and therefore, the relationship and wedding only exist in the virtual. Two case studies will be used to explain this type of virtual marriage. Both are from Japan,[33] but looking at the cultural context or reasons why both occur in Japan, is unfortunately beyond the scope of this study. The last case study that deals with the example of the cross-dimensional virtual marriage is Sgt.Hale who creates and then marries an anime character in VR. Sgt.Hale developed and constructed the virtual surroundings and coded the whole ceremony. This is different from the previous two cases, as the person constructed the entire event in VR as a form of fantasy fulfilment.

[33] Anthropomorphism is particularly prominent in Japan, according to Matthew Wood (2019, 23). It can be an explanation why Japan features so prominently in the case studies, but as mentioned, a full investigation into the cultural context is beyond this study.

6.1 Physical convenient marriage

During the start of the internet becoming widespread (the 1990s), people started to connect with others. Social media networks were established, as well as online dating sites. The first recorded online marriage was between Janka And Tomas on May 8th, 1996, in the multi-user virtual space known as Alpha World (Figure 6.1) (Jenkins 2008, 99). The ceremony was attended by dozens of their online friends that customised their avatars to suit the situation. The wedding pavilion was created by a user (username Laurel), especially for the event (ccon.org 1998).

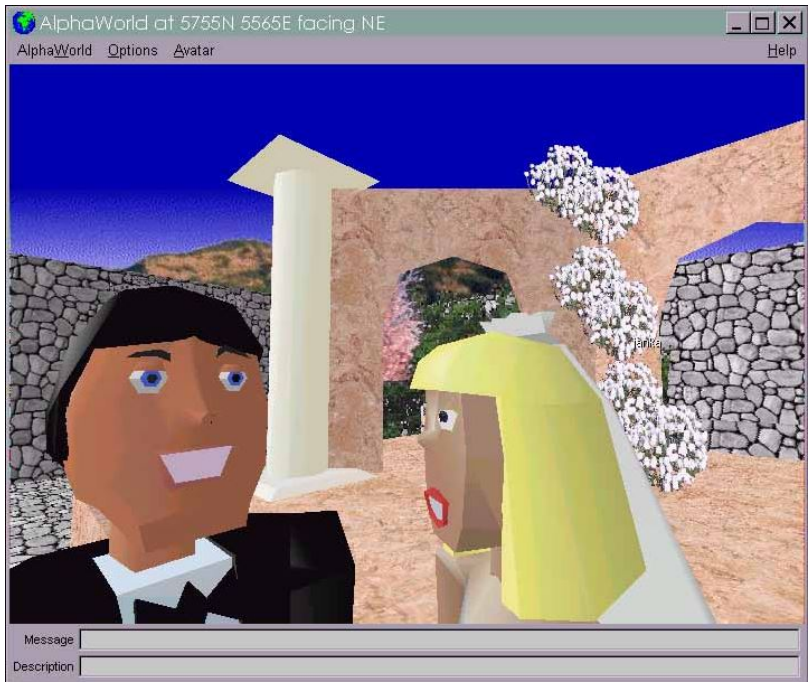

Figure 6.1: Janka and Thomas during their virtual wedding (ccon.org 1998).

Contemporary virtual weddings[34] are similar to physical ones as the users have to pay for a venue, avatar customisation like a wedding dress, suit and makeup. It is also arranged as an actual event with a live stream also available for the invited parties (Radde-Antweiler 2007, 190).

Radde-Antweiler calls this online marriage a transfer of processes, where the ritual is transferred to a new medium (2007, 190-191). The problem that can be identified with

[34] Virtual weddings are available in the online video game *Second Life,* amongst others.

virtual weddings can probably be attributed to technological shortcomings. Some physical actions cannot be simulated, the exchange of the rings, for example. It still happens in the virtual wedding through text or voice where they say that they are now exchanging the rings (2007, 191-192). As the two, Janka and Thomas, were separated by physical distance, they used the internet wedding to turn each other's presence into something they could access from their own physical locations, turning each other and themselves into a *Bestand*. They used the virtual wedding as a means of transcending the physical distance.

Another limitation is that the server can spontaneously crash, causing the bride or groom to disconnect and disappear from the ceremony (2007, 192). This is a common ailment in online virtual worlds that one has to contend with. During the virtual Lemans race, held on June 13th 2020, a replacement for the physical LeMans 24-hour endurance race, which was postponed due to the Covid-19 pandemic, the server crashed twice. This caused the race control to halt the race until they could fix the problem, not to mention the programming glitches that caused some teams to retire.[35] Multiplayer games have also become a solution to people during the COVID-19 pandemic. Multiple countries experienced a hard lockdown, with social gatherings banned to stop the spread of the virus. During these hard lockdown periods, multiplayer games were played more, with some becoming hugely popular because of the communal engagement it delivers (Turney 2020). One of these games is *Amongst Us* (2018), which started off as a free mobile game, but is now also available on multiple platforms.

