



Ektopic

A Phenomenology of Domestic VR Usage in Sweden

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Faculty of Arts and Social Sciences

Human Geography

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Abstract

Our everyday geographies are increasingly entangled with digital spaces, technological devices, and spatial media. One such device is the Virtual Reality Head Mounted Display (VR HMD), which in recent years has become accessible for casual users. As an emerging medium, VR plays with spatial perceptions of presence, movement, and sociality. Seeking to challenge the dominant conceptualization of immersion as the main spatiality of VR, this thesis makes empirical and theoretical contributions to the fields of digital geographies and VR research. First, exploring the empirically overlooked context of domestic VR usage through ethnographic methods, materials were collected in Swedish homes to inquire about what VR users' everyday practices can tell us about experiencing digital places. Results show that presence in digital place through immersive media should not be reduced to sensations of being removed, nor the illusion of being virtually elsewhere. Rather, the physical environment and the sensuous connection with devices are instrumental for VR users being in place. Second, this thesis introduces Ektopic emplacement as a phenomenological theorization of being in place through immersive media. Drawing on theoretical frameworks of place theory and phenomenology, the spatialities of VR usage are analyzed as an emplaced and embodied practice of navigating, not the transition from a physical place into a virtual or digital one, but a being in places. Ektopic emplacement is explored as a mode of being in places with and through technological objects. Thus, rather than being here or there, immersed or not immersed, VR users' being in place is dual, split, and shifting; simultaneously removed as well as remaining. The Ektopic is developed as a response to the fractured sense of place brought on by immersive media and considers the technological devices we utilize in our everyday life as objects that we inhabit and enjoy to condition our very being in the world.

Keywords: *Digital Place, Domestic VR, Ektopic, Home, Immersive Media, Phenomenology, Place, Sensuous Ethnography, VR, Virtual Reality*

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Mom, you are supposed to say, “*That is a good question.*” My five-year-old has just asked me one of her billion questions about how the world is constructed, and I answered that I do not know how many types of sharks there are in the world. A good question is a question that you don’t know the answer to, *yet*. You can make some guesses, wonder about the answer (one amazing thing about five-year-olds is that they have the capacity to wonder instead of googling or asking AI). But you will have to go through some effort to find out. Science is about asking good questions. One should not be cheap when it comes to thanking people. Yet many of you who have contributed to my finishing this work are probably left out of this brief countdown. To all of you who helped me ask these good questions: thank you.

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1. The VR We Have at Home

“She is a VR widow,” Chiv says jokingly about his wife. We have been out in what he calls “the shed,” where he usually uses his VR headset. Or one of them, he has two: one for competing that needs to be kept spotless, and another one for more casual hangouts, like watching movies in a virtual cinema. Due to the intense nature of Chiv’s gaming; dodging, kneeling, reloading, calling out plays to his team, his wife got tired of him using his VR in the living room. “She said it is impossible to do anything else in the same room while I play,” he tells me, “So I started playing out in the shed.” The shed is actually a tiny house in the yard, which has functioned as a bedroom for one of Chiv’s kids, who has grown up and moved out. Furniture was sold off, and the space is now kept as an open area. The walls are white, and traces of the former inhabitant, such as a framed stipend, hang on the wall. There is a low black shelf for gaming gear, a water bottle, and a table lamp. The light is needed for the headset to locate itself in the room.

The game Chiv plays is an objective-based multiplayer first-person shooter. If that tells you nothing, the point of the game, as Chiv prefers to play it, is for your team to make sure that one of you can reach a point on the map and upload a link to a satellite without getting taken out by the other team, or vice versa. Chiv is wearing the head-mounted headset and noise-cancelling headphones, which he keeps over one ear so as not to shut me out completely. “First, you put on a helmet, which feels really silly,” he tells me as he looks around at something I cannot see, then with one controller in his hand, he reaches out, clicks a button, and then moves the hand to his head. “Well, safety first,” I joke. Though the upper half of his face is completely hidden by the headset, I can see that the lower half is smiling. As Chiv shows me how he uses weapons such as a rifle, a gun, a hand grenade on a shooting range, his movements become different. Outside of VR, he moves quite thoughtfully and deliberately. In-game, his body is quicker, small, precise actions, aiming, and firing. His body language is that of a boxer, turning by the hips to keep his virtual guard up. After Chiv showed me how he plays, he hands the headset over for me to try. I’m on a shooting range in a desert-like area, my body dressed in military clothes. I immediately drop my gun as I try to load it. Chiv has a rig for the controllers so they can be fastened in the position of a rifle. To load shots into the gun, I need to disconnect one controller and move the controller to my left side, where there is a mag of bullets fastened on my virtual body, grab it and put it into the gun, then reconnect the controller, which represents my hand, to the gun rig again. Though Chiv cannot see what is going on in the headset, he guides me. Since I’ve borrowed his virtual body,

Chiv can tell me exactly where on my military-clad avatar the bullets I need are to be found. I've seen Chiv do this quickly, smooth click clacks. I, of course, instead grab a smoke-bomb that I fail to throw, my view now obscured by virtual smoke.

