WELCOME TO VRCHAT

An ethnographic study on embodiment and immersion in virtual reality

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Abstract

This study explore how different forms of embodied experiences in virtual reality can be explained. Virtual reality (VR) is a quickly emerging, although understudied field that in the last decade have come to take a bigger and bigger part in everyone's daily life. With the rise of virtual reality new possibilities for social platforms in VR have emerged, one of these is the virtual world of VRChat. This paper aims to give an introduction to the world of VRChat, through looking at how different embodied practises take place in it. It is based on a two-month long ethnographic fieldwork in the world of VRChat, following at a group of around 20 individuals scattered around the world and their experiences of embodiment in VRChat. This paper looks at how different forms of embodiment take place in VRChat and how these forms of embodiment affect different aspects of being in a virtual world. I study how mirrors and avatars through embodiment and interplay of different agencies create identity and a sense of 'me' amongst users in VRChat. I look at how embodiment connects to immersion and how it bridges the gap between reality and virtuality, through the translation of the sense touch in virtual reality to real life a. I see that a non-traditional form of immersion plays a big role in creating this phenomenon which is called phantom sense.

Keywords: Virtual reality, Mimicry, Avatars, Identity, Embodiment, Immersion, VRChat.

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1. Introduction

1.1. Introduction and Research question

It was a calm night early on in my field and I was talking with a small group of people I just had met. We were talking mainly about tech related stuff such as our computer setups and so on, really nerding out over the details of our machines. Since we were in a public space more people entered over time, some joined in on the conversation and slowly it shifted as more and more people arrived. At some point we moved into a smaller alcove protruding out from the wall of the room we were in, with large windows facing towards the moonlit outside. Someone asked where everyone where from in the world, and from this simple question we realised that collectively we spoke around six different languages. One of the people that had gathered in the alcove suggested that we should all repeat a phrase or word in each of our languages comparing them to each other. We formed a circle and then in turn went around it, repeating a word or phrase. Since our common language was English, the only native English speaker in the group was assigned with the task to come up with a phrase or word that we then in turn repeated in our respective languages. The first language in the round was Dutch followed by a native American language that I unfortunately never got the name of, followed by German, then Danish and finally Swedish with me and one other person speaking the language. This went on for well over an hour whilst outside the windows spectral sea creatures slowly swam by. As the night went on and some people started leaving, the focus slowly shifted away from our word game. Suddenly a person started to play the piano, performing live for us, and after some time another person also joined in with their own piano, allowing for an impromptu jam session. Playing music live through their microphones to the audience that had gathered. As they were duetting different songs, I was standing there enjoying the live music, or should I say sitting there since my actual body was sitting down back in my room in real life observing, as people adorning many different forms both human to non-human ones came and went, one of these non-human forms were one of the pianists who was in the form of a small cartoon ghost. Some had more non-human forms, be it a ghost or a cat, whilst others where characters from popular media such as games and movies.

As the reader you may already have caught on to that the event, described above in the vignette, does not take place in the same reality you are used to in your everyday lives. That is because

I have done my fieldwork on the use of virtual reality[1] through studying the virtual world of VRChat. VRChat is a virtual world mainly accessed through the use of virtual reality technology such as VR-headsets, it is a social platform with a focus on hanging out and talking with people from around the world in virtual spaces created by the platforms many users. My aim with this study have been to further research on virtual worlds done in the field of anthropology of virtual world, done by the likes of Tom Boellstorff (2008), Bonnie Nardi (2010), Celia Pearce (2011) and T. L. Taylor (2006) to mention just a few. To further it by look upon a virtual world in virtual reality, since it is an emerging space creating a new era in virtual worlds. And, by doing so, consider the possibilities they bring for social and cultural phenomenon. I choose to study VRChat amongst a few virtual worlds in virtual reality since it is the largest virtual world in VR with about 18 000 – 21 000 users being active at any time through only Steam (Steamcharts. 2022) with more users being active through the Quest echo system[2]. I also chose to look at VRChat because it is the most user driven world, with a majority of the content on the platform being user created, such as avatars and the worlds you gather in. These two factors together made me chose VRChat over other options since I was interested in how users create identity in virtual reality, and I saw that VRChat had the most possibilities for research these kinds of questions. Being in virtual reality also allows for embodied methods using the researchers body as a tool to understand phenomenon happening in VR, drawing inspiration from how Paul Stoller (1997) and Thomas J. Csordas (1990) use embodiment as an ethnographic method. This being possible because of the VR-headset with its corresponding hand controllers allowing for a translation of movement of one's body in real life to your virtual avatar. With this study I want to explore a new avenue in anthropology on virtual worlds taking it into virtual reality and the different possibilities of studies there. Answering questions of *"What role does immersion play in how embodied interactions take place in virtual reality"* and, *"How does embodiment and mimicry play into creation of identity in VRChat"*. By using my own embodied experiences in VRChat I aim to shine light on some of the phenomenon unique to VRChat related to embodiment and creation of identity.

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[1] Virtual reality is commonly shortened to VR.
[2] Steam is a big platform for digital distribution of games and software, Quest is one of the popular VR-headset brands owned by Meta (formerly known as Facebook), that have its own ecosystem for distribution of games.

1.2. Thesis overview

This thesis is divided into three parts, the first consisting of chapter one and two giving background to the field, situating it historically and methodologically. Chapter one goes into a short introduction of the field of virtual worlds and VRChat, it ends with me presenting my research question. Chapter two covers the background to the field by looking at previous research on virtual worlds and the concept of virtual reality, followed by a section on method and reflexivity. The second part consist of chapter three, and it goes over my theoretical framework, introducing the theories I will use in the rest of the thesis, together with short introductions to some of the phenomenon I will apply them to. The third section consist of ethnographic descriptions of the field and theoretical analysis of the ethnographic material, consisting of chapter four through six. With chapter four looking at VRChat as a platform, situating the whole field in a space, chapter five looks at the importance of mirrors in VRChat and how identity is created through mimicry, and finally, chapter six looks at the phenomenon of 'phantom sense' discussing it through looking at immersion. In this chapter I also look at other forms of embodiment that plays a role in creation of identity. The thesis end with a conclusion in which I summarise the theoretical and methodological approaches I have used connecting them back to my research questions. Lastly, I also give some of my own concluding thoughts on my field together with a few notes on potential further research on the area.

Figure 1. Me and a few of my interlocutors around a virtual campfire

2. Background

I had just got my brand-new VR-headset, a piece of hardware allowing me to access virtual reality, and after a process of setting it up, installing all the software needed to run it, plugging in all the cables to the right port on my computer, I finally was ready. I started the headset up and put it on ready to immerse myself into virtual reality. I had beforehand positioned myself in the middle of my bedroom, standing as far away as possible from all the furniture in my room to give myself space, to not run in to things while I for the first time fumbled around in virtual reality. At first everything was a bit blurry while my eyes adjusted to the two screens of the headset that was positioned only a centimetre or two in front of my eyes. After a minute or two of adjusting the different straps and sliders on the headset to make it fit my head as good as possible, I then finally turned my full attention to the new world I had been transferred to, a virtual one.

When first going into virtual reality using SteamVR[3] you will find yourself in a small room where you can move around and interact with menus on the walls. Through these menus you can select which game you want to play and then launch them or see which of your friends that are online. Choosing the icon for VRChat from one of the menus on the wall and clicking on it, then selecting the launch options starts the process of opening VRChat. First the landscape quickly changes, the room around you disappear and instead you are in a big, open space with mountains forming a circle around you at the horizon. There are lines going out from a circle on the ground around your feet, the sky is a gradient of purple and blue in a 1980s synthwave aesthetic. In front of you, floating in the thin air, is a sign with VRChat's logo with 'now loading' written underneath. After a short wait the scenery once again changes quickly, fading over to a turquoise space with VRChat's logo once again floating in front of you, and after a new loading sequence you finally spawn into the starting area in VRChat, a world called 'VRChat Home'. You will find yourself on an island floating in the air, with some abstract structures on it and a lot of signs teaching you about different aspects of VRChat. This world is designed to teach you how to navigate VRChat, how you move around, and other essential things to properly navigate the world. You are prompted with a few different avatars to choose from and portals taking you to popular worlds, from here your adventure in VRChat really begins. VRChat Home is not that spectacular of a world, but it serves its purpose well, as a

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[3] One of the few programs allowing you to run VR software also the one I used.

starting platform to familiarise yourself with the world of VRChat, as you now for the first time have entered the insanity and mundanity that is VRChat.

It could be argued that virtuality and virtual worlds have been around in some forms since almost the dawn of human. With the argument that the first cave paintings where they recounted events or stories in a virtual form by drawing them on the walls of caves, was a form of virtuality and a first step towards humanity's fascination with creating virtual worlds (Boellstorff 2008, 33; Boellstorff et al. 2012, 22). Later we have authors creating virtual worlds that later others could read about and thus in a sense access. We have through history created many different kinds of virtualities that could be attributed the title of virtual worlds. Although today when I say virtual world, I have a much more defined concept in mind. I consider virtual worlds as places most often accessed through the Internet allowing people from all around the world to gather in the same space by taking the form of avatars, to partake in activities inside the framework of a world, be it in the form of Second Life, World of Warcraft or VRChat.

In the same sense as Virtuality and virtual worlds the concept of virtual reality has also been around for a while although not nearly as long as the other two concepts. With some form of virtual reality technologies being around since the 1960s when such technology started being used in highly specific training for occupations such as fighter pilots (Bailenson 2018, 24). Virtual reality has also been around as a concept for long in popular media where it has been portrayed in many different forms dating back to as early as the 1930s with *The Man Who Awoke* by Laurence Manning first published in five parts in 1933 and as a complete novel (1975). Later on, being properly popularised by the Cyberpunk genre with for example William Gibson and his book popular book *Neuromancer* published in (1984), where he imagined a world where humanity constantly is connected to different kinds of virtual realities. Virtual reality in the commercial form we have today, is a relatively new phenomenon, with the first consumer models releasing in 2016 with the Oculus rift closely followed by HTC Vive. Finally making accessing virtual reality possible for everyday consumers. With the release of commercial VR-headsets in the middle of the 2010s, games and virtual worlds for VR users began being developed, and one of these is VRChat that got its public release in 2017 on Steam, later it was released for the Oculus ecosystem as well.

Virtual reality in the form I have studied is accessed using a VR-headset. VR-headsets comes in many different varieties made by different companies, but almost all have a few things in common. First, they all have two screens positioned in front of the users' eyes, enabling the

user to get an experience of being in the virtual reality displayed on the screens. All headsets also have some form of technology that tracks the headsets position in 3D spaces enabling you to turn your avatars head and body by moving you real life head. This is done in a few different ways, either through only internal sensors in the headset or with the help of external ones positioned around the user's room. Secondly, it also uses hand controllers that take different forms, that you hold on to, which allows for tracking of your hands' position in VR, translating your actual hands position to that of your avatar's hands and arms. The hand controllers also that allows you to move around and interact within the virtual spaces. You can also optionally get what is called full body tracking, which is extra trackers that you put on different parts of your body, to get even more realistic movement in VR with tracking of hip and leg movement. Although getting full body tracking is expensive with each extra tracker costing above 100 dollars on top of an already expensive headset, so most people do not use full body tracking with many waiting for cheaper options to become available. This combination of the tracking of all the components, the headset, the hand controllers and so on allows for somewhat real movement of avatars in VR, making virtual reality more lifelike than any other form of virtual worlds or games.

While the hardware behind virtual reality allows for a lot of immersion and 'realistic' experiences in VR, there is also the software side of it, the programs running it, and to some extent the hardware of either the headsets or the computer running the software. First if you do not use a wireless headset, you need a good computer to be able to run your VR setup. You also need decent internet to connect to VRChat and its servers without too much lag. Lag takes a few different forms, some that are more prevalent in VR. At its core it is when the picture displayed to you through your VR-headset are not displayed smoothly, instead it hacks and freezes. This can be experienced in different forms of intensity, from that just a few frames are missing resulting in what is called low FPS[4], which results in a slightly less smooth experience, it can also take much worse forms where the pictures shown freezes completely for a time ranging from a few milliseconds to completely freezing for longer times. This may best be compared to a movie buffering when you stream it, where the movie freezes and you need to wait for it to buffer. Instead of it being just a movie on a screen that freezes it is your whole perception. Different forms of lag are something almost all users of VR experience to some

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[4] Low FPS, lower frames per second when the amount of still pictures (frames) shown to you every second is lower you do not experience the world as smoothly.

extent, since the platform of VRChat itself is not very well optimised with most of the content being user created, resulting in some avatars and worlds being too resource heavy to render and show properly in game, even for the best computer. This is all limitations of the technology behind virtual reality that you need to take into consideration when being in VRChat. An example of how to manage the limitations of your computer or VR setup is through hiding people's avatars, when you start to experience lag. Instead showing them only as default avatar that is well optimized and that do not take much of your computer's power to display.