A relationship with an inanimate object is not a recent phenomenon; people have married cars or even duvets (Forsyth 2019). The marriages are, however, always framed as a one-sided affair. The person understands that they are married to an inanimate object, even if they personify the item and give it a sense of imagined agency. Danielle Knafo states that the eroticisation of objects is being realised through technology (2015, 482). She states that our universal need for connection and the ability to personify and humanise objects can make inanimate objects the objects of our desires and fantasies. She uses the example of a toddler that uses a teddy bear or blanket as a soothing object or a child creating an

[35] Fernando Alonso had to retire since their car ran out of fuel. A full track caution was called, just as Alonso entered the pits to refuel. The full track caution means that no pitstop can take place.

imaginary friend to explain how we can use our imagination to rationalise our relationship with objects (2015, 482).

Knafo also states that the traditional means of meeting a partner is changing, becoming easier with online dating and the $1 billion dating app industry. She claims that face to face contact is being replaced by electronic connectivity (2015, 482 - 483). The internet that allows these types of encounters does little to delay gratification and does not distinguish between fantasy and reality (Knafo 2015, 481). Research studies have indicated that humans unconsciously humanise inanimate objects (2015, 483). She claims that this ability is rooted in human empathy, being able to understand the other's experience, even if that other is an object (2015, 484).

Knafo (2015) investigated her patients' experiences of living with sex dolls. They projected a fantasy of their dolls being like physical women. She states that after a traumatic event, one patient essentially replaced a biological woman (dehumanised her) with a doll (humanise the object) and then projected his fantasies of a perfect relationship partner onto the doll (2015, 485)[36].

Chip Walter (2006) argues that we live at the tipping point where we are using technology to understand and reverse engineer our own biology (2006, 474). He continues by stating that: "the lines between biology and technology, humans and the machines we create, are blurring. We are already part and parcel of our technology (2006, 469 – 470). He states that we are using our technological tools to engineer and "evolve" ourselves to adapt to our surroundings (2006, 470-471). Essentially, we are using the available tools to make us into ideal versions of what we see ourselves capable of being. This is not a new notion, however, as this happened in ancient times as well. It can be seen that the Ancient Greeks invented the idea of the ideal body. They believed that the perfect body, according to them, does not exist in nature. The sculptors used various models as inspiration to design their perfect ideal body (Poutney 2014; Jenkins & Turner 2009, 21). They used the technological means available to them to create a perfect form.

[36] Knafo claims that even in ancient times a completely subservient woman who gladly yields to the whims of the man was valued (2015, 488).

Analogous to how we can change ourselves and our capabilities owing to the development of new technologies, simialry technology changes how we can find romantic relationships. Online dating is a phenomenon that emerged in a new market environment and is now a common means to find a romantic date or marriage partner (Ariely, Hitsch & Hortacsu 2010, 130). Online dating has made finding a partner more convenient by enlarging the individual's social network (Finkel et al. 2012, 4). Before the advent of online dating, the person had to find a date through their social network. This social network includes friends, family, or broader 'arranged marriages' that remain prevalent in Southeast Asia (Finkel et al. 2012, 4). These online dating sites are becoming more socially acceptable to find a long-lasting romantic partner (Finkel et al. 2012, 5). *Tinder*, an online dating app, launched in 2012 and by 2014 boasted that the app registered over a billion swipes a day (Bilton 2014).

Bumble, also an online dating app founded by Whitney Wolfe in 2014, is the second most popular dating app in the United States, after *Tinder*, with a monthly user base of 5 million people (statista.com 2019). These apps allow their users to quickly glance at a prospective date and then decide if they want to initiate contact with that person. It turns other physical human beings into resources for a romantic date. It is essentially a more convenient means to find a date, not just because it saves time, but because it packages prospective dates in a way that is easy to access and contact.

Akihiko Kondo married a desktop hologram of the anime character 'Hatsune Miku' in November 2018 (VICE 2018) (Figure 6.2). Gatebox creates glass boxes that project the holograms of famous anime characters that are interactive**.** The Gatebox device works as a virtual assistant that connects to the user's local home network and can turn the lights on, act as an alarm clock, and even send messages to the user throughout the day. Every interaction with her is non-sexual, however (VICE News 2017). It is rather expensive at $2700. Minori Takechi,[37] the creator of the Gatebox device, claims that he wants to only give it to people who genuinely want it, and a "regular" wedding between two people is often even more expensive (VICE News 2017). The company offers customers a "marriage certificate" and calls the unions "cross-dimensional" marriages. They have sent more than 3700 of them by 2018.