Since Chiv is not interested in games or tech as such, he is surprised by his interest in VR. He first tried it at a friend's house and was completely drawn in. It has now become a lifestyle, playing for one hour plus every day. I ask what his wife thinks about his new lifestyle. She has her own interests, he tells me. As we say goodbye, Chiv muses: "Maybe your next study should be on them, the ones who get left behind."¹

Our everyday interactions are increasingly intertwined with technologically advanced devices and the spatial relations produced through our usage of them. The example of Chiv is a part of the data collection in this thesis, an ethnography of the spatial relations of VR usage in Swedish homes. It serves to introduce you as a reader to the multifaceted, complex spatial relations of Virtual Reality Head Mounted Displays (VR HMDs). For Chiv, a man in his 50s living with his wife in a house, the introduction of a VR headset into the home has reshaped the usage of different rooms, social relationships inside and outside the household, and reorganized his leisure time and identity. Central to this experience is the interplay between the VR headset as a technological object, the place of usage as facilitating the immersion of the user, and the emplaced, embodied practice of usage. However, the VR HMD is not only a technological object for the user to inhabit; the device inhabits places and forms its own relations to them through usage areas. For the VR HMD to work properly, the room must be adapted to facilitate it. For Chiv, this meant a cleared room, furniture removed to free up space for the headset to recognize the area as usable, and accurate lighting for the headset to orient itself. It was also a negotiation of the social situation; the strange presence of Chiv's remaining and very active body in the living room, while he was clearly not really there, was incompatible with sharing the living room area with his wife.

This being in VR is dependent on the immersion of the user. Immersion is the sensation of becoming present in the virtual. Immersion does not just rely on the perceived live responsiveness of the virtual body that the user is given to navigate the virtual place; it also depends on the fleshy body very much left in the physical place. The experience of VR can be both fantastical and

¹ Interview with Chiv 2023; Observation Chiv 2023.

whimsical – the ability to visit unreal places, together with virtually transported friends, to do things that would be impossible in your normal physical environment. At the same time, it is a question of mundane everyday technology usage: a user in an empty room, furniture pushed aside. A lonely body remaining, trying to stay in place so as not to bump into the physical place; hit a wall, trip over pets, and swipe at family members as it interacts with environments, people, and objects that disappear with the click of a button or when the battery drains.

1.1 Welcome to the Grid

VR is an immersive technology. A key component is making the user feel presence in the virtual place they have arrived at through their VR HMD. The technology makes the user feel as if their body itself has been transported somewhere beyond its immediate geography.² This powerful sensation, of feeling as if one has entered a Virtual Reality, stands in relation to the technologies that facilitate it. Bos considers three main aspects of VR that position it as a medium in relation to other media technologies. First, VR is a form of computational hardware that allows the user to access and interact with a virtual space. Second, this virtual space is a computer-generated three-dimensional (3D) environment. The environment tracks the user to position it within the virtual space. This brings us to the third aspect of VR-technology: it is interactive in real time, meaning the user can move through and manipulate the virtual environment.³ VR technology is an articulation of complex socio-technical relationships spanning from societal understanding of technology to the home environment, embodied usage, and spatial understanding of one's emplacement. VR HMDs as an interface are spreading throughout society, already prominent in industry and medicine.⁴ Domestic VR usage provides a new, unexplored context for VR technology, not yet empirically studied. As VR technology is commonly explained through questions of spatiality, the study of VR requires the attention of human geographers.⁵ Gieseke states that geography has a “...*special responsibility in critically examining and intervening in the spread of digital devices...*” due to the ability of geography to

² Osborne and Jones 2022.

³ Bos 2021.

⁴ Lanier 2024.

⁵ Blackman 2022; Bos 2021; Fraser 2023; Osborne and Jones 2022.

counter the idea of digital dualism or that digital spaces are other than physical/real.⁶ I argue this is due to the bridging properties of spatial thought; everything is happening somewhere, and nothing is completely immaterial. Giesecking further notes that the where of these digital processes and spaces have been understudied.