With this study I have only been able to scratch the surface of what is possible in VRChat and what is going on at any given moment. There are so many different communities and activities to take part in through VRChat that I have only been able to observe a small portion of it, and now months after finishing up the field, while writing this very text, I am still discovering new aspects of the world of VRChat that I could never have imagined taking place in such an environment. And although I would love to have been able to include more of what I have encountered over the last few months, it also makes me excited for the future of the platform and the possibilities for further research being done on the same area.
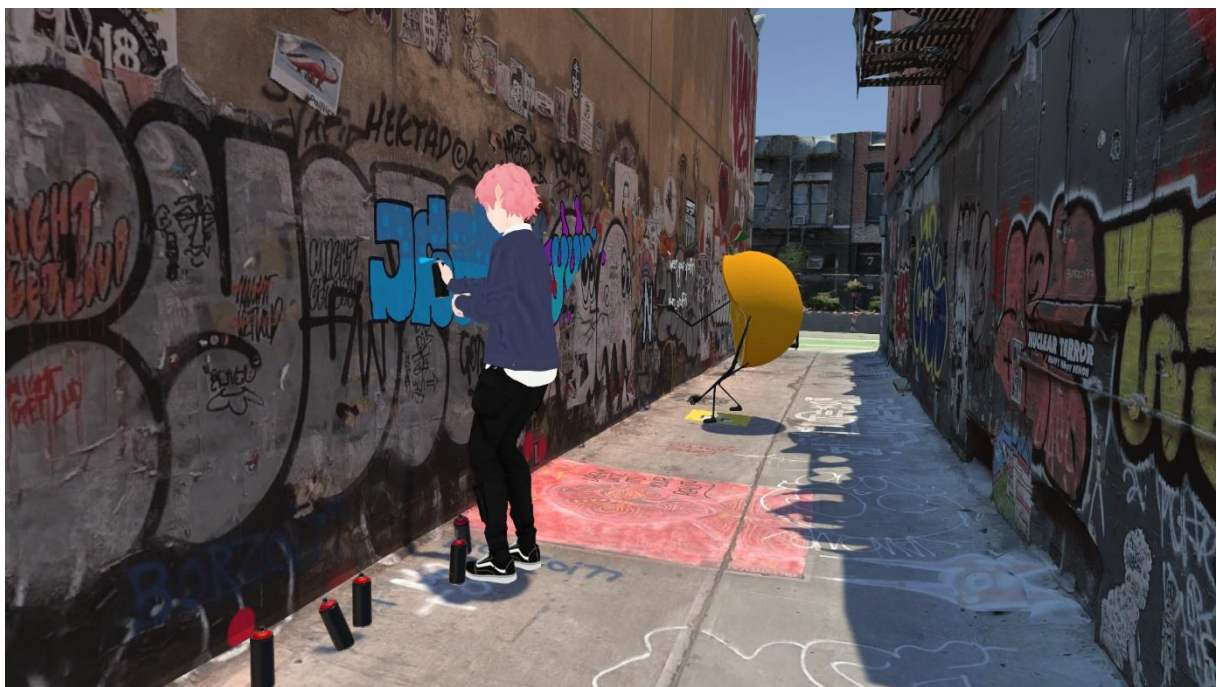

Figure 2. A person creating virtual art

2.1. Method

Ethnography is the anthropologist choice of method when doing research although what does ethnography actually entail. Ethnography is a broad methodological approach that can include

almost any form of data gathering you can imagine, from interviews, surveys, and historical research. As long as you gather information in some way while being in a field, it can be argued to be ethnographic method (Boellstorff et al. 2012, 65). Although when it comes to the ethnographic method that most anthropologist rely on, there are two that dominate and have become the most important for our discipline. The first one that I have relied heavily on during my field is participant observation, the backbone of almost all anthropological research. Being in a field, taking part in activities with the people you study and observing happenings at the same time (Boellstorff et al. 2012, 69). This have also been my main method with around 200 hours over two months, spent immersed in the field from November 2021 to January 2022, observing and participating in activities in VRChat. Hanging out with interlocutors, taking part in their activities while simultaneously observing them as individuals and as a group. The other method that together with participant observation forms the backbone of ethnographic research for anthropologists is ethnographic interviews. Ethnographic interviews are most often used in conjunction with participant observation to both get new information, but also to get answers to questions stemming from observation. The interviews are most often what is called 'semi structured' interviews, consisting of a mix of questions prepared beforehand, and follow up question conceived on the spot in response to the topics discussed in the interview. Often being more like a lead discussion than an outright interview with questions and answers (Boellstorff et al. 2012, 92–94). To complete my field, I also relied on just ethnographic interviews with most of them done in the boundaries of VRChat, whilst myself being in VR. I also relied on sensuous methods to understand the embodied experiences of my interlocutors. Making my own embodied experiences a central part of my field and observations in order to use it to understand other's experiences of embodied phenomenon, drawing inspiration from how Stoller use his body as a tool in the field (1997). Lastly, I approached my field with Actor-Network theory (ANT) in mind, tracing the interactions between different actors in the field, both human and non-human, such as VR-headsets and the virtual space in VRChat (Law et al. 2013).

I spent a vast majority of my field being physically in VRChat, using a VR-headset to access it, and as a result of this I also did almost all of my observing and interviews in VRChat, with a few exceptions where I used Discord to stay in contact with my interlocutors. Discord is a popular social platform in the gaming sphere that allows for communication through both voice and text. While my field in VRChat was an online field taking place in the virtual realm in a truly international setting, where borders no longer mater, it was at the same time a very local

field, where I as the researcher spent my whole time in one place in the real world, an office chair in my bedroom back in Stockholm Sweden. So, while my virtual self was traveling the virtual realm of VRChat, meeting all sorts of people from every corner of the world unaffected by physical borders, my physical self was firmly planted in an office chair in my bedroom back in Sweden. This making an interesting mix of both being in a truly international multi sited field unrestricted by borders while being in VR, but at the same time also being stuck in a very static place back in the physical world. The predicament of doing fieldwork in this way is that even if I was at home in my normal everyday surrounding just as normal, I still needed to treat it as if I was abroad, in a sense pausing my everyday activities and social life to be able to spend hours upon hours online in VR almost every day. An example of this was that I changed my sleep schedule to match those of my interlocutors, meaning I stayed up all night until early morning in Sweden just to be able to hang out with people from America. Also, weekends became prime work hours for me since that was when most of my interlocutors would be online.

The sample group I worked with during my field was a core group of about 20 people that on a regular basis frequent VRChat, being online almost every night. Then from that group I got familiar with well over a hundred other individuals joining in from time to time, sometimes staying for a longer period and sometimes disappearing again as quickly as they joined, making the group both large and fluid. The fluidity and size of the group I have been observing makes my sample group of interlocutors quite big, although I mainly will focus on this core group of about 20 individuals. The people I spent my time with came from almost every corner of the world, although there was a bigger concentration of Europeans and Americans due to time zone constraint and me being on mostly European servers due to experiencing less lag on them. And although the core group of individuals that I hung out with in my field were mainly British and Scandinavian people, I would still call my interlocutors truly international with people from almost every corner of the world present, creating an interesting cultural and ethnic diversity to the people in my field. Although this diversity was not as apparent as you may think it would have been. Since I looked at my interlocutors in a similar way to Boellstorff, wherein I purposefully did not look into my interlocutor's background outside of VRChat, therefore losing a lot of the different cultural significances of their background (2008, 61). Instead, what I saw was that VRChat have its own culture independent of a lot of outside cultural influences. This of course not meaning that there was no influence from outside cultures from around the globe, it just means that I in my study did not focus on any of these outside influences, instead I chose to focus on the mix of these cultures that are created in VRChat as its own culture.

My interlocutors ranged in age from 18 to about 35. Although I got to know some people under the age of 18, I have deliberately taken a decision to exclude them from my observations and ethnography, so to not have to deal with any ethical concerns coming of including them. When it comes to gender division in VRChat there is a clear majority of men on the platform, especially in the younger age groups. I unfortunately do not have any exact statistics to present on this since VRChat does not provide any official statistics on their user base. Although in my experience with the people I meet there is a clear majority of men within my estimation, consisting of somewhere in-between 70-80% of all the users. There is also a considerably big LGBTQ+ community on the platform, so the group identifying as nonbinary also became a considerable portion of the people I interacted with. I never explicitly asked about my interlocutors' background such as from where they are in the world, gender, age and such, but I still got a lot of data of this sort since many have their age/pronouns and such publicly displayed in their bio[5]. Many also told me this kind of information without me asking about it which, even though I did not set out to gather the information, gave me an idea about who the people I studied was outside of VRChat, even if I never went into the field with intention to find that out, since I wanted to study them at face value of whom they are online in VRChat.

I did a total of five interviews with people from two continents and five countries, and their age ranged between 18-35. Four out of the five interviews were done inside of VRChat where we met and talked in private worlds. The last interview was done through text on the social chat platform Discord. The reason for this being that the person in question do not use their voice to communicate inside and outside of VRChat, instead they use text and gestures. Therefore, we deemed it easier to do the interview through text outside of VRChat where the chat logs also are easy to save. The interviews generally lasted between one to two hours, being semi structured with only a few questions being prepared beforehand. For the interviews done in VRChat I always in advance asked my interlocutors if they had a certain world that they wanted to be in during the interview, to make sure they were as comfortable as possible during the interview. If they did, I created a private instance of that world for us to be in so that we could talk undisturbed for the whole interview. And I would make sure that I was using an avatar that I often use and that they know me by, so that I could create a feeling of familiarity with them through my avatar being recognisable. To record the interview, I used a video recording

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[5] Bio is short for biography a tool used on many online platforms to tell others a bit about yourself.

software called OBS[6] to capture both video and sound. I did this so that I do not only have audio for me to go back to, also adding an element of video to give a better context to the interviews, such as when one of them for example showed me one of their avatars, or a certain part of the map they especially liked. I also would use a program that allowed me to type small notes on a virtual desktop floating in the space whilst being inside of VRChat, allowing for me to write notes while still in VR without taking off my headset.

Lastly, since the sample size of this study is small, I do not claim to represent the whole of the VRChat community in this study. Neither do I claim to completely represent all voices that have taken part in this study since I can only try and represent them the best I can from my understanding of their position and experiences.

2.2. Self-reflexivity and Ethical considerations

As a researcher I need to be aware of my own position in the field, both as researcher and authoritarian figure, and as a human with pre-existing experiences and cultural background. To start with, I am a white man from Sweden in my mid-twenties, coming from a middle-class background. This alone would in many fields have put me in a privileged position, but in my case, it made me the average user of VRChat, which in its own way comes with considerations. I had a lot in common with many of my interlocutors, both in background and in interests. I share a common interest in the world of Internet culture and video games with many of my interlocutors. Overall, I had a lot in common, both in position in life and in interest with my interlocutors, making my biggest problem in the field being not 'going native', meaning integrating too much with my interlocutors to a point where it becomes hard to be objective. To combat this, I always tried, in fieldnotes and in interviews to be objective and not put too much of my own experience and perspective in the writing and questions, and instead tried to see what my interlocutors objectively had experienced. Always trying to be aware of the risk of not being objective if I positioned myself too close to my interlocutors.

When it comes to ethical considerations, I have taken many steps to see to that my research have been conducted in an ethical manner. I have followed ethical guidelines from the American Anthropological Association (AAA 2012). I have made sure that me being in the field did no harm to any of my interlocutors, or that any of the information they have disclosed

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[6] Open Broadcaster Software.

to me, that I use in this text, is too sensitive and thus could cause harm. I have taken steps to anonymise names and identities to my best ability by using pseudonyms and not disclosing too specific details about the people whose accounts I have included. Further I have always disclosed that I was there in a research purpose both by telling as many of the people I met my purpose of being in VRChat, and by having information of my field in my inworld description of myself and my role as an anthropologist doing fieldwork, also prompting others to ask me questions about my purpose of being in VRChat. When conducting interviews, I got consent for doing them and recorded that either through text or through recording a verbal consent before the interview started. I always disclosed my purpose for interviews when asking for the interview, and then again at the beginning of the interview. I also prompted my interlocutors to ask me questions about my research if they had any, both before during and after my interviews to make sure they understood my purpose. And lastly, I tackled the problem of being in a field where individuals under the age of 18 also where actors by simply omitting situations involving minors from my ethnographic material to make sure that there were no ethical questions on that front.

3. Theoretical framework

In this essay I will use a wide array of theories to build a theoretical framework around my field and virtual reality, from Boellstorff's (2008) more general observations on virtual worlds, to Michel Taussig's *Mimesis and Alterity* (1993), Jaques Lacan's *The Mirror Stage* (Lacan et al. 2006) and Actor-Network Theory (ANT) as defined by John Law and Vicky Singleton (2013). I will use Nardi (2015) to define virtuality since her definition much rings true to my understanding of the subject, and I will also use Csordas (1990) and Stoller (1997) to understand embodied elements of my field, to mention some of the most important theoretical frameworks to my field. In the following section I will discuss and give a good understanding of all the different theoretical frameworks I will use and how I will use them in relation to different parts of my field.

3.1. Virtuality & virtual worlds

Virtuality is a central concept to my field, as one would expect considering the fact that my entire field is located in a virtual setting within virtual reality. Bonnie Nardi explore the concept of virtuality in her article with the same name, I will use Nardi and her definition as a steppingstone for how I define virtuality in my field of virtual reality and VRChat (2015). Nardi defines virtuality as follows,

> *Virtuality is construed, (...) as human activity mediated through multiple digital technologies, including Internet, telephony and video, instant messaging, blogging, social media, games, online worlds, forums, chat channels, listservs, podcasts, logs, and databases (Nardi 2015, 16).*

This is a definition of virtuality that fits my field well and that in many ways situates the space I have been moving through during my field both inside and outside VRChat. I used multiple digital technologies and platforms to navigate my field, from my VR-headset, computer, the software allowing me to use VR, VRChat, Discord and other programs that I used in different aspects of the field, this creating a virtuality of technologies that my field moved through. Nardi also establishes that virtuality allows for new forms and possibilities to socialise that reality do not allow for, with different kinds of virtual communities gathering in different configurations such as my interlocutors in VRChat and on Discord (2015, 16–17).