[37] Takechi founded Vinclu Inc., the company that develops the Gatebox device.

Figure 6.2: Kondo next to the Gatebox device projecting his wife (VICE News 2017).

The Gatebox device also gained interest in the west, but specifically to assist people with disabilities. Takeya Nishimura, the head of marketing of Vinclu, stated that an Iraq war veteran suffering from PTSD and struggling with basic conversations with other people used the Gatebox device as a therapy to reintegrate into regular society (VICE News 2017). Another form of this type of treatment is sex doll substitutes. This device makes it easier to have conversations, as the device's reaction is limited and therefore predictable. This predictability causes it to be comforting, as the patient will not be surprised by the response.

The creator of the RealDoll,[38] Matthew McMullen, also stated that people would order the life-sized doll to help them overcome anxiety and start physical relationships with other physical people (Knafo 2015, 489). This is similar to how some members of the virtual churches would use it as an extension to their physical practices and not substituting it.

[38] RealDoll is a sex doll designed to resemble the appearance, texture and weight of the male or female body and used primarily as sex partners (Worthen 2016, 264).

Figure 6.3: Kondo walking the plush toy of Atsune Miko down the aisle (VICE News 2017).

Kondo claims that he fell “in love with the concept of Hatsune Miku”, but he only married the version that he has in his house (VICE 2018). This is because anyone can purchase a version of the Gatebox device and decide to marry the same hologram avatar. Kondo’s choice for one specific virtual version can perhaps be interpreted as a form of monogamy. The marriage cost him $17500 and was attended by approximately 40 people. However, his family declined the invitation (VICE 2018, 1) (Figure 6.3). This is not the only such case, as a man from Tokyo married a video game character in 2009. The man, known as Sal 9000, married Nene Anegasaki (Figure 6.4 & 6.5), a character from the Nintendo DS game *Love Plus* (2009) (Lah 2009, 1).

Hiroshi Ashizaki, an author who writes about internet and video game addiction in Japan, believes that in Japan young people are finding it harder to express themselves in the physical reality. These types of marriages to virtual partners are not exclusive to Japan. Still, Ashizaki does believe that the Japanese insular culture might be the cause of so many of these types of relationships occurring with the Japanese population (Carter 2012).

Figure 6.4: Nene Anegasaki from the video game *Love Plus* (2009).

Figure 6.5: Sal 9000 next to the Nintendo DS with Nene Anegasaki displayed on the right screen (Lah 2009, 1).

The wedding took place in a physical location and was attended by several friends and web users who watched the ceremony live. Like Kondo's marriage, this marriage is not legally binding, but Sal mentioned that this is his way of expressing his devotion to the virtual character (Lah 2009, 1). Sal also said that Anegasaki was "better" than a human girlfriend as she "doesn't get angry if I'm late in replying to her. Well, she gets angry, but she forgives me quickly" (Lah 2009, 1). The relationship between partners is made entirely one-sided. They

married something that operates as a substitute for the physical. A physical being's emotional support is substituted and made a resource that they can use when they need it as they need it with their virtual (or inanimate) partner.

This can be argued as a reverse of telepresence. Instead of having the sense of being in a virtual or distant environment, users feel as if something virtual has an immediate presence to them in the physical. This is what the Vinclu company means when they claimed they offer "cross-dimensional" marriage certificates to owners of the Gatebox device. This is a form of physical presence in the avatar environment that they experience but is still mediated through the use of technology.

They find it easier to do so in virtual worlds, and instead of talking about how they feel to a friend in RL, they do so only in the virtual (Carter 2012). Turkle mentioned how empathy is learned through physical conversations. Virtual conversations are more convenient and overall, more accessible since the participants can edit and carefully plan how they will respond (2015, 102).

Knafo stated that in the age of advanced technology, something occurred that she called the *disavowal of the human* (2015, 499). She mentioned that Freud and Lacan spoke about the difficulty people had in distinguishing between male and female. She believes that people have difficulty distinguishing between human and non-human (2015, 499). She claims that people who develop bonds with inanimate objects create "as if" relationships. The person is in a relationship with the machine *as if* it is a real thing (2015, 499). It is a relationship of convenience based on an "as if" fantasy.

This relationship is between the human and a virtual construct that the human fell in love with. They did not create it, but the company that supplies these holographic assistants do supply wedding certificates to understand that the device can generate this want in the consumer market. This is bringing the virtual into the physical for the sake of an "as if" relationship. An example of this relationship in media (Figure 6.6) can be seen as the hologram AI partner, Joi, that the replicant, Officer K, has in *Blade Runner 2049* (2017). It is a fantasy that is becoming more achievable with contemporary technology.