This thesis answers Fraser’s call to reexamine classical theory of space and place in relation to the virtual–digital–physical immersive environments emerging all around us: the logics of the virtual and digital environments spreading beyond their encapsulated interfaces, which create complex ubiquitous landscapes that emerge in our everyday life.⁷ Kinsley suggests that studies of the virtual need to look to how “...*social relations of places are constantly created and recreated through spatial practices...*”⁸ to understand the role of technology in our society. Even though the technological conditions of VR HMDs impact our understanding of it as a technology, the properties of these devices do not determine the socio-spatial relations that VR usage produces. How VR technology is used stands in relation to the spatial conditions of that usage and the other bodies, objects, and devices present. Therefore, VR usage should not be understood only through its technological makeup, but also through its histories, material and cultural, and social conditions, which impact the ongoing development of VR.⁹ To introduce the iteration of VR technology relevant for this thesis, I introduce the recent histories and imaginings, as well as the technological landscape, within which VR HMDs are currently emerging.

1.1.1 Almost Here: VR Arriving

Built into the very discourse surrounding VR is the notion of soon-ness. VR is seemingly forever emerging. By that, I mean that it has been predicted to “arrive soon” for consumer usage for quite some time. Due to this becoming nature of VR, the question of a starting point is complex. This is partly because when talking about VR, what is referred to is usually hardware, software, and the experience of and in VR all at once.¹⁰ It is also hard to draw the line when a visually immersive device becomes VR technology. Is it the View-Master of 1939, which was the first to use immersive 3D tech with colored pictures? Why not the

⁶ Giesecking 2019, 85.

⁷ Fraser 2023.

⁸ Kinsley 2014, 370.

⁹ Bos 2021.

¹⁰ Tryselius 2007.

first VR HMD connected to a computer, the 1968 Sword of Damocles? Or the 1992 CAVE, a VR theater of screens and 3D imagery that the user could move around within.¹¹ The development of hardware that can be worn, allowing the user to immerse herself in VR experiences, could be considered the actualizing factor for a heightened mainstream interest in VR as a technology.¹² Moreover, every wave of VR hype comes with its own expectations and imaginaries. The hype around the possibilities of VR technology exploded during the 1980s and early 1990s. Imaginings of VR technology saturated pop culture.¹³ Gibson's 1984 cyberpunk novel *Neuromancer* formed the blueprint for imagining access to a Virtual Reality. It peaked somewhat in the 1999 movie *The Matrix*, a dystopian hero saga which had the ultimate twist: the world we knew had actually already ended, we simply had not noticed that we as a human race were being kept alive in pods experiencing a simulated reality, showing the power of immaculate immersion. But where was the technology actually at? The Nintendo classic from 1995, the Nintendo Virtual Boy, a table-mounted headset (yes, you read that correctly), was only showing visuals in red and black. Or why not cardboard VR, which gained attention in the 2010s as a possibility for consumer access to VR technology?

Like Bos, I argue that an actualizing factor for VR as we know it today would be in 2014 when Meta (then Facebook), a Silicon Valley tech company caught up in economic and technological power struggles over hardware and software, acquired Quest (then Oculus), an emerging VR hardware company. Quest had no product ready for market at the time, but the decision read as an omen: VR is finally (*almost, virtually*) here. For some years, different VR companies had been striving to establish themselves as the future of VR: companies such as HTC Vive and Pico, and gaming consoles like PlayStation each had their own VR tech, variations on technological solutions of tracking the user in their physical space. By 2014, VR technology had left the table but was heavily dependent on cables linking the headset to gaming consoles or stationary computers. The use of sensors fastened to the corners of the room, such as for the Vive, was considered a nuisance because it would demand rigorous setup, claiming entire rooms for the home user, and for a hefty sum of money. This is not to say that VR was not already a technology in use, for

¹¹ Champion 2021.

¹² Tryselius 2007.

¹³ Chan 2014.

example, in military adaptations,¹⁴ by industry for simulations of working environments used as training,¹⁵ in cultural institutions such as museums,¹⁶ medicine, and industry,¹⁷ and spaces of leisure such as malls and pubs.¹⁸ However, VR was (maybe) finally becoming available to the casual user. In 2016, Quest released its first VR HMD, the cable-dependent Oculus Rift 1, and in 2019, the stand-alone VR HMD Oculus Quest 1 was released, shortly followed by the Quest 2 in 2020. By 2019, 8.9 million VR HMDs had been sold worldwide (a 54 percent increase from 2018).¹⁹ By 2022, 4 percent of Swedish homes had a VR headset.²⁰ VR is becoming a technology used not only in places built or adapted to facilitate it, but also entering homes and becoming a part of the plethora of functions the modern home has come to serve. Below is a sketch of a VR HMD and controllers.