Nardi uses the term 'reality' as an opposite to virtuality to separate the virtual realm from what Boellstorff would have called 'actual life', describing life outside of the virtual world, offline (Boellstorff 2008, 19; Nardi 2015, 19–20). And I am inclined to follow Nard's lead and call it 'reality', rather than 'actual life' as Boellstorff does, mostly because I do not see the virtual aspect of my field as being less a part of actual life than what 'reality' might give you. And in that sense not less real either but because lack of a better term I will use 'real or reality' as a contrast to virtuality in the same way as Nardi. And even though I use these two terms, virtuality and reality, to separate the two 'realms', I in contrast to Boellstorff and Nardi do not see any real point in doing so, since they have a lot in common and behaviours and social circles intertwine and blend far beyond the borders of what two concepts like virtuality and reality can confine. Virtuality is a concept that permeates every aspect of my field, from the virtual realm of VRChat, to the writing progress afterwards, where along the line of my field it always precents in one form or another, be it through the different technologies and platforms used in every step or the spaces in the virtual world I have moved in.

When it comes to understanding the virtuality of virtual worlds and their many aspects, I have turned to Boellstorff and his study on the virtual world of 'Second Life' as my source of inspiration on the topic. Mainly his ideas about how to study virtual worlds at their face value, studying the individuals at hand as who they are online and not as who they are offline (2008, 61). The history of virtual worlds is long, in some senses extending back to a prehistoric era before the written word, with cave paintings creating the first human virtuality[7] (Boellstorff 2008, 33; Boellstorff et al. 2012, 22). Although this is not the focus of this retelling of the field, I will instead concern myself with the history of virtual worlds in the digital era. Modern forms of virtual worlds and the more general virtuality have been well documented in Anthropology, from the emergence of the telephone, movies, and television to early arcade games. Works in the genre of fantasy and science fiction have also helped to construct the idea of what a virtual world is, with works by the likes of Isaac Asimov, J.R.R Tolkien and William Gibson creating immersive stories and worlds to get lost in. Many of these authors also helped create a lot of the terminology and concepts that have become synonymous with virtual worlds and virtual reality such as 'cyberspace' and 'metaverse' (Boellstorff 2008, 36–38).

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[7] "Virtuality – The quality or state of being virtual" (Fine Dictionary 2022) I am using virtuality here as the concept that symbols, and things can evoke imagination that takes forms of virtual worlds.

Boellstorff has become the go-to anthropologist when it comes to research on virtual worlds, with his influential works in Second Life (2008). As most newer studies on virtual worlds, I too have drawn a lot of inspiration from his work. When Boellstorff studied Second Life he went into the world with the intent to view it as its own entity separated from what he calls the 'actual world' separating the identities of the inhabitants in Second Life from the person or persons behind them, looking at the virtual without also studying whom the virtual persona is in the actual world. With his research on Second Life, Boellstorff takes quite a holistic approach in studying the world of Second Life looking at many of the social and cultural aspects of it (2008). What makes his research so interesting to me is that he never leaves Second Life as a field. Instead, he always stays inside the world doing all his ethnographic work in it, from interviews to participant observation. While this created a good and deep understanding of the workings of Second Life and its inhabitants, it also leaves some areas unexplored which I wanted to explore in my research. One of these areas is the area in-between the virtual world and the, as he calls it, actual world. Or as I in my case prefer to call it, the real world. This is something that Boellstorff only hints at while briefly speaking about the disconnect between the virtual and the actual world that his interlocutors experience. Such as his interlocutors trying to access menus from the virtual world in the actual world or signing a check with their username in Second Life (2008, 246). This is something that I have explored more in relation to virtual reality since in VR you use your whole body in a more physical way to interact with the virtual world, with phenomenon such as phantom sense being important since they bridge the gap between the virtual and real, and the physical aspect of moving in real lift to have that movement mirrored in real life.

A part of understanding the in-between space between the virtual and real is immersion. As Boellstorff puts it

> *"immersion" historically referred to a sense that sensory experience of the actual world was sufficiently muted, and sensory experience of a virtual world sufficiently heightened, so that persons felt they were no longer in the actual world (2008, 112).*

While Boellstorff talks about immersion as getting drawn into an 'other world' through visuals and sound, (2008, 112–116), I want to propose that in the case of VR it works a bit different. I want to propose that immersion in VR also includes senses such as touch and movement of the body, vibrations of hand controllers and more, moving and interacting in the virtual world by

moving your actual physical body. Immersion becomes even more embodied in VR since almost all senses are involved, from vision, touch to sound. The only senses that are not strongly connected to VR technology thus far is smell and taste since these are senses that are hard to emulate and create artificially in a realistic way[8].

3.2. Mimicry, mirror stage and neuroscience

Mimicry is an important concept in my field, it is a recurring theme, emerging at different points in the field such as in relation to in-world mirrors. Taussig have written about mimicry and mimesis in his book *Mimesis and alterity: a particular history of the senses* (1993), where he explores how mimesis and alterity take form in early colonial interactions with the different native groups in nowadays Panama, and other native groups in the Central and South American. Mimicry plays a role of allowing someone to both take part in something familiar and different at the same time. Both allowing for sameness and difference at the same time, as Tausig says, *"of being like, and of being other"* (1993, 129). Taussig talks about mimicry as a phenomenon that takes a few different forms amongst the Cuans and other groups, and thus can be applied to different situations. The first form is mimicry through objects, such as the wooden figurines 'nuchukan' that took the form of European archetypes, which was found amongst the Cuans (1993, 3). Theses figurines represents the other, mimicking the colonial other coming from European colonisers. The second is the mimicry that from both sides occurred between the Fuegians and European explorers, that Charles Darwin witnessed in his Voyage to 'Tierra del Fuego' (Taussig 1993, 73). Wherein Darwin describes how the Fuegians mimicked the behaviour of western sailors, that in turn mimicked the Fuegians and then adding one more layer, the Fuegians mimicked the sailors mimicking them. Thus, in a sense the Fuegians mimicked themselves through the western sailors, creating multiple levels or layers of mimicry between the Fuegians and the sailors (1993, 73–77), here creating the question who is imitating whom. This notion of mimicry and who is doing it to whom is what interests me with the concept of mimicry when it comes to connecting it to my field of virtual reality. I see that some form of mimesis takes place in VRChat, for example when people gather in front of virtual mirrors and just stand there and talk, which is a phenomenon I will delve deeper into in chapter 5. Mirrors is a feature that are present in most worlds, which enables users in VRChat to see their own avatars and movements better and in so, maybe partake in a form of mimicry of

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[8] There have been multiple attempts by different companies and research institutes to create smell and taste technology for VR although no products have been commercially successful yet.

themselves through the mirrors and avatars, where mimicry of themselves allows them to create an identity through the avatar and movement.

Closely connected to the concept of mimicry we find Lacan and his influential text *The Mirror Stage*, wherein he introduces the concept of a mirror stage in a child's development where the child learns to identify itself in reflections and thus create a sense of 'Me' for the first time. This is a theory that has become a big part of psychoanalytic theory, and I also see many parallels to it in my field in terms of how people in VRChat interacts with mirrors, which I will discuss in chapter 5. First, we need to see what Lacan's 'mirror stage' really entails. As proclaimed above, Lacan saw the mirror stage in his original text as when young children for the first time recognise themselves in a mirror and thus start to build a sense of 'Me' (Sigler et al. 2019, 2–3). In this stage the young child starts to create a sense of themselves through creating a self-image connected to their body through their reflection in a mirror. They create what Lacan calls 'imaginary relations' (2019, 3), connecting body and mind. Later on, Lacan in his text *Seminar X* goes back on a lot of the concepts he created in the mirror stage, such as it being a sequence of stages when recognition occurs. Instead of being only about recognising a sense of 'Me' it is about a process of recognising the other, the space around you, be it other humans or the spatial dimensions and its limits surrounding you (2019, 6–8). Through mirrors, a creation of identity takes place, both creating your own identity and recognising the others and their identity. This is closely connected to how users in VRChat use mirrors in the worlds that make up the platform, to create identity and a sense of me.

One of the phenomena that I have studied in VRChat is what is emically called phantom sense, which I already have hinted at above. In its most basic form, it is when someone in virtual reality experience the feeling of a physical interactions even though there is no physical interaction taking place in real life in any form. The closest counterpart outside of virtual reality I have found is the phenomenon of phantom limbs and phantom pain, where a person that has either lost a limb or was born without one, still has a sensation of it physically being there, having sensations such as touch and pain in this non existing limb. To understand the phenomena of phantom limbs I turn to Ramachandran (2005), a neuroscientist who have done a lot of research on phantom limbs, especially in the early stages of trying to figure out the phenomenon. Ramachandran paints us a picture of the early days in Ramachandran's research about phantom limbs, where he tries to figure out possible explanations to why so many people that have either lost a limb or been born without one still experience the sensation of having a

limb, going so far as to being able to feel embodied experiences in it, such as touch and pain. It can also take the form of a person experiencing phantom limbs being able to use their phantom limbs to, for example, reach out and in a sense grab something (2005, 1). Ramachandra theorises that the most likely explanation to the phenomenon of phantom limbs is that some form of rewiring of nerve endings takes place in an affected person's brain, this allowing for example touches on their face being felt as touch on their phantom arm, since the two areas of nerve endings in the brain is closely located together, allowing for rewiring of inputs when the arm is missing (2005, 33–35). I will not go too deep into the actual neuroscience behind phantom limbs since it is outside the scope of this study, but I still see it as a valuable comparison to phantom sense within VRChat, since the two phenomena both deal with perception of something not being there.

3.3. Body Language, Avatars, and embodiment

Following in the steps of Boellstorff and his influence on the study of virtual worlds, we have the likes of Cristina Montemorano, who just as me have done a study on the virtual world of VRChat. Montemorano in her study writes about how body language is embodied in VRChat through the use of different kinds of 'avatars'. Avatars being the form or appearance that users of virtual worlds choose for themselves to embody (2020, 2). While her study is of quite a small scale, only spending a short time in VR, only about 7 hours in total, and from that synthesising a conclusion on how different avatars affect embodiment (2020, 9), she shows that there still is a lot of room to do other studies on virtual worlds and virtual reality. This is where my study comes in and explores embodiment, immersion, and identity creation in VRChat in a more holistic way than Montemorano did. Montemorano shows that embodiment occurs in multiple forms through the choice of avatar, some avatars prompt a certain kind of mannerism while other let you in to a social situation based on fitting in with the group. And some avatars even allow for a mutual embodiment where a group adopts a certain mannerism through the use of the same avatar. Montemorano argues that it is the avatars that allows for embodiment into the virtual, that by controlling an avatar one embodies into the virtual from the physical world. Through a mix of controlling the virtual from the physical world, and choice of avatar, new and alternative forms of self-expression are allowed to be formed, allowing for new forms of embodiment to be formed separate from physical 'real' embodiment (2020, 5–6). While Montemorano talks about embodiment, she only talks about one form of it through the perspective of avatars, while it seems that many forms of embodiment take place in VRChat. Montemorano studied how embodiment occurs through the use of an avatar and that it changes

depending on the form of that avatar, and the persona that a user creates from the appearance of the avatar. While I have taken a different approach looking at how embodiment is experienced between the virtual and the actual world and what kind of embodied experiences occur in the space between. I still see Montemorano's study of embodiment through avatars and body language as useful for me when thinking about embodiment between the virtual and physical, although I also see a need to expand on the concept to include senses and visuals more as I expand on in chapter 6.

3.4. Actor-Network Theory and Material Agency

Actor-Network theory and material and nonhuman agency is a hard to define topic since it is a broad theory/method with a lot of different interpretations and practices, thus I will do my best here to define it in how it applies to my field. Actor-Network theory is not a theory per say according to Law & Singleton (Law 2008; Law et al. 2013), instead it can be seen as a framework of analysis and method in which you can study a field and the agents within it. It is not a refined framework waiting to be used, instead it is a framework waiting to be created and recreated around the context it is applied to (Law et al. 2013, 486). ANT is not a theory that just can be boiled down to a few bullet points, instead it is as Law and Singleton put it *"a set of care-full empirical and theoretical sensibilities"* (2013, 488) that then can be used in different manners being applied to different settings. I see that I can apply this way of thinking in my field to reach my aim of understanding the different connections between immersion and embodiment, to the VR-headset, and the human and nonhuman actors.