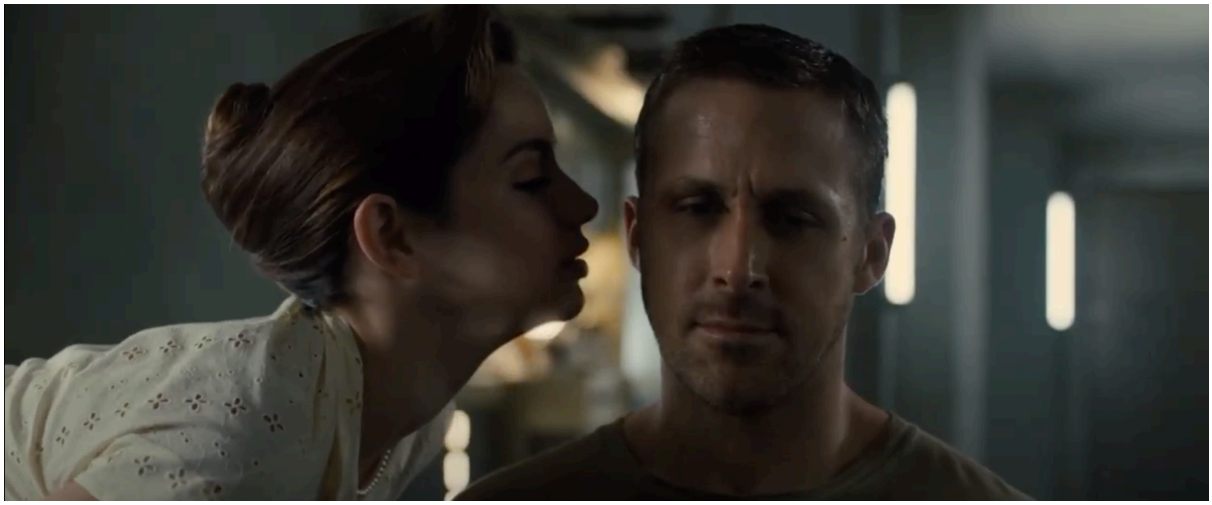

Figure 6.6: Officer K with his hologram partner Joi in *Blade Runner 2049* (2017).

6.2: Convenient wedding to the virtual

The cases mentioned above had circumstances where the person would bring the virtual into their physical day to day life. Hondo married the hologram of Hatsune Miku and has her projected in his physical apartment. She is transported from the virtual into his physical day to day life. The following case study is that of a 4chan user that goes by the name of Sgt.Hale. He recreated a small church based on a location near the American-Mexican border (8agdg.wikidot.com 2018). Then he convened a virtual ceremony when he married Oshino Shinobu in the VE (Figure 6.7). Shinobu is a character that appears in the *Bakemonogatari* (2009) anime and manga. She has the body of an 8-year-old girl, but because she is immortal as a vampire, she is 598 years old.

Figure 6.7: Shinobu in front of the Catholic inspired church that Sgt.Hale created (8agdg.wikidot.com 2018).

Figure 6.8: The virtual town of the church (8agdg.wikidot.com 2018).

The wedding location was based on a real town named San Miguel De Allende in Mexico (Figure 6.8). This virtual location removes any form of location searching and reservations of a physical space, making planning the ceremony more convenient. This also made it easier for people to attend the wedding, as Sgt.Hale invited several friends, which are located in different countries, to participate in the wedding. Those that could attend, were represented by their message board avatar in the gallery.

The people have embodied experiences in this created VE, and having the wedding ceremony take place by following the same rules as a physical one, Sgt.Hale turned the wedding into a fantasy game. The only person with any agency at the wedding was himself.

His ‘bride’, the witnesses and the priest all had allocated roles that they could not overstep. The priest who would ordain their ceremony was also a construct, so the only entities that weren’t constructed and coded were the witnesses, albeit they could only interact in the text-based chat. He ran a python server that allowed users from 8chan to participate in the wedding as the witnesses.

Figure 6.9: Sgt.Hale's view of the witnesses during the ceremony, displayed by the stereoscopic HMD (Gondole 2017).

He programmed the ceremony to have the priest waiting by the altar. Sgt.Hale would then walk in to join the priest in front of the witnesses. After he has reached his position, Shinobu would walk in and join him by the priest. The priest would then start the ceremony and ordain them (Figure 6.9 & 6.10). One of the lines that the priest would read claims that “romance is not bound by our dimension” (Gondole 2017).