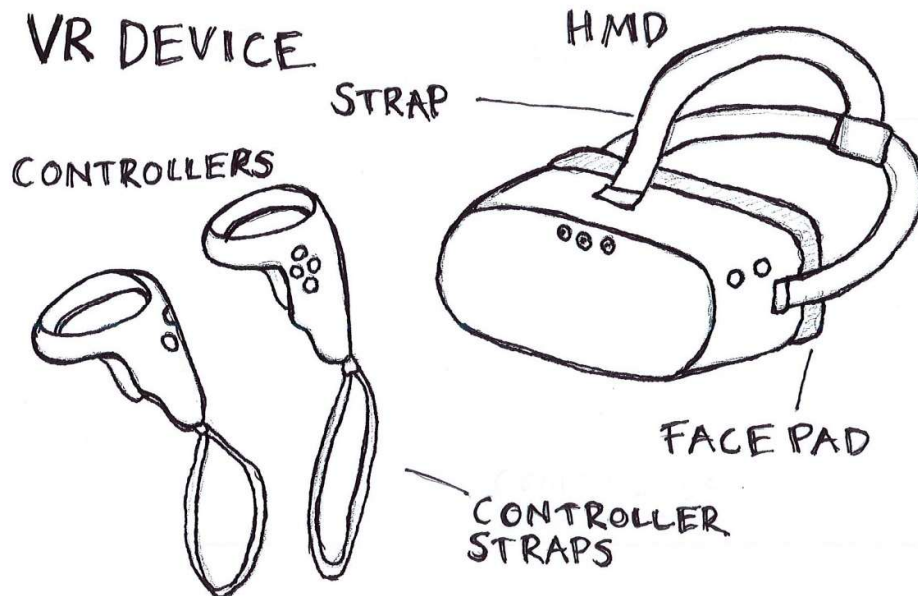


Figure 1. VR device.

¹⁴ Ibid.

¹⁵ Osborne and Jones 2022.

¹⁶ Parker and Saker 2020.

¹⁷ Lanier 2024.

¹⁸ Chan 2014.

¹⁹ Bos 2021.

²⁰ Andersson and Blomdahl 2022.

The actualization of the technology in the form of headsets has not yet brought VR into our reality, but rather highlighted the gap between expectations of what VR could be and the VR we have at home (in meme speak). VR remains highly connected to imaginings and representations.²¹ Popular discourse about the VR technology of today has fictional roots in cyberpunk and an intimate relationship to science fiction and dystopian imaginings.²² Understandings of VR are also soaked in hopes and utopic imaginings of what VR can come to be. Chan notes that it is at times hard to separate the hype surrounding VR from the actual technology.²³ For example (rather missing the point), *Ready Player One* is held up as an inspiration for the launch of the Metaverse, Meta's attempt to create an *embodied internet* through the use of platforms, VR, avatars, and virtual spaces. VR holds a special place in this discursive landscape as it is understood as a portal device to the virtual.²⁴ The Metaverse and the Metaversical attempts to blur boundaries between virtual and physical space,²⁵ are the latest iteration of VR hype and imaginings. However, it is a fantasy backed by a lot of money, with VR HMDs central to the vision.²⁶ The Quest 2, which is the most common headset in this study, is a product of Meta, which dominates 75 percent of the VR market.²⁷

The fantastical imaginings of emerging media technologies as allowing for radical newness are not exclusive to VR technology.²⁸ The point of the medium is to affect our spatial relations of how we perceive distance, and that the societal process of introducing new communication technology is a spatial, temporal, and corporeal one, changing perceptions of proximity and distance, of what is here and what is there, of presence and absence.²⁹ As Marvin puts it: "*The more that any medium triumphed over distance, time and embodied presence, the more exciting it was.*"³⁰ Here, VR holds the exciting prospect of instant presence elsewhere.

²¹ Bos 2021.

²² Tryselius 2007, 27; Shields 2003.

²³ Chan 2014.

²⁴ Osborne and Jones 2022.

²⁵ Fraser 2023.

²⁶ Evans, Frith, and Saker 2022.

²⁷ Ibid.

²⁸ Chan 2014.

²⁹ Marvin 1988.

³⁰ Ibid., 194.