The basics of it is that Actor-Network theory attributes agency to more than the human, the 'nonhuman' including animals, material objects and ideas, giving them agency and a role in shaping social-ecological systems. Broadening the concept of agency to a wider area of the nonhuman and the networks that they create in relation to other nonhuman objects and to human agency (Dwiartama et al. 2014, 1; Knappett et al. 2008, xi–xii). One of the most central persons in developing ANT is Bruno Latour (Latour 1987; 2005) who identifies actors as *"any thing that does modify a state of affairs by making a difference"* (Latour 2005, 71). In ANT material objects and ideas exert a similar agency to that of humans, creating a less defined line between human and nonhuman agency, and giving material objects an agency of their own in relation to a network of actors, both human and nonhuman. The use of ANT allows for a shift in focus from individual agency to relations between agents, allowing for a 'semiotic' relationship between the human and nonhuman (Knappett et al. 2008, 141), *"it's a network whose elements*

define and shape one another" (Law 2008, 146). Everything is entangled with everything in different ways and ANT allows for understanding these entanglements and networks. If we use ANT to analyse a field, we see that people can be understood as a network of relations with other actor's, human and nonhuman, all interacting in different meaningful ways to create the network (Law et al. 2013, 490–491). ANT is also about power, relations of power and different types of power. Unexpected types of power and structures of it, 'power to' and 'power over', how different forms of power play out in the actor-network, and how they work (2013, 496). By studying the different aspects of agency in the network I can begin to understand how the different agents in my field interact and effect each other, as well as how the VR-headset affects embodiment and immersion, and how the virtual connects with the limitations of the VR-headset. I use ANT as a framework to capture the different aspects and agents in my field within, seeing the VR-headset as a material artefact with its own agency interacting symbiotically with my agency and my interlocutors' agency.

3.5. Embodiment & Immersion

Csordas sees the human body as an important subject of study in anthropology to understand culture and the self, where the body becomes a subject of culture instead of an object in relation to culture (1990, 5). Csordas argues for that using the human body to look at embodiment is a good point to start analysing culture from, using embodiment and bodily experiences to study culture and the self (1990). This is a way of thinking that Stoller continues in his work on sensuous scholarship (1997). Stoller suggest that using one's own body as a tool is a useful way to understand one's field through senses, using ones embodied sensuous experiences to understand the embodied experiences of one's interlocutors. Stoller sees that the anthropologists own sensuous experiences can help one to understand one's interlocutors' experiences (1997, 22–23). Stoller presents a perspective where the anthropologist's body with all its senses becomes a tool in doing ethnography. He advocates for embodied ethnography where the ethnographers own embodied experiences can be used to gain an understanding of others experiences. In *Sensuous Scholarship* Stoller shows through his own experiences with sorcery amongst the Songhay people, through this experience with sorcery through embodiment it enables him to both get closer to his interlocutors and it helped him to understand them better (1997, 53–57). The idea to explore embodied practices in the field to understand one's interlocutors better is something I have relied on a lot in my own field in order to understand experiences of embodiment in virtual reality that my interlocutors experience. Through my own embodied experiences, I have been able to understand my interlocutors' feelings of phantom

sense and in turn connect the phenomenon to immersion as one of the leading factors behind it as I will discuss further in chapter 6.

Immersion is a central concept when it comes to studying virtual reality since it plays a central role in embodiment. Immersion is created in virtual reality through presence in the virtual world, by completely disconnecting from the physical world, the sense of being completely surrounded by another reality. When it comes to studying VR and immersion it takes different forms depending on the medium experienced in VR. Maude Ceuterick and Chris Ingraham have studied this through the leans of VR film, 360-degree video (2021, 10). They see that immersion is created by the disappearance of the viewer's body, kidnapping the viewer into a situation where the only way for them to escape the story and embodiment of the movie is to remove the headset and thus completely break the immersion (2021, 10–11). They also argue for that this kind of immersion into virtual reality can create a kind of disconnect where the other becomes *"indistinguishable from ourselves"* (2021, 13). Meaning that in the immersion into a VR film, the audiences individual experiences in some ways merge with the 'other' being the virtual body in the film. The viewer remains in a sense disembodied in that they are not allowed to interact with the world, they are just spectators (Ibid). I find this way of viewing immersion in virtual reality helpful as a contrast to what I am trying to do in my field, where the immersion relies on the user's embodiment and agency in the virtual space. While VRChat relies on a level of immersion similar to viewing VR film, it takes a different form where the immersion is not relying on the disappears of the viewers agency, instead it very much depends on the existence of the user's avatar and physical body, where the immersion and embodiment are not only dependent on sight as in Ceuterick and Ingraham case (2021, 19).

4. Understanding VRChat as an actor

In this section I will give a comprehensive introduction to VRChat as a platform and virtual world. I will position VRChat and its different aspects as an actor working together with other actors to create a network wherein virtual interactions become possible. To do this I will give descriptions of how some of VRChats' many systems work and how they allow for social interactions and identity to be displayed. I will do this by looking at avatars, worlds, and other systems put in place by VRChat Inc. that shapes how people meet and socialise in VRChat. Lastly, I will give an ethnographic description of the world in VRChat that I spent most of my time in, a world called *Spirits of the Sea* to situate my field in a certain space in virtual reality to give context to the environment that shaped a lot of my time in VR.

4.1. Avatars

Perhaps one of the most important aspects of VRChat is the avatars. Avatars in VRChat are the form that users take to embody an identity. They take on many different forms depending on who the user wants to put themselves forward as and through which the user embodies and interact with in VRChat. Avatars have a central role in almost every part of VRChat, it is the way people chose to present themselves, it allows for creation of identity that enables the user to be whoever they want to be in the virtual. This identity can both resemble yourself in real life or be an online persona, or it could be a representation of who you want to be. The possibilities of using avatars to create an identity in VRChat are endless. As Gray Graffam puts it,

> *In essence, taking the form of an avatar allows people to interact in new and novel ways to push the boundaries they encounter in real life and to derive a sense of enjoyment and fulfilment in ways that may have denied them in the real world* (Graffam 2012, 132).

Graffam is mirroring my idea of the avatars taking on a role of creating and capturing the identity of the one using it, similar sentiments are also mirrored by Boellstorff (2008) and Montemorano (2020), and others writing about virtual worlds and the use of avatar within them. With Boellstorff seeing that the avatars appearance is an important part in both how the user creates an identity, or selfhood as he calls it, and in how others perceive them (Boellstorff 2008, 129–130). As one of my interlocutors put it when talking about the identity, they have been able to create in VRChat.

I do feel a great deal of gender euphoria from being able to present myself in the gender I identify with and being accepted by most people I talk to has been really helpful to me in my journey so far.

This illustrates that the avatars they use have played an important part in creating their identity in VRChat, and maybe to some extent in real life. Later in the conversation they followed up with,

It feels like it fits my style and colours I like. I also know that certain friends know me via that avatar, so I also feel it's quite important in my virtual identity.

When talking about the specific avatars they use, further collaborating the avatar as an important part of creating identity. While most of the people I got to know during my field used more than one avatar to represent themselves, most had only a few avatars they switched between often, with one that they used the most. Some avatars become so synonymous with a certain person and their identity, that if someone else use that avatar, more often than not, the second person gets called out for using someone else avatar even if it was a public avatar. This was an event that was not all to uncommon to unfold, especially if a new person joined into an existing group with an avatar that someone there already used, showing how important the avatar can be for others to identify an individual. There are many different reasons that someone chose an avatar, and everyone has their own preferences; some chose human avatars, and some chose non-human, some chose small avatars and some normal sized avatars. The reasons for choosing a specific avatar are many as we can see when comparing two of my interlocutors' preferences where one likes to use small avatars, and the other does not. When I asked Paul one of my interlocutors about what kind of avatars he preferred, he told me, *"I really like the small ones I don't know why (…) It gives me a cats eyes view or something like that"*, which also corresponded with the avatars he usually used that almost always were smaller ones. In contrast to this, when I asked Jackson, another of my interlocutors, about his favourite avatars, he told me that he does not like to use shorter avatars since then he need to look up at everyone else, which he does not like to do. Instead, he found a human avatar in a normal height, that also was dressed in a way that he could identify his real-life self with this being a white shirt with a black waistcoat over it, mirroring how he dressed at work in real life.

When first joining VRChat you will be put in a default avatar that is provided by VRChat Inc. This avatar is meant to be a placeholder that later can be changed into a more personal avatar that becomes a part of creating the individual's identity. The default avatar works as a vehicle to start exploring the world of VRChat, although it is for most users not a part of creating their identity in VRChat. When you start exploring VRChat you will through different ways find other avatars created by the community that you can use. Through these avatars you can find your identity in VRChat, be that an anthropomorphised cat, a robot cyclops, a gecko, or as many chose, human avatars. The human avatars often have special themes or aesthetics be it a fictional character coming from an anime[9] or video game, or more unique aesthetics. One of these more unique aesthetics specific to VRChat is what is colloquially referred to as *e-boy/girl* avatars. These avatars have very distinct aesthetics, being an alternative form of fashion incorporating a mix of often anime inspired aesthetics, and fashion styles such as goth and techwear. Although there are a few styles of avatars that take up a majority of all avatars, there is still so many unique avatars that in a myriad of ways allows for creation of identity.

I see avatars as their own entities with their own agencies in some ways disconnected from the person behind them, but also at the same time heavily intertwined with them. In this sense if we look at VRChat through an ANT perspective, we can see that the avatars become a central actor in the network of actors both human and non-human in VRChat. Taking the form of a non-human actor that then becomes a human actor through the embodiment taking place when the user embodies the avatar. The avatar both is an actor of its own right in the network as a material object, and as a part of the human actor that embodies the avatar, creating a complex interaction and entanglement of the actors involved in the network.

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[9] Anime refers to style of Japanese animated film and television.

Figure 3. An example of the multitude of different avatar used

Figure 4. Me and a group of interlocutors all using the same small avatar

Figure 5. Me and a group of interlocutors using avatars themed after our nationalities

4.2. World and Instances

A world is one of the many rooms that VRChat consists of, they are almost always created by users of VRChat, and they take many forms, from apartments, to space stations, to a tree house surrounded by the ocean, and almost any place you and the creators of the well over 25 000[10] worlds can imagine. An instance is a copy of a world and at any given time, there is multiple instances of any popular world open, both public instances that anyone can join and private ones that only certain people can join. One instance of a world usually allows for only a certain number of people joining it with the limit often being between 20-40 people. The instances are based on four different server regions, being Europe, Asia, US east-coast and west-coast, giving you the best performance if you join an instance in your server region. The server region also in some way dictates who you will meet with a majority of people active on for example an EU server being from Europe. When you want to go to a certain world there is multiple ways to do so. The most basic way of going to a new world is in the menus of VRChat, opening the Worlds menu where you will be presented with a host of different worlds to join. Sorted by different categories such as 'hot', 'new', 'recent' and 'favourites' worlds. The other main ways to join a specific world is through either joining a friend that is already in an instance of that world or

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[10] This is the number of worlds that VRChat Inc gives on their website https://hello.vrchat.com/ at the moment of writing in May 2022. Although the number is probably higher since this information have not been updated since early winter of 2021.

through a portal leading to a new world. You do this by opening your friend menu, selecting a friend, and then choosing to join the world they are in. When you find a world of your liking from the worlds menu you get presented with a few options; either joining a public instance of it with other unknown people, or you can create your own instance. When creating your own instance, you are prompted with a few options of privacy settings from it being a public instance that whoever can join, to being a Friends+, which means that only friends and their friends can join, or it being truly private with only people you invite being able to join. Even though there is a difference in the definition of a world and instance, they are used interchangeably when talking in VRChat. Worlds, like avatars, also gain a degree of agency and thus also becomes an actor in the field. The worlds become a part of creating the space the other actors move in, connecting users with each other and allowing the different parts of the network to interact with each other. The worlds become a part of the network of actors that work on and in VRChat, creating spaces as a part of the network allowing for other actors to have agency and interact with each other. Law situates the space of the field as a part of the 'sensibilities' that create the field. As Law states,

> *He became part of a world of practices: the heat, the landscape, the temporalities, the authority of a boss, the techniques and technologies, the actions of salmon, the friendships with co-workers. Fieldwork was a sensibility (Law et al. 2013, 489).*

In the same way the avatars and worlds in VRChat becomes the same kind of parts in the network surrounding them in VR.
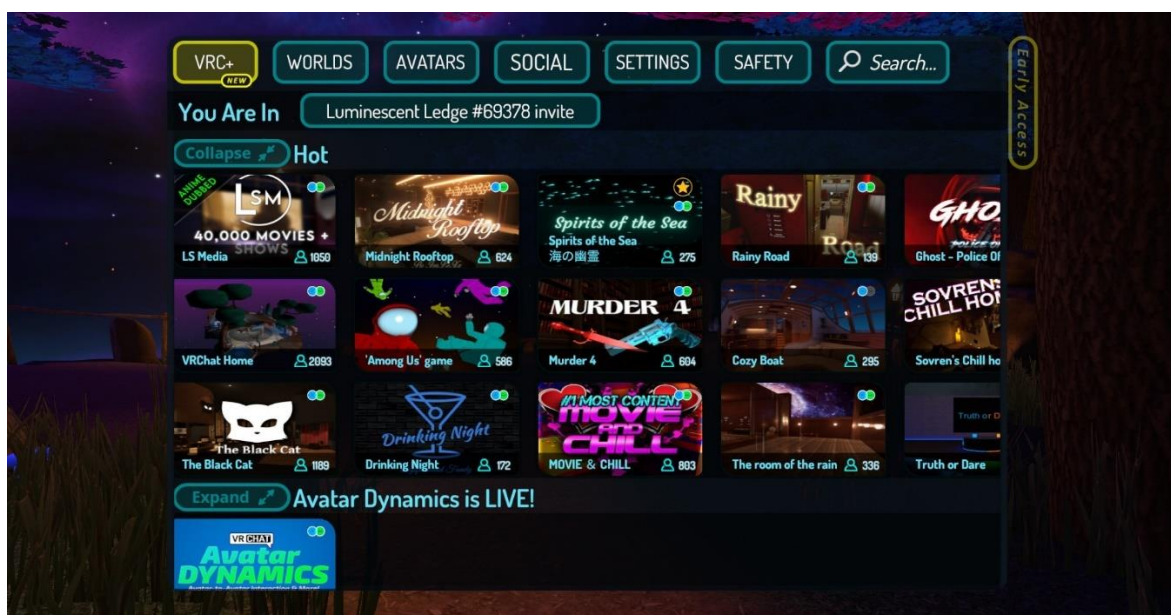