Figure 6.10: The view at the altar from Sgt.Hale's perspective displayed by the stereoscopic HMD (Gondole 2017).

This entire ceremony played off like a video game, the “player”, Sgt.Hale, had a goal to achieve before the next step of the procession will proceed. He had to get close to the bride before anything else happens, making the entire virtual ceremony depend on his actions only. The bride also only reacts to his actions. When holding her virtual hands in his, she would say a few phrases that he recorded and programmed for her to say.

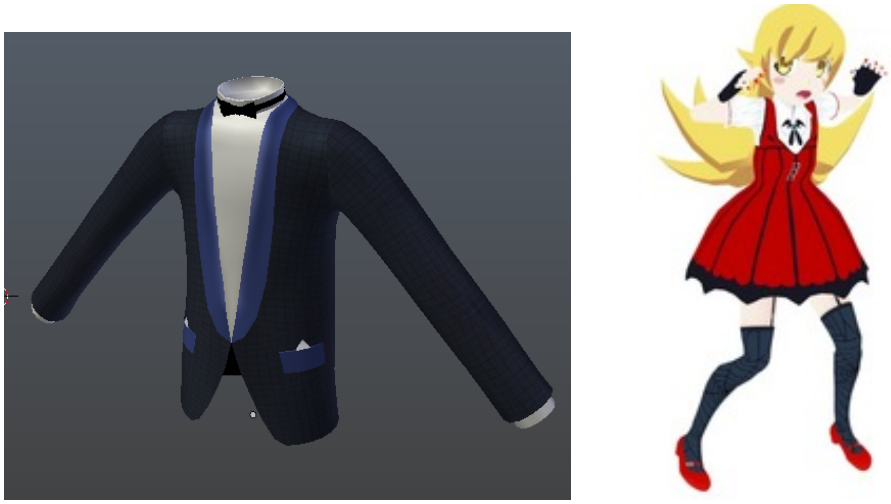

FIGURE 6.11: The tuxedo that Sgt.Hale use to embody himself in during his virtual wedding alongside an image of the Oshino Shinobu 3D model used in the ceremony (8agdg.wikidot.com 2018).

Hosting the wedding in VR, Sgt.Hale possibly experienced a greater sense of telepresence in the VE by embodying his virtual avatar (Figure 6.11). Unlike Janka and Thomas’s wedding,

who had to share their marriage through a 2D plane projected from a computer screen, Sgt.Hale directly looked through his avatar's eyes and now controlled the head movements and arm movements with the VR platform's motion controls.

As discussed earlier, telepresence is to have the sense of being in a space without necessarily being physically located there. Here Hale is creating a sense of being in a completely virtual environment, with someone that he programmed and constructed, in a ceremony that he programmed. It is the sense of being in a wholly constructed and programmed situation, not just the VE. In other words, he is living out a fantasy of his own by creating it in VR. The ceremony is made just for his satisfaction, as there is no other form of agency that can influence the procession.

6.3 Conclusion

The Gatebox device allows the users to project their virtual partners conveniently-at hand in their homes and have the AI send them text messages throughout the day. This gives the user the impression that their virtual partner has transcended the virtual barrier and is able to be physically present. However, there still is an obstacle that hinders the fantasy from becoming completely real. The fact is that the user only sees their partner's avatar through a screen or the projection of the Gatebox. VR, however, allows the user to experience a sense of telepresence in the virtual where they can meet with their virtual partner. This makes human physical relations seem more troublesome than the digital counterpart, where everything is conveniently predictable and controllable by the user. It is also not a recent phenomenon, but now the same form of relationship with an inanimate object is becoming a more believable fantasy due to the advances in technology and the internet that allows connection between people.

The rituals, such as a wedding, becomes apparently more convenient when mediated virtually. Instead of having to plan around a date and a place where visitors have to travel, all that is required in a virtual wedding is to log on. Finding a partner is also made more convenient through online dating, but this may still require physical contact to establish the partner's realness. Partners can be programmed or conveniently tailor-made for users as

well. Besides, partners can be cloned, allowing the possibility of multiple users marrying the same AI avatar. Human relationships are made convenient with the virtual medium remaining subservient and ready-at-hand for when company and interaction are needed.

VR thus enframes and gives us the perspective that we can turn even the most intimate relationship into a *Bestand* that is ready-at-hand. We can have conversations when convenient; we can go to church in convenient ways and have spiritual experiences from the comfort of our own homes. This includes receiving the sacrament of baptism without using actual water. Furthermore, as this chapter has shown, a fantasy wedding can be mediated in a virtual environment, which can be copied and cloned and experienced when convenient. The nightmare of the double booking of a venue in real life cannot occur in VR. Through VR, the most elusive achievement of all, namely having a partner that never argues or leaves, can be pre-programmed to remain eternally faithful for all virtuality.