1.1.2 Spatial Relations of VR: Immersion and Teleportation

The seductive promise of VR as an interface for making the user present in a virtual space relies on the process of immersion. Scholarly engagements with VR as an interface for human-computer interaction have therefore inquired about how this process not only works but can be enhanced. Immersion is the process of becoming present elsewhere through immersive media technology, such as VR. This is a spatial process. Osborn and Jones write that the experience of VR seeks to leave the material reality behind and enter into a separate digital space.³¹ VR technology, when successfully applied, gives the convincing illusion of being teleported to somewhere else, feeling like you have been transported beyond your “*immediate geography*.”³² In this sense, VR technology provides an illusion of being somewhere else. The idea that you may put on a VR headset and the technology be so immersive that you actually believe that you are in another place, is at the core of VR as a technology. The absolute conditions of a place would not mean anything if you from any place could go anywhere, without travel. It is in this vein that Graham uses the metaphor of a tunnel to describe how spatial relations are changing through technological development.³³ Zhou et al. describe VR as “*teleporting in and out of a digital landscape*.”³⁴ This is still a common understanding of the possibilities of VR as a technology, as well as one of the instances of when our way of talking about VR has not developed that much since the 1990s. Suffice it to say: in a socio-technical sense, being in VR is a strange sensation. Lanier, a pioneer of VR development, describes it as: “*It’s very hard to describe [VR] if you haven’t experienced it. But there is an experience when you are just dreaming of all possibilities being there, that anything can happen, and it is just an open world where your mind is the only limitation*.”³⁵ For those of you reading that have tried VR, this description is laughable, and for those who have seen someone else use VR, it is clear that one has not really left through VR. Considering VR as a device for mobility between places makes the question of leaving and arriving in place central to VR. Virilio states that the emerging technological space and place relations mean that “*everything arrives so quickly that departure*

³¹ Osborne and Jones 2022.

³² Ibid., 2.

³³ Graham 1998.

³⁴ Zhou et al. 2024.

³⁵ Lanier cited in Cranford 1996, 80.

*becomes unnecessary.*³⁶ This sensation of leaving place through immersion and arriving as to be present in the virtual extends to the body,³⁷ which inhabits a virtual body in the virtual space. Seemingly, the only thing standing in the way of this endless spatial freedom is the body,³⁸ which is still left in the physical place. One does not leave a place via VR, but even though the body is not transported elsewhere, it is moved.³⁹ Immersion does not teleport you away from a physical place, but you are not really there either. This work of arriving in a virtual place through VR is an embodied practice: the body acts and responds to the virtual place, while physically remaining. What immersive media such as VR do to our sense of being in place is yet to be understood in phenomenological terms.

Using VR provides a being in place that is both immersed in a virtual environment while remaining in physical place, affecting users' perceptions of spatial relations. This being in places requires us to tend to not only the being in virtual place through VR, but also to the presence of the physical body. VR as a technology lets users inhabit virtual bodies and virtual places, but it is also a place-inhabiting technology, making demands on its place of usage. Therefore, I argue for geographical engagement with VR that looks beyond immersion and presence in the virtual and rather at VR HMDs as a media technology of multiple spatialities. VR usage is a socio-spatial phenomenon in the home that also awakens questions of being in place, due to the dual nature of VR HMDs, emplacing users both in the virtual and physical. This calls for a conceptualization of VR usage as more than immersion, a teleportational logic of transitioning from the physical into the virtual. Though immersion as such is not dependent on technology, virtual environments have historically been dependent on their technical solutions.⁴⁰ Frith and Saker argue that the current wireless iteration of VR HMDs provides for a new relation to the physical place of usage.⁴¹ Thus, a human geographical inquiry into VR HMD usage must tend to the connections between user bodies, devices, and places of usage as they are reshaped through technological development and user practices. This thesis seeks to contribute to the empirical study of VR by looking at VR usage as an

³⁶ Graham 1998.

³⁷ Dalton 2014.

³⁸ Lanier 2010.

³⁹ Osborne and Jones 2022.

⁴⁰ Shields 2003.

⁴¹ Saker and Frith 2020.

emplaced and embodied practice and conceptualizing spatialities of VR beyond immersion.

1.2 Introducing the Ektopic

To conceptualize the dual being in place expressed in VR usage, this thesis establishes the concept of the Ektopic to theorize being in place through immersive media technologies, such as VR HMDs. Etymologically, Ektopic comes from Ek-topos, the ancient Greek words *Ek* for no and *Topos* for place. Ektopos is an adjective describing someone or something that exists or is located outside of a place.⁴² In modern Greek, Ektopos and ectopic are medical terms describing a state of displacement within the body, usually of organs.⁴³ However, they also describe displacement within the body overall: an ectopic pregnancy is a potentially dangerous condition if the fetus starts growing in a location outside of the uterus. An ectopic heartbeat starts in an abnormal part of the heart and affects the way the heart beats. Ektopos in medicine is about emplacement and embodiment, about off-ness and being out of place. I seek to take the concept of Ektopos and extend it to the entire being of the body, its embodied emplacement, its being in the world. I use the expression “*Ektopic emplacement*” as a phenomenological paradox, because while being within itself can never be without location – a here, a place – the Ektopic mode of being is in and out of place simultaneously, an emplacement signified by its displacement.