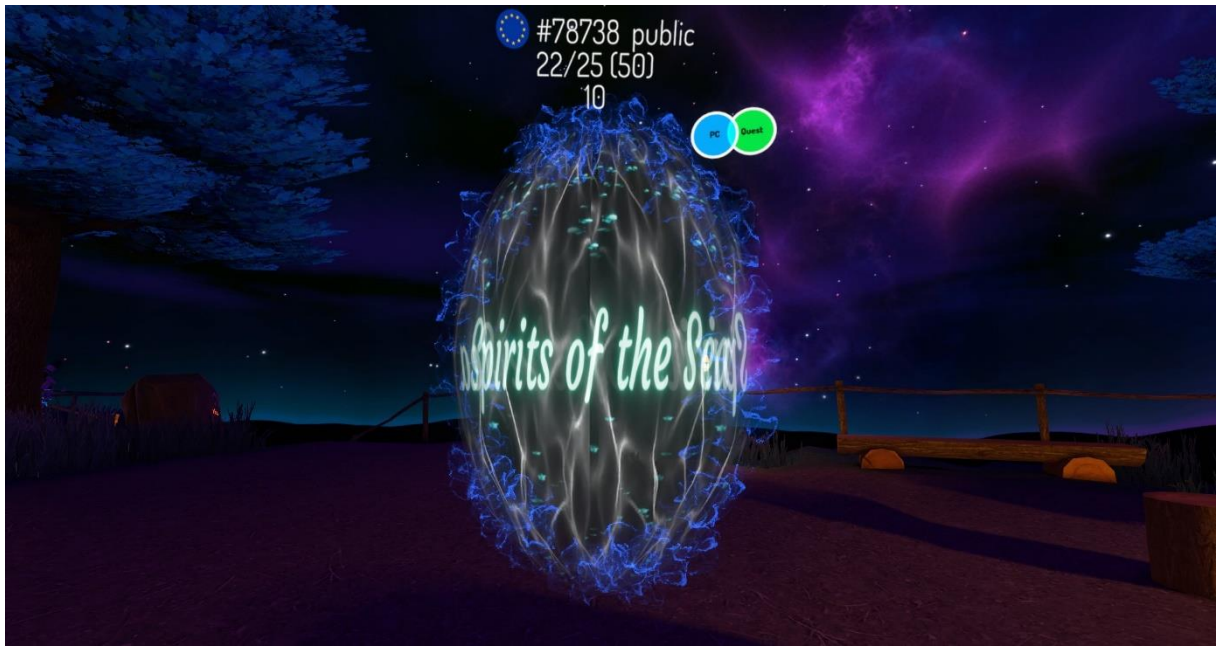**Figure 6.** Worlds menu from where you can choose a world to go to

Figure 7. Portal to a world

4.3. Pens and other forms of Non-verbal communication

In many, but not all, worlds you will find pens that can be used to write and draw with in the three-dimensional space of the world in a way that would not be possible in real life. These pens hold an important place in VRChat, since they enable a large group of non-verbal users to communicate freely with everyone else. This is a group of people often colloquially called *mutes. Mutes* are a group of users in VRChat that for different reasons do not verbally communicate, thereby always staying muted, hence the name *mutes*. Instead, they use other methods to communicate such as gesticulating and using a simplified version of sign language, although most often when available, using pens in the world to write. Theses pens that are a common feature in many worlds, allows for a new form of communication in VR, through text that can be written anywhere in the space of a world; hanging mid-air, on a wall etc, unrestricted of proper surfaces to write on. Pens are mostly used for communication, but they are also to great effect used for making art and doodles, using the virtual pens on virtual canvases. Through these different methods mutes can communicate even though they do not speak, allowing for creation of a non-verbal identity in VRChat, building on other forms of communication and other actors than users communicating verbally. Another important aspect of embodiment and non-verbal communication in VRChat is that the platform allows for body language and gestures to be translated into the virtual realm in a way that was not possible before the rise of virtual reality, with gestures and other bodily expressions being translated into virtual worlds

through the tracking of controllers and the headset. While gestures and customisable animations have been present in virtual worlds for a long time, see for example in Second Life (Boellstorff 2008, 130, 132), virtual reality, and the technology behind it, allows for a whole new level of body language to be present. The presence of more lifelike expressions and body language allow for a host of new possibilities of communication and self-expression. The most important uses of body language in VRChat I would argue comes from *mutes* since they use body language much more actively than any other group I have observed. As mentioned above pens are an important tool to communicate via for mutes, since the pens allow mutes to communicate and write out what they want to say, although sometimes a world do not have pens, or what is possible to convey through pens is not enough. Then body language and gestures come in and fill the gap in communication. A common example of how body language is used, in conjunction with writing, is when someone writing puts one hand up to their chin in a way that symbolise that they are thinking about what to write next. The gesture of putting up a hand to their chin when thinking, is an embodied gesture of communicating an intent that I many times have witnessed amongst my interlocutors as a way for them to say wait a moment while I think about what to write. These kinds of gestures often become exaggerated due to the limited capability of other complimentary ways of communication, such as facial expressions in VRChat. Instead, exaggeration of body language is used to make up for the lack of other expressions to get points across through the limitations at hand. Other ways to show emotions or intent through body language is also often used. One that my interlocutors used at multiple occasions is running around with your arms in the air, in a way mimicking how perhaps a young child would show excitement, not being able to stand still and expressing a lot of positive energy. Other everyday uses of gestures to communicate is for example pointing and waving to get people's attention. It could be to a specific point in the world, or to a certain object or option in the world for example a button to enable pens so you can see what is written. I believe the capabilities of body language that VRChat brings is unique to VRChat and presumably other VR based virtual worlds, adding a new layer of communication that does not exist in classic virtual worlds such as Second life. Giving an experience of body language much closer to what we could expect in real life, allowing for possibilities of expression far beyond verbal and text-based communication in virtual spaces.
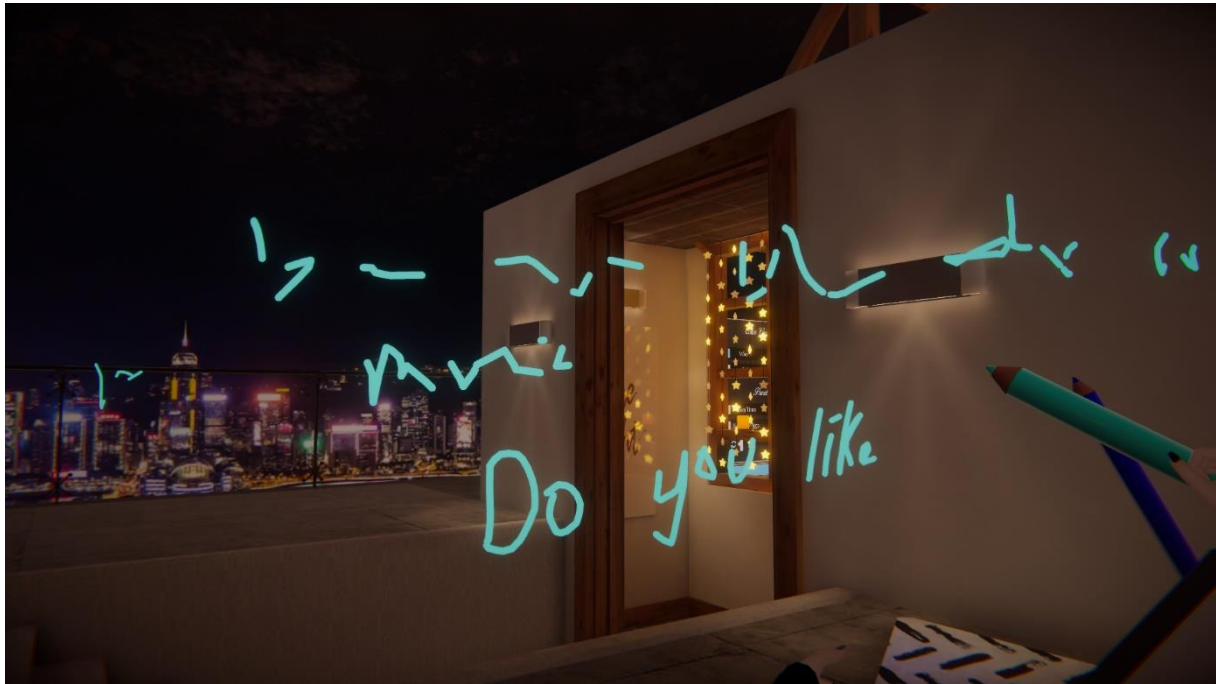
Figure 8. Rests of a conversation left behind for others to interpret

4.4. A visit to Spirit of the Sea

Spirit of the Sea is one of the many worlds I have visited during my time in VRChat, but in contrast to most worlds, that I for the most time only been to a handful of times, I have spent hour upon hours in *Spirit of the Sea*. Making it the most important world for my entire fieldwork. I have not only done a majority of my observations in *Spirit of the Sea,* I also met most of my interlocutors through hanging out in this world. *Spirit of the Sea* is a world in form of a fictional apartment with huge windows out towards an ocean surrounded by space. The world is divided in to four and a half floors with the top half being above the water line and the two bottom floors being underwater. On the top floors the sky is not your normal sky, instead its space with stars and a huge moon floating in the middle. Although what really makes the world special and gives it its name is the spirit forms of sea creatures 'swimming' around in the space outside the room. A glowing whale swims past the window and a bit later a mantis ray passes by. The atmosphere created by what is going on outside the windows is calming and that is reflected in the design of the rest of the space.

Beginning with the area where you arrive when entering the world. You are on the ground floor of the building, just above the water line, looking out through large windows reaching from roof to floor. To your right is a bed in front of a mirror that people often gather in front of. You will also see a collection of pens easily accessible for those that want to use them to either draw

or write in the world. To the left is a couch area with a video screen on the wall allowing for watching YouTube videos while in VRChat. There are stairs going both up and down. If we take the stairs going up, we now find ourselves on a balcony overlooking the ground floor. There are more seating areas and mirrors, and at the opposite end of the floor from the stairs there is a ladder up to a small comfy loft with a mirror. Taking the stairs down two floors, we now find ourselves on the first floor under the water line, looking out through the windows we now, instead of seeing space and water surface, we see murky greenish water, still with the sea creatures swimming around. Turning to the right of the stairs leading down we find an area with seats and tables and a small kitchen where you can find different props of food that you can picked up. At the back of the room there is a stage area with a working piano that can be used to actually play music on, and to the left of the stage there is a small alcove set in the wall filled with pillows and cushions to sit on. Going down to the bottom floor you find another pillow filled alcove, only this time it protrudes out into the ocean outside, this is where the events in the start of this thesis take place. The bottom floor is the biggest floor, with a big open room going from a normal room to a cave towards the back of space. At the back of the cave area there is two smaller caves, one with a huge model of a crab residing in it, and one with a bed and mirrors. I hope that this description of the world *Spirit of the Sea* have helped to understand the virtual space I have spent a vast majority of my time in field in, giving a context to the different ethnographic vignettes and descriptions that will follow. The layout of *Spirit of the Sea* has changed a few times both during my field and after it, so the form the world take is constantly changing as its creator updates it, adding new things and taking away old stuff. The description above should be seen as a snapshot in time of how the world looked during a majority of my field, some details have been changed as a result of different versions of the world, being affected by changes to the layout of the space, brought by different updates to the world made during the timeframe of my fieldwork.

When joining a populated instance of *Spirit of the Sea,* you will find people spread out through the whole world, especially if it is an almost full instance. On the third floor where you join in, one or two groups are usually gathered either in front of the mirror or at the couch with the screen. Usually, you are met with drawings and doodles floating around in the air, this is especially prominent in the area around where you join in, since it is where the pens are at. You will also often be met by remnants of conversations with disjointed sentences and words floating around without any context to what the conversation that at some point happened was about. Dispersed out through the rest of the floors you will find groups of people standing

around talking or in other ways engaging in activities, be it playing simple games such as connect four, or playing pool at a virtual pool table. Often groups gather around where mirrors are placed in the world. Although sometimes groups gather independent of the mirrors, and in so often occupying the in-between spaces of the map, be it a walk away from one part of the map to another, or just a part of a room without a mirror. The bottom floor is usually the emptiest with most people staying somewhere along the way down there. This leads it to be a good place for people to hide away for a bit, getting some personal space or to have a one-on-one conversation.

I very early on formed a special bond to *Spirit of the Sea* and the people frequenting it, realising that a way for me to meet people to get to know and form bonds with them would be to regularly hang out in *Spirit of the Sea*. I would frequent the same space most nights in the beginning of my fieldwork and in, so I began to recognise names and avatars, and it also positioned me as a more constant presence in *Spirit of the Sea* making others recognise me as an actor in the world. Over a week or so I slowly got to know some people there by repeatedly talking with them, and after a while befriending them through VRChat's friend system so that we easier could connect and join each other when we were online. Through being a presence in public *Spirit of the Sea* instances I through a snowball effect came in to contact with most people that later would become my main group of interlocutors and friends. In spending time in *Spirit of the Sea*, I became one of many actors interacting in the network where the world and the virtual objects in the world also took important roles of having agency. I see the human actors behind the avatars moving in and out of worlds such as *Spirit of the Sea* in VRChat as only one part of the network of actors interacting in the network in VRChat. The worlds and the virtual material, or should I say immaterial objects, take on as important roles when studying the interplay between the different actors. The worlds as actors allows for different kinds of interactions depending on the purpose and content of them. The objects in the worlds such as pens, and other props allow for new interactions and aspects of the worlds, such as mirrors changing how people gather in the world with people tending to locate themselves in front of them. Every actor in the virtual realm allows for different forms of interplay and interactions in ways unique to the virtual space of VRChat.