Chapter 7. The convenient end

This dissertation explored case studies where VR online technology is used to supplement and even substitute the physical counterpart. The cases that were explored involved rituals that are being held through mediating technology. Two cases of virtual churches were explored, bringing something of the physical into the VE. The other cases that were explored involved attempts of people creating 'cross-dimensional' relationships as if they were physically real. People were holding church virtually *as if* they were holding it physically. Kondo married a Hatsune Miku version of the Gatebox device and treats the hologram *as if* she is a physical human and has a relationship with it.

7.1 Theories

As in this study, Heidegger was utilised to explain how technology allows for new ways to enframe our perceptions. The new ways of enframing our perceptions are strongly technologically driven. We can communicate with people on different continents immediately, but only through the use of the technological device that allows this. The more prominent the device becomes in our lives, the more we depend on it when doing basic actions. Heidegger's concept of "nearness" was also investigated to understand our relationships of being-in and being-with others. It is important to understand that when there is a "care" or a reason to be in a certain location, the person will be more invested in the place. As Heidegger explained '[n]earness maintains farness', (quoted in Eiland 1984, 44) if something is used in the flow of an activity, but not the result, it becomes invisible to the user.

The lineage of VR was also investigated and unpacked. As early as the 18th century, devices existed that completely covered the visual senses of people to project their own version of reality to them. The early examples, the panorama, and stereoscopic devices relied on paintings and photographs that would attempt to capture a slice of reality and display it for the public. The panorama attempted to show a representation of reality, a representation

planned by the commissioning clients and created by the artists. The stereoscope brought the VE right to the user. Instead of going to an amusement park with the panorama exhibition that requires physical space, the later handheld versions of the stereoscope turned the glimpse of the VE portable, making it accessible anywhere, making it more efficient. It also was a part of the scientific devices that both demonstrated a scientific principle as well as entertain.

As technology, especially cybernetics, improved, devices based on stereoscopic devices made use of digital technology to allow the users the opportunity to see a digital virtual environment and interact with it. Devices like the Eyephone and Sword of Damocles attempted to use physical actions to interact and manipulate the VE. The early motivations of the panorama, mostly entertainment but also propaganda related, remained in the devices developed afterward. This is prominent in the late 80s and early 90s video-game consoles that attempted to bring VR to the home console market. With the development of stronger computable processing power and renewed interest from larger companies, contemporary VR managed to get a hold in the public technology market.

The software developed for these devices is also more mainstream, which allows for the devices to do more than just be a novelty item like the early handheld stereoscopes. The HMD VR devices are still marketed as the next step in immersive entertainment, but it also has uses in simulation training. Simulations are used to train pilots and even race car drivers are using simulations to practice. Through VR, the user can have an embodied experience within the VE.

This study examines Merleau-Ponty's phenomenological study of perception, explaining that we experience everyday life through our lived bodies. Our bodies are the gateway through which we experience the world and the way that others can interact with us. All of our physical experiences are framed through our bodies. This helps to understand how someone can experience a sense of "being" in a virtual environment where embodiment is translated through the use of mediating technological devices, like the HMD. This sense of "being-there" operates as telepresence, being in a different environment that one is physically located in.

Having an embodied experience in a VE can lead to having a stronger sense of telepresence therein. As this study has explored, VR allows the user's physical actions to be translated into the VE, creating a stronger sense of immersion than in traditional VEs displayed on a flat-screen. The users are placed closer to the VE by having their physical reality blocked out by the HMD and having their physical actions influencing the VE. For example, holding a rifle in traditional videogames and aiming it would require pressing a few buttons and moving a mouse or analogue joystick. In VR, however, the user's physical arms influence how the rifle will be aimed in the VE, as mentioned, making the user embodied more similarly in the VE than in physical reality.

Telepresence can be achieved through a telephone call to more complex mediums like example movies and video games. It is not exclusive to digital technology only and it is subjective, one user can experience telepresence in a video-game, where another user does not experience it. An element that can increase the probability of telepresence occurring is how immersive the experience is. This study explored what elements can increase the immersive quality of a VR experience.

One of the main elements is interactivity; the more interactive an experience, the more likely it is for a user to experience telepresence in the experience. The virtual environment also can improve the likelihood of experiencing telepresence. In video-games, an immersive environment is one that operates as if it is independent of the player character. The virtual world of the *S.T.A.L.K.E.R.* game series was looked at with its inclusion of "a-life" (artificial life). There are scripts for the non-player characters running, which are independent of the player's actions. This creates an illusion that the VE of *S.T.A.L.K.E.R.* is a living world that would go on even if the player does nothing in it.