Ektopic emplacement serves to achieve three things within this thesis. First, it seeks to challenge the dominant concept of presence through immersion as the main spatiality of VR technology and the foremost explanation for understanding what is often called the “*thereness*” in VR through VR HMDs. Second, Ektopic is used to theorize how VR HMDs, as an emerging medium, phenomenologically organize the user experience, and how user emplacement and embodiment are entangled with VR as a technological object, the usage area, and spatial conditions. Third, Ektopic emplacement is introduced with the ambition to take place seriously in digital discourses and digital geographies where space is the foundational concept. While the synonyms of Ektopos – unusual, foreign, and paradoxical – tie into the state of being that I describe and analyze in this thesis, the usage of Ektopic should not be read as claims of an ancient etymological truth. Ektopos and Ektopic are used interchangeably and

⁴² Stamatakos 1972.

⁴³ Babiniotis 1998.

metaphorically, seeking to underline the phenomenological strangeness of feeling displaced through media technologies without having actually left or disappeared, remaining emplaced while embodied usage makes for feeling elsewhere.

1.2.1 Purpose

The overarching purpose of this thesis is to explore how VR technology affects our sense of being in place. Being in place is an existential predicament and phenomenological condition of our being in the world. It relates to the hereness of our being, as well as the thereness of where we are not. We are *in* place, both by being located and socially situated in relation to others (human and non-human bodies and objects). This thesis researches the process of how the emerging medium as a form of technology disrupts spatial relations of the here and there; presence and absence; proximity and distance. The emergence process provides for moments of re-negotiation of what it means for one to be in place, emplaced, and embodied. In the operationalization of these questions, this thesis looks at domestic usage of VR HMDs in the home. Using a phenomenological approach, it explores the embodied, emplaced usage of VR HMDs as expressed through socio-spatial relations between users, devices, and others in the home. Since VR HMDs provide renegotiation of users' sense of being in place, it is examined for its ability to provide new theorizations of and connections between place, body, and medium.

1.2.2 Research Questions

- ✧ How does VR usage provide for new conceptualizations of being in place?
- ✧ In what ways does VR usage affect the spatial relations of the home?
- ✧ In what ways can the sensuous inform understandings of geographies produced by connections between user bodies and VR devices?
- ✧ How can the spatialities of domestic VR usage further understanding of being in digital/virtual places?

1.2.3 Demarcations

Our understanding of VR HMDs is connected to technological development as well as the digitalization of society on a broader scale. Emerging media technologies have historically affected home places through changes in overall societal behaviors of communication, societal understanding of mediation and

transportation,⁴⁴ as well as the spatial organization of the home.⁴⁵ Leszczynski notes that the increasing digitalization of the home has created a renewed interest in the home as a technological space.⁴⁶ The implication of new technology in the home is both a question of the mundane – where and how can one use the VR HMD while not disturbing other members of the household in the shared space, as well as one of ontological security, that is, how the virtually blinded user understands where they are and how to protect the body and home from harm. With the rise of VR usage in the home, *The Guardian* reported on insurance claims related to VR accidents leading to the breaking of objects such as TVs, furniture, and home décor.

In this thesis, I explore the usage of VR headsets in Swedish homes. Although nothing suggests a specific subculture of Swedishness among VR HMD users in Sweden, and many VR games, apps, and experiences attract an international audience, there are still points to using Sweden as a geographical selection. Sweden has a history of early adaptation, with early spreading of home computers due to state subsidies and tax relief, and thereby a high level of technological literacy. It is also not uncommon for users to organize nation-wise. Even though some ads for recruiting participants in the study were placed in bigger international online groups and online channels organized around VR as a technology or specific headsets, the groups I got invited to as part of snowball selection were commonly organized around Swedish users or players. One could argue that it would benefit the analysis to look at homes within the same national context, with shared laws and housing history (even though there are substantial differences between different housing markets in different parts of Sweden).

The timing of VR HMDs entering Swedish homes on a grand scale coincided with the global COVID-19 pandemic. As the role of the home was temporarily in flux, it substituted as a workplace, classroom, and gym, while losing earlier functions such a place for meeting with family and friends. This becomes especially important when considering questions of being in place in and through VR as a social phenomenon. During the pandemic, mobilities and geographies changed in relation to restrictions and lockdowns, leaving the home virtually, and being together with people in VR became a possibility to take a break from the pandemic reality. This created a desire for augmenting the home,

⁴⁴ Marvin 1988.