In the end, the reasons that I chose to focus my time in VRChat on being in just this one world are a few, but the main ones are that it was where the actors I was interested in tended to gather. It was where my interlocutors most often gathered, and because of that I also was there. The

other big reason was that I realised that some worlds were simply better suited for meeting people and having meaningful conversations in, and Spirits of the Sea happened to be one of them. It had an active user base with a few hundred people in instances of the world at most times. And at the same time, it was not amongst the most popular worlds, which means that most people there often were amongst a group of a bit more dedicated and serious players, for lack of a better description, that where there with the intent to meet people and have meaningful interactions, not just being there to joke around which many users in the most popular worlds seem to be. The interactions between different actors with different agencies that connected in *Spirit of the Sea* captivated me and lead to me observing many interesting happenings and phenomena unique to VRChat that I now will discuss in upcoming chapters.

Figure 9. The ground floor of *Spirit of the Sea* where you enter when you join the world

Figure 10. The bottom floor of *Spirit of the Sea*

Figure 11. The loft above the top floor of *Spirit of the Sea*

Figure 12. Some of the spectral sea creatures swimming around outside *Spirit of the Sea*

5. Mirrors and creation of Identity

It was somewhere between 7-8 PM a night early on in my field, I had just booted up my VR-headset and I was logging on to VRChat for the night with the intention to find some interesting people to talk with. This was before I had found the group of people that later became my main group of interlocutors, so I did not have a particular person in mind that I wanted to join. Instead, I spent most nights drifting around different worlds, searching for interesting people and this night was no different. I decided that the best approach for the night was to start joining worlds at random to see if I could meet some interesting people. I started by joining an instance of *The Black Cat*, one of the most popular worlds in VRChat at the time. When I joined the instance, I immediately noticed a few groups of people all standing in front of a few different mirrors spread around the world. There were three or four groups, all consisting of a few persons sitting and standing in front of mirror. They all to some degree seemed to know each other within the groups, since they are all where already deep in their own internal discussions. Since I did not see any openings for me to join in with one of the groups, I decided to move on to another instance of the same world. Once again, I am met by the same thing once again, different, close-knit groups in front of mirrors. So, I decided that maybe this world was just not good for meeting the people I wanted to meet and decided to change to another world by the name *The room of the rain*. This world was much smaller and only had one mirror, although that did not stop all the people in this world to be gathered in front of it. At this point I started to become a bit frustrated by repeatedly running in to the same behaviour and not being able to find a group in which I could sneak into the conversation with. At the time I did not understand why everyone was just standing in front of mirrors, even if I knew about the phenomenon before joining VRChat myself. I have later come to have a better understanding of why people take part in this behaviour and the significance of it, which is the main topic I will discuss in this chapter.

5.1. Mirrors

Mirrors have an integral place in VRChat where they are so common that it is seldom you join a world that do not have any mirrors in it. With worlds such as *Spirit of the Sea* having about ten mirrors scattered around the world. The mirrors come in many forms and functionalities, and a few things are almost always true about them. The first thing is that they need to be toggled on with a button somewhere in the world, they are thus not always there, and it is a conscious action to enable them. The second thing that is almost always true about the mirrors is that they often have a few modes where they either only reflect avatars and not the

environment, defying how a real-life mirror works, or it is a full mirror reflecting everything in the background including the environment as a mirror in the real world would do. And finally, as exemplified above, people tend to often gather in front of the mirrors, standing or sitting in front of them in groups of varying size. The first two points are connected to performance, with mirrors being recourse heavy and stealing a lot of performance when using less powerful hardware. Having the mirrors turned off by default and having the option of different modes allows all users to have the best performance they can, regardless of their VR set-up. The third point though is what piqued my interest, prompting me to look deeper into the phenomenon of gathering in front of mirrors. With the question being why users in VRChat seemingly are so obsessed with gathering in front of mirrors?

When entering a public world in VRChat you can almost for certain find a group of people sitting and standing in front of a mirror if the world has one. This is such a common phenomenon that people that spend their time just standing in front of mirrors have gotten their own emic name amongst VRChat users. They are called *mirror dwellers*, implying that the only thing they do while in VRChat is standing in front of mirrors all day talking. While I was aware of this kind of behaviour before I for the first time went into VRChat and was expecting to see it sometimes, I was not prepared for how common of a phenomenon it was and that I would also take part in the activity of mirror dwelling to the extent I did. The phenomenon is common in almost all settings in VRChat, in both public and private worlds. Although I would say it is a more common occurrence in well populated public worlds, where different smaller groups gather in front of mirrors to talk within just that group. Mirror dwelling takes many forms depending on the context and setting its practised in. I will in this chapter delve into the different reasons to this behaviour and the possible reasons behind it such as mimicry and identity creation.

Figure 13. Me and a group of interlocutors' *mirror dwelling*

Although as with most phenomena not everyone actively takes part in the activity of mirror dwelling, I still would argue that no one that have spent more than a few hours in VRChat can have missed mirror dwelling taking place. And most likely they have at some point and to some degree taken part in the act of standing in front of a mirror themselves. I have many times witnessed especially new players being confused by why people are gathering in front of mirrors so much, and I was asking myself the same question in the beginning of my time in VRChat leading to me now asking it again. Although I was familiar with the phenomenon of mirror dwelling before I started exploring VRChat myself, having seen people taking part in the behaviour in YouTube videos and Twitch streams I had watched in preparation for my field work. This led me to question the behaviour in search for an answer, instead of being confused as many other new users in VRChat that I witnessed were.

We can see that people in VRChat likes to gather in front of mirrors to talk and socialise but what meaning can be draw from them doing so? One popular explanation when asking people in VRChat about why they believe it so common to gather in front of mirrors, is that it is easier to see all the people around and behind you. Paul put this into words,

> *Maybe because of a sense that you can see what's behind you, since you lose some of your senses while being in VR like you have your headset, you don't really want to be surprised by anything coming behind you. Maybe it is more instinctive, or it just helps concentrate like seeing yourself*

seeing what you are in the space being more aware of yourself and your surroundings, (...) maybe it also helps seeing that you are not doing anything derpy or something like that with your character.

The mirrors are used to create spatial awareness which otherwise can be hard to get due to the limitations of VR technology. The mirrors are used as a solution to not being able to get a proper view of your surroundings and the people you are talking with, since in virtual reality what you can see is limited by what is called 'Field of View' or FoV. Field of view is how wide of an area you can see around you. Imagine that on a horizontal level around your head you have a circle divided in to 360 segments or degrees. You can only see a certain part of this circle when looking straight forward and this is the FoV of your eyes. A human can see about 200-220° without turning their head when including the peripheral view. This allows us to still be aware of someone standing right next to us since we can see them out of the corner of the eye. In virtual reality this is not true since the headset's displays limits the FoV a lot. Most commercial headsets have a FoV somewhere between 89-108° which makes it so that you will not see someone standing next to you without turning your head.

5.2. Mimicry

While this explanation of wanting to see more of the room behind you, is straight forward and give an easy answer to the question of why people gather in front of mirrors, I see it as only one part of the explanation that I will return to later. Instead, I want to focus on the less obvious explanation, namely that it can be seen as a form of mimicking behaviour. When someone is standing in front of a mirror, they can see their whole body and avatar in a way that they otherwise would not be able to do from just the view port of their VR-headsets which only gives you limited vision. It gives you a clearer picture of what your avatar is doing, how you move and what facial expressions you are showing through the different combinations of how you are holding your controllers or which button is pressed. I see that a form of mimicry takes place where you mimic yourself through the mirror to create an identity with your avatar. By gathering in front of mirrors, seeing your own avatar, and the avatars around you are able to create a stronger identity to the specific avatars that you use in that moment. Through seeing the avatar as a reflection in a mirror, the user is able to connect its real-life movements to the avatar's movement, and in doing so creating an identity connected to the avatar they embody. Just the reflection of the user's avatar in the mirror is in itself not a form of mimicry instead the mimicry appears when the user moves and the reflection mirrors or mimic that movement. The

mimicry takes place between the user behind the avatar and the reflection in a mirror as a separate actor, the other. So, by a form of mimicry where the avatar in the mirror mimics the individual behind its movement in real life, it creates a stronger bond to the virtual and to an identity through the avatar used. I see this as Taussig's exemplifies in *Mimesis and Alterity* (1993)*,* in which he explores forms of mimicry that took place between European explorers and colonisers, and the Fuegians people in nowadays Panama in the early 19th century. Where mimicry between the two groups the Fuegians and the European sailors take a multi-layered form. Where Fuegians mimic the European sailors, that then in turn mimicked the Fuegians, that then mimicked the sailors mimicking them, creating multiple levels or layers of mimicry, mimicry within mimicry (Taussig 1993, 74–75). Creating a question of who is mirroring who; is the sailors mimicking the Fuegians or vice versa? Layers of mimicking are created between the two parties both mimicking the other. In VRChat the mimicry does not take place between two easily distinguished actors such as the European sailors and the Fuegians, instead it takes place between the user and the reflection of their avatar in mirrors. Creating what I see as a form of self-mimicry wherein identity is created by mimicry of yourself and the avatar you chose to embody through the mirrors. Through seeing and mimicking one's own avatar and movement through mirrors, a bridge is built between the other, the avatar, and one's own movement, allowing for an identity to be created with help of the avatar. The behaviour of standing in front of mirrors is not just to get a better view of the surroundings it also is a tool to create an identity through mimicking one self's avatar through the mirror.

The groups gathering in front of the mirrors vary in size and composition, although in the end there is a common trait between groups that can be traced from situation to situation. Often at the centre of the groups there is two or more people that are in much closer proximity of each other than the rest of the group. Often positioned in a way so it looks like they are sitting in each other's laps, with arms around each other's avatars or otherwise close position to each other. Around them a few other individuals often gathers scattered around but still part of the group. So, the groups of *mirror dwellers* often at their core consist of a few individuals that are sitting closely together, and then around them, depending on the size of the group, there often is a few others standing in front of the mirror taking part in the conversation just not in the intimacy of sitting close together. And although the group formation described above in my observations is the most common, it is of course not the only type of mirror dwelling group. Often, it is also just a loosely formed group standing and moving in front of the mirror whilst talking amongst themselves. Still clearly forming a group in front of the mirror just without the

intimacy of the other type of group. The point being is that people tend to often gather in front of mirrors. It is not only groups of people standing in front of mirrors, people are often also standing alone in front of mirrors looking at their avatars.

When someone is standing alone in front of a mirror, it can be seen as an even stronger and more active form of creating an identity, since they generally only have their own avatar to look at, and they often seem to be doing just that. They are inspecting their avatar and its movement through the mirror, moving their arms around to see how the avatar mirrors the movement in the mirror and testing out the different emotes the avatar have such as dances and other animated gestures. Seeing what facial expressions, the avatar has and checking out the different customisable options on the avatar. Such as for example a scarf that you can remove or different pieces of clothing and accessories that can be removed or added to the avatar. And many other options for making the avatar more personal to your liking, through the customisation of the avatar creating an identity that fits you. When someone is standing alone in front of a mirror, they often are clearly looking at their avatar figuring out how to customise it, seeing facial expression moving, and seeing how the avatar respond to the movement. All these steps are in some ways taken to identify with the avatar, creating an identity through it. One of the explanations to this creation of identity through mirrors can be found in Lacan's theory about 'the Mirror stage'. Lacan's mirror stage is a model for how children at a young age at some point develops cognitively to recognise themselves in mirrors, and in so creates a 'Me'. Where they through the reflection of themselves can recognise themselves as having an identity for the first time (Sigler et al. 2019, 2–3). In the mirror stage Lacan see the recognition of oneself in the mirror as an act or event and not as an ongoing process, which in a way go against how I see the phenomenon of creating an identity by continuing to gather in front of mirrors in VRChat even after the initial association of identity with a specific avatar. Where I see it as a continuous process where identity never stop being created through the recognition of one's avatar in a mirror and the mimicry taking place when doing so. This notion of it being an ongoing process of identity creation is something Lacan himself later also recognised in his 'Seminar X', where he went back on some of what he said in the mirror stage. Changing it from a temporal stage set in time, to a more theatrical stage in spatial sense (Sigler et al. 2019, 7). Thus, the recognition of oneself in a mirror is no longer bound by a moment in time, instead it can be recreated in different spatial settings. From this we can see that the behaviour in VRChat to sit in front of mirrors in a sense is a reproduction of a moment over and over again, where the user connects an identity to their avatar and persona in VR through mimesis of oneself.