The player can feel a sense of being-there if the VE feels as if it is a 'living world' (a buzz phrase usually associated with the quality and detail of video game environments). As mentioned, this is how the VE is built to give the illusion that the VE is independent of the player's action and events will happen that the player might miss, like the "a-life" of the *S.T.A.L.K.E.R.* video game series. This element of a 'living world' can enhance the sense of immersion as it attempts to present itself to have similarities with the real physical world by having these events that continue without the player's intervention.

Again, as mentioned in the study, the VE tries to simulate and copy already understood rules of the physical world, like the notion of the world continuing without your active participation, as well as the laws of gravity and the expected outcomes thereof. An example was given of a user throwing a ball in a VE. The expected outcome will be for the ball to bounce in accordance with how it would in physical reality. This only dealt with traditional video games and not specifically VR, but as mentioned, VR can be seen as having similar means to how video game developers create VEs.

7.2 Convenience

As Heidegger mentions, technology allows for new ways of enframing the world. This allows us to see the world in a way where resources become ready at hand for when we need them. Sherry Turkle claims that this makes us even think of other people as resources for when we need them when communicating through technology. Not answering a phone call or returning a message until we are ready or when it is convenient to communicate with the other person. This can be seen as not just making life more convenient for us, but also making personal relationships with others easier. The case studies visited show how religious rituals can be turned into resources to draw from when we need them. Instead of physically praying, we can let our avatar pray for us while we accomplish other tasks, making the act convenient and more efficient for us.

This convenience goes beyond just religious rituals, but also to relationships with others. Instead of going into a relationship with someone else, we can enter a relationship with a digital construct as if it is like a real relationship. This can also be applied to how convenient the use of avatars made virtual social gatherings. As mentioned in the study, avatars can make the individual act without fear of facing the consequences, or same intensity, of their actions. Although it is important to also take D.J. Soto's account of the users being allowed more freedom to express themselves because of this very idea that they won't be as harshly judged and that it is their avatar that will carry the consequences, not them. Zimbardo's deindividuation theory was used to explain how avatars can create some form of anonymity for the users.

Technology probably allows us to experience a fantasy more vividly than before through the use of VR, since now we can embody a virtual character, have our physical sight and hearing blocked out by the virtual, and interact with the VE. We can decide how we would go to church, even have something on a different screen available during the sermon. The search for convenience is also applied to other elements, like relationships, where people would enter a relationship with a virtual partner as if it was a real relationship. The physical limitations are relinquished in favour of a more convenient experience.

Another area in which online mediated interactions are made more convenient is through the use of avatars. The user can embody an avatar that is closer to their ideal self, than a true representation. This makes interactions almost into a role-play scenario, where the users act as if they are an improved version of themselves in social interactions. This role play can then raise the user's social standing in the virtual world, which has a discrepancy over his/her physical social standing.

The global COVID-19 pandemic of 2020 also caused more virtual distance encounters. This study briefly touched on how the Catholic church was dealing with having to improvise with their masses. Instead of having physical masses, the Pope would livestream a mass to the church so they can still have their experience, virtually though. They are not the only example of people and organisations that tried to create a similar experience virtually than they would physically have hosted. It can be another area that can be investigated to understand how VR can and has influenced behaviour and how it was used to overcome limitations imposed physically. There have been multiple examples of the COVID pandemic that caused physical events and gatherings to be shut down or turned into virtual gatherings. Also, the influence that technology played on the COVID-19 pandemic can be investigated to understand how it has influenced us and how much of it has caused social gatherings to move to a more virtual platform. As mentioned, multiplayer party games, like Among Us have become popular during the pandemic as many countries entered a state of lockdown, not allowing physical gatherings.

7.3 Limitations

The first limitation that needs addressing is that this study does not look at the cultural background of the case studies as this is outside the scope of the study. Both cases of a person marrying a virtual construct came from Japan. Having an in-depth investigation of the cultural environment of both cases might bring some interesting elements to the fore. It is also important to note that as each case study is unique in character, the cultural background as well as the individuals present in each case, can be a major contributing factor in how their reliance on technology developed.

As mentioned in this study, Heidegger's approach to technology can be critiqued as being too rigid in his umbrella 'one size fits all' reasoning. Don Ihde mentions that "[t]here never is one single 'reading' of a text precisely because the 'text' can have multiple readings" (1997, 79). This line of thinking in this study can be improved by further research into technology's impact on people's culture and social interactions. Technological development is dependent on how society develops, and how society develops is dependent on how technology develops. With social media becoming a large part in western society, even businesses use it to promote themselves. It is also worth noting that one of the companies behind a large social media application, Facebook, is investing and developing VR devices.