⁴⁵ Meyrowitz 1985.

⁴⁶ Leszczynski 2020.

and VR HMDs were imagined to facilitate the possibility of briefly leaving the home virtually behind.

Furthermore, this thesis focuses on VR technology, not Extended Reality (XR) nor Augmented Reality (AR). While VR remains prominent as the technology most researched in XR research,⁴⁷ VR cannot be conflated with or be said to encompass XR and AR. VR is sometimes paired with AR in technological discourse for two reasons. First, VR and AR share a chronological recent past; they both became a part of societal debate at the same time in the 2010s. Second, they are both technologies that have been paired with goggles. To some extent, VR headsets in this study do use AR-adjacent technology; some virtual places fade in parts of the camera feed, and users can use the pass-through function of the VR HMD when trying to orient themselves in the home place. However, this is not true AR, which makes a virtual layer over the non-virtual. Real AR demands that the technology work together with the existing environment in an overlapping manner. Catching a Pokémon in Pokémon Go is a classic example.⁴⁸ For VR to work properly, one needs to manage the illusion of the physical place disappearing. Immersion is partly achieved through the success of clearing the physical place from where you depart. Rather than an overlay, VR aspires to provide the experience of making you feel engulfed in the virtual place. Therefore, in a phenomenological sense, it makes completely different demands on the user, the technology, and the place of usage. Looking at their phenomenological and spatial relations, VR and AR are two different technologies. To summarize, AR is not VR.⁴⁹

⁴⁷ Girginova 2025.

⁴⁸ Bos 2021.

⁴⁹ Champion 2021.

2. Separating Virtual Reality, VR Technology, and VR HMDs

Virtual Reality is a multifaceted concept: it can refer to virtual worlds accessed in video gaming,⁵⁰ cyberspaces,⁵¹ or virtual geographies of everyday life.⁵² Virtual Reality has been seen as certain kinds of spaces and VR HMDs as devices that enable access to such spaces once the technology becomes good enough. Adding to this eclecticism, the term Virtual Reality, without being implicitly related to VR technology, has a philosophical history of thought.⁵³ In both philosophy and technology, Virtual Reality has been tied to the question of reality, what it is and what counts as such. Here, Virtual Reality is a version or alternative to the Reality we consider being without a prefix. In the Dictionary of Human Geography, *Virtual Reality* is defined as: “*Visual, interactive, computer-generated environments in which the user can move around and explore. Virtual Reality presently takes two forms. The first is totally immersive environments in which users wear head-mounted goggles to view a stereoscopic virtual world. When the user moves, the virtual world is continuously updated providing the illusion that (s)he is fully immersed in a 3D, interactive space. The second form is screen-based and allows the user to interact with a responsive ‘game-space’. Both forms have three essential attributes: they are inclusive, they are interactive, and the interaction is in real time.*”⁵⁴

This definition shows the problem of Virtual Reality in human geography; it refers to the commonplace definition of VR: the head-mounted goggles as a technology immersing the user into a 3D environment. At the same time, it also refers to a broader definition of Virtual Reality as a virtual space that the user can enter through immersion. This space can be moved around and interacted with, and has connotations for games. Hence, in human geography, VR as a concept can refer to a separate reality, the experience of a virtual space, VR technology, the VR headset, or all at once.⁵⁵ I make a distinction between VR as the immersive technology of inhabiting a virtual reality through a device, VR

⁵⁰ Ash 2012; Longan 2015.

⁵¹ Kinsley 2014; Kitchin 1998.

⁵² Thulin, Vilhelmson, and Schwanen 2019.

⁵³ Kinsley 2014.

⁵⁴ Rogers, Castree, and Kitchin 2013.

⁵⁵ Tryselius 2007.

HMDs as the current iteration of this technology, and Virtual Reality as a spatial dimension of certain qualities and relations. To sort out these entangled definitions, because they are not as clearly separated as I have just made them out to be, the literature review is structured into three sections.