There are many reasons for someone to stand alone in front of a mirror, although most of them in the end in one way or other loops back to the concept of creating an identity in VRChat through mimesis of the avatar in the mirror. Through embodying the avatar, the user has chosen, and seeing the movement of the avatar corresponding and mimicking one's movement in real life a strong connection and identity can be created through it. Whenever people gather in front of mirrors for whatever reason, be it to inspect one's avatar, or just to talk and at the same time be able to see everyone around you, forms of mimicry are taking place and a process of creating an identity through embodying an avatar is reproduced to some extent. Since the movement in VRChat and virtual reality in general is so connected to the movement in real life this sense of identity creation through embodiment becomes even stronger. Since when you move your arms and body in the real physical world that movement gets translated to your avatar through tracking of the hand controllers and headset. When you move your arm the avatars arm move and when you turn your head the avatars head turn, and so on, mimicking the movement in real life to the virtual world and the avatar. This movement is almost a complete one-to-one translation from real life to virtual reality as long as you use an avatar with similar proportions to a human being. This one-to-one translation of movement that can help with embodiment, only becomes true as long as the avatar is relatively humanoid in shape with arms and legs in similar proportions to a human. An example of this is if the avatar has shorter arms than a normal human being, the translation of movement from real life to VRChat will be of with the user's real life hand position not corresponding with that of the avatars. Your real-life movement will not be as accurately translated, creating a gap in the immersion and embodiment of the avatar. So then by seeing your avatars movement in a mirror and seeing it mimic the movement of your actual body, it can become easier to identify with and embody an avatar that is not humanoid or that have interesting proportions. Instead of how Taussig see mimicry as a tool to identify with the other, be it the example with the sailors and the Fuegians or other situations where mimicry is used to identify with otherness, mimicry here is something done with oneself to create a stronger identity and embodiment through an avatar. The reason behind the behaviour of gathering in front of mirrors have many explanations, although in the end it seems to boil down to being able to create an identity by seeing your avatars reflection. To conclude this chapter, I would like to leave you with the remarks of one of my interlocutors,

> My conclusion is that I think that they just like to watch their avatar moving cause this is like you
> see it smiling and you see what you are doing and it gives you kind of like identity.

6. Phantom sense and forms of embodiment

In VRChat many forms of embodiment take place, from the embodiment of avatars, to more elusive forms of embodied experiences, such as the phenomenon of phantom sense. In this chapter I will discuss the workings of phantom sense and its connections to immersion. I will also look at how head pats have become a part of both embodied practises in VRChat, and in embodiment of certain avatars.

6.1. Phantom sense

One of the many interesting phenomena that I became acquainted with in VRChat is called 'phantom sense'. Phantom sense is an elusive phenomenon to try and describe since it is experienced in many ways by different users in VRChat. Although at its core it is the sensation of touch on your physical body in real life when someone interacts with your avatar in VRChat. For example, one of the most common forms experienced seem to be some form of feeling of touch on your head when someone interacts with the head of your avatar, for example by giving a head pat. The phenomenon of phantom sense can be juxtaposed to the real-world phenomenon of phantom limbs and phantom pain experienced by many people that either have been born without a limb or that have lost one. Whereby they experience a sensation of the limb still being there in different ways, often related to pain in the missing limb (Ramachandran et al. 2005). I see that phantom sense in VRChat and phantom limbs in real life could have some commonalities with similar experiences being found in both phenomena. With the main similarity being the feeling of something not there, and although phantom limbs can be explained by neuroscience, and phantom sense have a different origin that I will explore here, I see phantom limbs as a good tool to view phantom sense through. Since both phenomena is dealing with the relation of a physical feeling of something not there, be it the feeling of a missing limb or the feeling of physical touch or presence in virtual reality.

To try and understand the phenomena that is phantom sense I implore you to imagine that you are sitting in a room completely alone, there is no one else in the room with you in the real world. Although you are not at all alone since you are in VR, where you are surrounded by people using different avatars, talking, and interacting with each other and you. Suddenly, prompted by something in the conversation, one of the other people there decides to give you a head pat. Maybe it is because you are feeling down and they are trying to cheer you up, or maybe they just want to show some form of affection towards you; the context does not matter

in this thought experiment. Even though you subconsciously know that you are alone, and that you are not getting a physical head pat, it is just your avatar getting it, you still get a feeling of the person in VR touching your head in real life. The feeling of touch in VR can take many forms, from just a small tingling sensation to full on actual touch even though nothing is there physically. Even though no physical interactions are taking place in VRChat, a lot, but not all, users experience some form of phantom sense. What captured my interest in phantom sense is the uniqueness of the phenomena in the field it's situated in. The online field of virtual worlds have to my knowledge no comparable phenomena to phantom sense, making it unique to VR, but what the field of virtual world do deal with is immersion, and I see that phantom sense is most likely caused by experiences of immersion in VR. Immersion is central to virtual reality since the whole virtual reality experience in some way relies on immersion into a different world, be it a 360° movie, or a game, or in the case of VRChat a virtual world. All these types of VR experiences rely on the person experiencing it to a certain degree allowing themselves to be immersed into a new virtual world, ignoring reality for a moment, living in the virtual through the headset for a short while. The idea of completely disappearing into the Virtual world is not a new concept, depiction of virtual reality has been around in popular media long before it became a commercial product that could be found in everyday consumers homes, with books and movies such as *Neuromancer* (1984), *The Matrix* (1999) and a bit more recently *Ready Player One* (2015). In these depictions of virtual reality, the immersion is often described as taking over all senses completely immersing the user, taking over all perceptions and disembodying the user from reality. While we are not there yet in reality, strong experiences of immersion can still be experienced in virtual realities such as VRChat.

When I for the first time entered VRChat to start of my field work, I was already familiar with phantom sense on a conceptual level, having read and seen about it online in relation to VRChat. Although I had a conceptual understanding of phantom sense, I did not really understand what it was at its core, and to what degrees that it can be experienced in. I thought mainly that it would be something only a few people experienced in a limited sense. Maybe at most getting a small sensation related to the one of touch when someone touches their avatar, only a smaller embodied experience, not something able of potentially giving visceral reactions of discomfort. To understand the embodied experiences my interlocutors had with phantom sense, I used embodied methods drawing from Stoller (1997) and Csordas (1990). Both Stoller and Csordas propose that the researcher use their own senses to understand different embodied sensuous experiences in the field (Stoller 1997, 22; Csordas 1990, 36). Through using my own experience

of phantom sense, I have been able to make sense of and put into words how my interlocutors experience phantom sense. Without myself having experienced phantom sense it would have been much harder to understand what my interlocutors talked about when they for example proclaimed to feel a sense of touch when getting a head pat. Since I early on in my field experienced phantom sense myself, although in a limited capacity only connected to touch on my head, I was able translate the slight tingling experience I got from someone touching my head to how other experience touch. Even though I to begin with only had a limited understanding of what phantom sense entails from my own experience with it, and from what I had heard about it beforehand, I would witness an event that completely changed my understanding of phantom sense. This was an event that for the first time I really made me understand how differently phantom sense is experienced from person to person.

I had recently joined in on a group of friends in a friends+ world, so there were some people in the world that I had never met before. We were in one of VRChats game worlds[11], most people present was playing the game, while a few stayed in the lobby of the world talking between the rounds. When you died in the game you would also be sent back to the lobby while wating for the round to finish, this will be important to the events that would soon unfold. We played a few rounds of the game, returning to the lobby in-between round, chatting and all in all having a pleasant time, getting to know each other, talking with both new and old people. For a while everything seemed okay, then suddenly when returning to the lobby after dying early in a round, the people returning to the lobby was met with a young woman that was even through the limited capabilities of expression in VRChat being visible distraught by something. At first, we did not to a full extent understand what had happened to her, with most of us standing around awkwardly wondering what had happened, while the young woman was being comforted by one of here closer friends present at the time. After a bit we could gather that her personal boundaries had been broken by someone else that had been there, with that person having touched her avatar in an inappropriate way, being too hands-on and close. Although we could see how distraught she was, most people present did not seem to understand how she could have this visceral of a reaction from what had happened, not understanding how real the situation had been to her. A bit later the same evening, when things had calmed down and returned to a more normal state, someone asked the woman what had happen to understand and

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[11] Although VRChat for the most part is a social platform where people hang out and talk, it also has a number of popular game worlds where different game activities can take place.

be able to make sure it would not happen again. She told us that someone had touched her avatar in what could be considered a more intimate place, and then proceeded to tell us about how she experiences intense phantom sense that is much stronger than what most people tend to experience. She experiences the normal things connected to phantom sense such as feeling of physical touch, but instead of only having a small reminiscence of touch on the head and arms as most people would have, she has an intense feeling of physical touch on the entire body as long as she can see herself being touched. Meaning that as long as she can see the interaction of her avatar being touched, she experiences a sensation of touch on her real-life body corresponding to that of the virtual touch. Although that is not where her experience of phantom sense ended, she also could feel other sensation such as heat and cold, illustrating this with an example that when she touched a metal surface with her avatar in VRChat, she would feel a sensation of it being cold in real life and vice versa with a hot surface. We here see a situation taking place because of phantom sense that for most users would not have been as severe, but because of difference in intensity of experiencing phantom sense it became a very real experience of discomfort. Where others in this situation would most likely still have felt some discomfort, but most would not have experienced it on the level she did.

This whole experience made me completely change my outlook on phantom sense from believing it mostly was a phenomenon that some experienced in limited quantities, to instead being something that can be experienced in many ways and forms with different intensity. With some people having no experience of phantom senses and on the other end of the spectrum the extreme of having phantom sense almost replicating how the senses work in real life, with feeling touch and other sensuous experiences such as warmth and cold. Although most of my interlocutors only experienced minor phantom sense or nothing at all. This can be illustrated by Eva who put it like this when during an interview being asked about phantom sense,

> *Phantom sense would also be something that kinda makes you feel a bit immersed, for me while I'm not really sure I have it, I do have a feeling of presence when I'm close to someone which is something I've never felt in a video game. I think obviously the headset as well really helps as your field of view can only see the game. Which I have generally played on a small pc monitor since getting my pc so it was a huge boost.*

Or as another of my interlocutors, Eric, answer when I asked the same question to him,

No, I would not say that I have it, but then I still search for something as I try to still touch people (pointing to his head implying that he means giving head pats) sometimes to get some kind of feeling. But I think I get like nothing there.

From conversing with people in VRChat both in more formal interview situations and informal talks, I started to see that there seems to be a connection between the experience of phantom sense and the concept of immersion. As we can see, Eva touches upon this by connecting immersion with experiences of phantom sense, or lack of it. Showing that phantom sense is connected to immersion, which in turn led me to theorise why people seem to have such different experiences with phantom sense. Eva in her quote also acknowledges that the VR-headset probably plays a role in how people experience phantom sense, giving the headset a new form of agency in the network, where it becomes one of the actors that allow for immersion and phantom sense to take place in VRChat. We can through the examples above see that many forms and intensities of phantom sense occur amongst users in VRChat, from those that do not feel anything at all, to those that have a lot of embodied experiences with it. This leading me to wonder why people have so different embodied experiences with it. How come some of my interlocutors proclaimed that they do not feel anything, and others have almost life like experiences, as if everything happening in VRChat was happening to them in real life.

Just as I do, Eva also draws a line between phantom sense and the concept of immersion. Immersion can be defined in many ways, although one that rings true in the context of looking at virtual reality is Janet Murrays definition put forward by Ceuterick & Ingraham. Going as follow *"the sensation of being surrounded by a completely other reality ... that takes over all of our attention, our whole perceptual apparatus"* (Ceuterick et al. 2021, 10), indicating that in VR immersion is an experience where all senses are completely transferred into a different reality. When Ceuterick & Ingraham studying the concept of immersion in virtual reality, they did so by looking at a VR 360° movie by the name *Traveling While Black,* where the viewer of the movie gets put in the shoes of a character in the film. The viewer have no agency to interact with the world around them or make choices for the person of which view they see the world around them from. This creates a paradox in the concept of immersion where the viewers body disappears since they have no agency over the body they inherit in the movie. Placing the viewer in a precarious situation where the world around them feels real and allows for immersion, while the lack of agency within this world also risk breaking this immersion (Ceuterick et al. 2021, 10–11). While Ceuterick & Ingraham in a way looks at how the lack of agency in a VR experience such as a 360° film may not allow for perfect immersion into that media, what I

instead have observed in VRChat is that it is the agency that embodiment of an avatars allow for that helps to create immersion. Where for example, how immersed a person is in VRChat potentially can dictate how they experience a phenomenon such as phantom sense. As Eric who does not experience any phantom sense put it when asked if he experience that he gets immersed in to into the world of VRChat,

> *No, I would say that I am very aware, I always have the phone next to me, it always buzzes a bit there, you take of the headset and look down at it, answer a text message, and such I would not say that I am engrossed in it.*

Showing a potential connection between not feeling particularly immersed in VRChat and not experiencing phantom sense. Here we can see a direct link between Eric not experiencing immersion into VR and VRChat, and his experience of phantom sense. While it may seem to be a clear link between perceived immersion and phantom sense, I do not believe the correlation to be that simple. On multiple occasions I was told by interlocutors that they do not experience themselves as being particularly immersed while being in VR, seeing themselves as quite aware of their real-life surroundings at all times and still they experience phantom sense to some degree. Here we see a disconnect of the perceived experience of immersion and the actual immersion allowing for phantom sense to take place. While Ceuterick and Ingraham looked at immersion as something that completely take over one's perception transferring all senses into another world when looking at 360° cinema, I see it as more than that when it comes to VRChat. In virtual reality since you have agency over your body through an avatar that responds to you real life movement, I see immersion not only being about completely disappearing from the real world in to a new one. Most people in VRChat are still aware of their presence in real life since they still move it and in different way need to be aware of it to at the same time exist in VRChat. For example, you need to be aware of your real-life surroundings, so you do not run in to walls etc. or as Eric illustrated earlier you still are aware of other aspects of real life such as a phone buzzing, getting notifications. So, while immersion can be as Ceuterick and Ingraham put it, being kidnaped into another world, being completely immersed to a point where reality disappear (2021, 11), it does not necessarily need to be like that. I see it as a much more nuanced process or spectrum were immersive and embodied experiences such as phantom sense can be felt even when total immersion is not achieved. Instead, an interplay between the different actors in the network together with each other creates phenomena such as phantom sense, or the feeling of something not there. The different actors, the avatars, the VR-headset, and other actors with their agency creates a new form of immersion that allows for immersive

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embodied experiences without being completely kidnapped in to the virtual. I do not have a final answer to what form this new immersion takes and how it works, other than that it compared to how immersion traditionally is viewed, do not require a total immersion to allow for embodied experiences in VRChat.