This study also did not look at the psychological profiles of the people involved in the cases, which can have a contribution to how far a relationship will be taken as if it was a physical relationship. The effects of VR on the user's mind were also not investigated and it might be a line of research worth investigating. This study also briefly looked at how virtual spaces are perceived. Furthering how VEs can have a psychological effect on users can also be valuable in order to understand just how much of VR is fantasy play or substituting physical reality for the virtual convenient method. This field can be improved by investigating the legitimacy of virtual experiences in comparison to physical counterparts.

How much of the virtual is seen as an extension to the physical and how much of it is seen as replacing the physical, was also not included in this study, as it is a factor more suited for a psychological study, rather than a digital culture study. It is also a complex discussion that exceeds the scope of the study.

7.4 Further research

The cultural effects of VR have not been explored in this study. The field, in general can be improved by investigating the way in which VR has influenced different cultures. The anthropological side of how technology influences and gets influenced by technology, can improve understanding of how technology develops. By investigating this further, the zeitgeist of contemporary society should also be explored to understand the developments in technology. The financial investment and interests of the major companies that are developing VR have also been briefly looked at, and it might also add to the understanding of the technology's development cycles.

These elements exceed the scope of this study, but it can open up cooperation between different fields into how contemporary VR and culture are co-developing and influencing each other, specifically. As the development of VR is dependent on investments and profit margins of the major developer companies, this can also be explored to see how these companies push and attempt to raise interest in their devices.

The influence of physical feedback was also briefly mentioned, and since it is still in early development, this can also be investigated to further the field. Several studies have found that smell can increase the immersive qualities of a VE, but haptic feedback has not been fully investigated as of yet. Michael Heim's Alternate World Syndrome can be investigated to understand how the brain makes sense of stimuli, and if and how it would distinguish between physical and virtual stimuli. This study briefly looked at the immersive qualities of sounds and smells in VR experiments. Further study in this direction can improve our understanding of how influential VR is over its counterparts when creating a sense of telepresence and immersive experiences.

Another subject that was briefly explored, is that of identity play in the virtual worlds. This study did look at what Sherry Turkle mentions of having second selves to explore parts of our own identity. People might choose to present themselves as accurately to their physical appearance, or they might change certain aspects of their appearance, or even gender. As avatars are an important part of user identity expression, how the users relate to their avatars should be investigated to understand the users' psychological profiles. The psychological effect of the use of ideal selves as avatars, or any avatar, also needs to be

investigated to understand the users' motivations on why they use specific avatars. For example, Drumsey that is male in real life used a female anime character as his avatar, which he used during his baptism by D.J. Soto in VR.

Another element of the use of an avatar that can be investigated further is how an avatar can cause anonymity for the user and how this would influence behaviour. Whether someone's actions are sincere when expressing themselves through avatars or whether they are just using it as a process to express extreme views since no real consequences are attached to their actions. A deeper look into the embodiment of avatars can be beneficial as the psychological aspects of the use of avatars can aid the discussion of self-representational aspects of VR. This psychological aspect can then be further investigated to understand how much of VR is just a fantasy or how much of it is as real as a physical experience to the user.

7.5 Closing statements

This study argued that computer mediated communications have influenced our behaviour and method of interaction with one another. It has allowed us to almost instantly communicate with people we have never met, and would never have known if not for the digital connection. It has allowed us to turn people into resources that we can access whenever we need them. Instead of a physical conversation, we can now have an edited conversation over texts that is more convenient and efficient for us, striving to get the most efficient and perfect response (Turkle 2015, 102). This striving for efficiency and convenience is also influencing how people act in relationships.

Online dating has grown to a large multi-million dollar business (Ariely, Hitsch & Hortacsu 2010, 130) that is a more convenient and efficient means of finding a romantic partner. This can even be taken further as some people have substituted finding a partner, and instead bought or made one. People are entering relationships with their Gatebox device, or video game characters, where the relationship is a one-sided affair and convenient to the human. Some have even created and married their creations in the comfort of VR, making both the relationship convenient, as well as the ritual of marrying the digital construct.

This means of making our interactions with others more convenient are also applicable to how we interact with spaces. VR technology allows for a greater sense of telepresence, a sense of being-there, in the virtual environment through the use of an HMD and movement controls. This allows the users to interact with the VE in ways that previous interactive media could not do. It has turned locations into convenient resources that we can access without leaving our physical homes. Having this VE available has allowed some to take their physical realities and move them across boundaries. The VR Church operates as a normal church, just in the VR dimension. Instead of traveling to the church, the congregation can just log on from the convenience of their own home, with all their comforts to indulge in while listening to the sermon.

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