In the end I want to conclude my discussion on phantom sense with saying just as Ramachandran when it comes to studying phantom limbs, that I cannot give a definitive answer to what is behind a phenomenon such as phantom sense. While Ramachandran can to a certain degree give us an answer about the neurological underlining to phantom limbs, I can to a degree give an understanding to how phantom sense is a phenomenon stemming from a form of immersion. Although I cannot with the limited scope of this study give a complete answer to how this immersion take form, and what is the factors behind it. Instead, I implore further research into immersion when it comes to interactive embodied experiences in virtual reality, both looking at the social aspects of immersion and the potential neurological explanations to why some experience phantom sense and some do not. With us living in a world where virtuality already is an everyday practice, where many uses the internet and different applications and programs to communicate through the ether, I see it as important to further study new areas of virtuality such as VR that is only taking up a bigger and bigger part of the time people spend online, to keep up with how humans socially and culturally adept to an increasingly virtual lifestyle.

6.2. Head pats and embodiment of avatars

As we saw earlier body language may become more integral to communication when it is done as an extension of non-verbal communication, body language and embodied gestures still are used widely among everyone in VRChat. People gesticulate with their arms when they talk, mimicking real life behaviour and engage in interactions with each other through embodied methods. The possibly most common of these interactions is the head pat, a gesture often seen being performed between different parties. I was hanging out with a group I had got to know quite well over the last few weeks, talking and just relaxing together, when one of the regulars in the groups joined the world, we said customary hellos, how are you, and in return they told us that they were feeling quite down. As a response to this the rest of us tried to console them best we could to cheer them up. A person in the group gave them a head pat, this then quickly escalated to everyone there giving them head pats. This behaviour for many may seem a bit strange, since in most real-life situations head pats are not a thing that get exchanged casually,

instead many would probably see it as a kind of condescending action to head pat someone else, especially a peer. Although in VRChat it has become an important way to show affection of all forms. The response of many I have observed when given a head pat, is to slightly wiggle their head from side to side in a sense mimicking a motion that maybe would occur in real life if someone received a head pat, once again bringing back the motion of mimicry taking place in VR where a non-physical action creates a physical embodied response. This motion could also be seen as a way of the recipient to show appreciation for receiving a head pat, by mimicking the motion of in real-life, the notion of getting a head pat gets embodied to real life through both an action taken and potential phantom sense.

In contrast to how head pats are seen in real life, in 'Internet' culture head pats have become a normal way of showing affection. It is for example not too uncommon to see someone typing or sending gifs of head pats in chatrooms and on social media when someone is feeling down or frustrated etc. as a way to show that person that you want to comfort them. This internet culture of head pats has been translated in to VRChat, where the action of giving a head pat also have become embodied. Head pats is a common way in VRChat to show affection in many forms, both platonic and romantic. Head pats are so commonplace in VRChat that they almost become a 'currency' that gets exchanged in form of actions between different actors. Taking the form of an exchange between individuals, as greetings, signs of companionship, friendship and as a way to comfort and cheer up individuals. The action of giving a head pat is also in many cases accompanied by also receiving head pats back, in so becoming an exchange of embodied gestures. Since the interaction of giving head pats is so commonplace, I see it almost as an economy going back to the notion of head pats being a currency, with head pats being the currency that is traded in exchange for social bonds. There is reciprocity for engaging in the trade, if you give head pats you can often expect to get one back, or at least get some other positive and rewarding action. Giving head pats is a common occurrence in VRChat and most people take part in it in some way, either giving head pats or receiving them. Although that as with everything else, it does not mean that everyone take part in the activity of giving head pats. During my stay in VRChat, I almost daily witnessed some form of interaction involving head pats, and I often was involved in these kinds of interactions myself. And while all my own interactions involving head pats where strictly platonic, they took many forms as discussed above, sometimes it was a friendly interaction to show appreciation and sometimes it was a reassuring gesture to someone feeling down or in distress. Often head pats was immediately reciprocated by more head pats from the receiving person, although reciprocity almost only

occurred when the head pats was done with the intent of showing some form of affection or appreciation. In the case of head pats given to someone in distress, no reciprocity was expected in the moment. Instead, there was an understanding it was a one-way transaction.

Figure 14. A head pat being given

Early on in my time in VRChat I was using what could be considered a cuter avatar in the form of a quite realistic looking cat walking on two legs[12] while I was still figuring out what avatar I would use to represent myself. The choice of this avatar ended up leading to my first personal experience with head pats in VRChat which also correlates with my first experience of phantom sense. It was around 9 PM at night and I had just joined an instance of *The Black Cat,* one of the most popular worlds in VRChat at that the moment, when I almost immediately got called over by a girl I never had met before. Since I was there with the intent to meet new people, I decided to see what she wanted, so I went over to where she was standing to see why she had called me over. Before I had the chance to say or do anything she started to pet my head which took me a bit of guard since no one before her had ever given me a head pat. Although I got caught off guard by this I did not complain or make her stop since I was curious to see if I would experience phantom sense or not. And at first, I did not experience much but when I turned on a mirror close to us so I could better see that she was giving me head pats, I suddenly got a sensation of her physically touching my head. Montemorano in her studies on VRChat

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[12] The avatar looks like a relatively realistic cat just that its walking on two legs instead of four.

studied how different avatars can in themselves create an identity from how they look and what others expect that someone using a certain kind of avatar will act. As she put it *"Avatars are both performed and performative"* (Montemorano 2020, 22), showing that both the avatar and the actor behind it takes a role in creating an identity. So, when I chose to use a small and cute avatar, I automatically invited others to interact with me a certain way. In this case my choice of avatar invited others to without question interact with me, giving out head pats, also highlighting one of the uses of head pats I thus far have not talked about, the giving of head pats to smaller, cuter, and cuddlier avatars. While the actor behind the avatar still have its own agency performing an identity, the avatar also takes on an agency of its own, forcing a performance on the actor behind it. The human actor behind an avatar need to consider the interplay between their agency and the other actors in the network, both the avatar and other human actors that will have certain expectation on the behaviour of an avatar (Montemorano 2020, 22–24). *"The avatar and person maintain an interlocking relationship as they mutually impact one another's actions and subsequently interpretations by others in the environment"* (2020, 24). By the example of giving and receiving head pats we can see how true this statement by Montemorano is, while head pats often are given in contexts not affected by avatars, certain types of avatars also invite head pats. The performance of an avatar is a two-way relationship where both the avatar and the human actor behind it have a role to play in creating embodied situations such as giving and receiving a head pat, or other forms and uses of body language and gestures to communicate. From this we can see that embodiment takes many forms in VRChat, from mimicry in front of mirrors, to phantom sense, and lastly through the choice of avatar and the interplay between the avatar and the human actor.

7. Conclusion

7.1. Concluding discussion

Virtual reality in the form we have today, with commercial headset and virtual worlds such as VRChat have only come around in the last decade or so, with commercial headsets hitting the consumer market in the middle of the 2010s, with virtual world such as VRChat following closely behind releasing in early access in 2017. With the commercialisation of virtual reality, the possibilities for new areas of ethnographic research opened up for allowing new ways of doing online ethnography. I have studied VRChat through using embodied methods, drawing inspiration from Stoller (1997) and Csordas (1990). Using my own body to understand different embodied experiences that my interlocutors have in VRChat. I have looked at VRChat with a holistic perspective, viewing many aspects of the virtual and the individuals moving in the space. I took a similar approach to Boellstorff (2008), whereby I did not investigate whom my interlocutors where outside of the persona they presented to me in VRChat, therefore taking their online identity at face value and as their true selves.

I have studied how the different aspects of VRChat can be seen as actors of their own right following Actor-Network Theory (Law et al. 2013), seeing how every aspect of the virtual from the human actor, the avatars, the worlds and so on, have their own agency that together creates a network of actors allowing for interactions of different kinds to take place in the virtual. Through this I saw that the different actors in VRChat rely on each other to create interactions and allow for social situations to exist. From the interplay between the human actors' agencies and their avatars' agencies that together mixes and creates an identity in VRChat, both affected by the avatar and the human behind it. We also see that the worlds and instances in VRChat have agency that affect the other actors working in them, be that virtual objects or human, we have the example of pens in worlds that allow *mutes* a new way of communication together with body language. All aspects of VRChat be it the technology behind it with VR-headset or the actors in the world itself, together in a network interact and creates a space in the virtual realm where social and cultural phenomenon can take place.

First, we have mirrors that have become a central actor in VRChat with people often gathering in front of them when they exist in a world. I have in my research studied why people tend to gather in front of mirrors concluding that there are many reasons to this behaviour. Seeing that

it could be to get better spatial awareness, to see people behind and around you since you are missing some senses while in VRChat, for example not knowing when someone is behind you without the help of a mirror. Instead of the mirrors only being a tool to see behind oneself I see that they are used in creating identity through mimicry, through looking at *mirror dwellers* with help of Taussig and his concept of 'mimicry and alterity' (1993), I see that a form of mimicking is taking place between the human actor and the reflection of the avatar in the mirror. Through this mimicry of the other in this case the avatar in the mirror identity is created since the human actor can see themselves taking the form of an avatar. I also applied Lacan's theory of 'the mirror stage' to discuss how the mimicry through mirrors help to create a sense of 'Me', through the mirror the individual continuously creates a sense of selfhood through mimicry and seeing themselves in the form of an avatar (Sigler et al. 2019). Through the mimicry the human actor can familiarise themselves with their avatar and thus continually create a sense of 'me' and identity through the mirror. Answering my question of, *"How does embodiment and mimicry play into creation of identity in VRChat"*. Seeing that embodiment of an avatar helps the user create an identity through embodied mimicry of oneself in the mirror.

I have also studied the phenomenon of phantom sense, wherein users in VRChat can feel a sensation of touch and other senses when someone or something interact with their avatar in VR. I draw a parallel to the real-life phenomenon of phantom limbs occurring amongst people that for different reasons have lost a limb, that still have the feeling that it is there. Comparing my work to that of Ramachandran (2005) when he tried to find out the neurological underlining to phantom limbs. Seeing that just as him, I can only give a partial explanation to phantom sense through looking at it as a form of immersion. But just as Ramachandran, I cannot give a full explanation to the phenomenon by just viewing it through an anthropological lens. The explanation I put forward for the existence of phantom sense is that it is a form of immersion, although I see immersion in a different way than most others that have studied the concept in relation to VR and virtual worlds. Where Ceuterick and Ingraham (2021), and Boellstorff (2008) looks at immersion as being totally surrounded by a different reality, almost being kidnaped into it and leaving the real world, I see that immersion do not need to be total to allow for intense embodied experiences such as phantom senses, since many of my interlocutors are aware of their surroundings outside of VRChat, and at the same time experiences phantom sense. I see that we need to expand on the traditional view of immersion to include new forms related to virtual reality. Answering my question of, *"What role does immersion play in how embodied interactions take place in virtual reality"*. Seeing that the phenomenon of phantom

sense has its roots in immersion, and through this immersion some users in VRChat are able to have embodied experiences of touch.

I have lastly looked at new possibilities for different ways of communication through embodied practices in VRChat, be it how a 'mute' person can communicate through the use of pens and body language to communicate non-verbally through writing and gestures, and different forms of body language to get a point across. To the gesture of giving a head pat, a way both to communicate affection, be that platonic or romantic, and in so engage in a performance where both the human actor and the avatar with its agency engage in an interplay both adding to the performance of an embodied act (Montemorano 2020). Through this interplay between the avatar and the human actor creation of identity in the virtual is created furthering embodied performances of an avatar as a way of creating identity in VRChat.

I have studied VRChat from a few different perspectives that all in different ways end up either being connected to the idea of embodied experiences, or to creation of identity in VRChat, or both. There are so many aspects of virtual reality in general that I have not been able to touch upon in this thesis, together with as many aspects of culture and phenomenon related to VRChat, that in the end I believe that I only have been able to capture a small snapshot of what virtual reality and VRChat have to give. My research in VRChat have only been able to scratch the surface of potential areas to research, thus I see a bright future for further research into different areas of virtual reality and VRChat. I hope that this study has sown seeds that can lead to further ethnographic research on the many different social and cultural aspects of virtual worlds within virtual reality. I want to encourage more research to be done on phantom sense to truly understand the phenomena, I see that this could benefit from a cross disciplinary study including both anthropology and other disciplines such as psychology. I also see the need of research being done on gender and sexuality in VRChat since it is a huge field I have not touched upon in my own research.

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