First, I show that VR is a medium understood as inherently spatial. Although VR has received relatively little attention from geographers compared with other disciplines and fields, empirical work in computer science, human-computer interaction, tourism Studies, archeology, educational sciences, and media and communication studies underlines the spatial aspects of VR via concepts such as *immersion*, *presence*, and *sense of place*. Here, the focus on immersion as the process of becoming present in a virtual space leads to conceptualizations of Virtual Reality as a liminal, separate space accessible through VR HMDs. Second, I examine how VR and VR HMDs have been handled empirically in human geography. While Virtual Reality has been studied through virtual environments, there are few empirical studies on the usage of VR technology and VR HMDs. I account for the most prominent intersection between geography and VR, geography teaching and education, and then highlight an empirical study on immersion by Blackman, which shows users' experience of being in Virtual Reality through VR HMD includes a sensibility for their emplacement in the physical place.⁵⁶ The effect of the physical place on users being in the virtual place lays the basis for a geographical phenomenological critique of immersion as the main spatiality of VR. Third, I seek an explanation for the scarcity of empirical studies of VR HMDs and VR usage in human geography. Specifically, I trace the extensive theorization of VR and Virtual Reality in human geography in the subfield of virtual geographies. Virtual geographies emerged during the 1990s and 2000s and became cursed with debating the question of the realness and materiality of the virtual. This section provides a historical framing for the theoretical baggage of VR in human geography that we can still see haunts the more recent subfield of digital geographies.

2.1 VR as an Immersive Medium: Presence, Places, Bodies

How we talk about and imagine VR affects how we study and conceptualize it. In previous studies, the spatial relations of VR have often been imagined and discussed in terms of possibilities: what we will be able to do once the technology

⁵⁶ Blackman 2022.

improves, has arrived, and is in place. VR is continually portrayed as a liminal, separate space. This, paired with the fact that statements about VR often draw on hype and hyperbole, makes the spatiality of VR sound fantastical; through putting on a headset, the user suddenly arrives elsewhere in a virtual space. In 1995, Cheong understood VR as accessing another dimension, with the user being completely immersed in the data.⁵⁷ The idea of total immersion as entering another dimension is still prevalent today: in 2022, Slater claims VR is the closest thing to experiencing a parallel universe.⁵⁸ Looking at how little has happened to spatial metaphors that are used for understanding VR technology, it is clear that VR HMDs are portal devices that are defined by their immersive properties and potential to bring the user to an other, virtual space. VR is constantly described as a separate space that can be accessed by immersion, in an actual or illusory way. For instance, in 1996, Cranford wrote that VR immerses “*the user in an illusory world*”.⁵⁹ When explaining VR today, Osborn and Jones deem it an “*illusion of leaving your immediate geography*.”⁶⁰ Although the user has seemingly departed, while clearly remaining in the physical place, the tension between whether being in virtual place is actual or illusory is centered. According to Champion, VR has depicted places but has not been able to transport the user or allow the user to inhabit those places.⁶¹ The way that VR is still conceptualized as another dimension frames the entering of that space as an expression of perfect mediation: leaving place and body behind to enter the virtual. This difference in conceptualization: whether if the user through immersion is transported to a virtual realm or experience the illusion of being in a virtual space, might not matter as immersion was expected to be perfected: “*As technology progresses, the user will notice the system less and less. The tendency to look ‘at’ the computer rather than ‘through’ it will diminish.*”⁶² This is reminiscent of how Kitchin in 1998 described how VR was understood in its early conceptions as the *ultimate display* and as the *ultimate interface* between humans and computers.⁶³ In 2018, Bailenson wrote that VR is a medium that decreases the gap between mediated experience and non-

⁵⁷ Cheong 1995.

⁵⁸ Slater et al. 2022.

⁵⁹ Cranford 1996, 83.

⁶⁰ Osborne and Jones 2022.

⁶¹ Champion 2021.

⁶² Cranford 1996, 82.

⁶³ Kitchin 1998.

mediated experience,⁶⁴ and VR is described as a medium for going beyond the screen,⁶⁵ inhabiting the picture.⁶⁶ This notion that VR is the medium to end mediation is expressed spatially as VR being a device that facilitates a visit to another dimension with other rules of traveling, proximities, and mobilities. No wonder Zhou et al. abandon the notion of transport as they describe the VR user being “*teleported in and out of a digital landscape*”.⁶⁷ Tussyadiah et al. imagine the VR user becoming a part of the virtual environment through the illusion of immersion and interaction with a virtual world.⁶⁸ This other, virtual realm and its relation to other places have been formulated in different versions. For example, Frith and Saker conceptualize VR as a *dislocated space* to capture its out-of-joint quality.⁶⁹ VR is continually made out to be another reality, even when compared with other technologically produced spaces.⁷⁰

The subsequent section focuses on empirical studies of VR usage. This is not to say that the research presented has focused on VR usage per se, but that the studies contain empirical data from participants using VR HMDs. The research interest in VR as a technology spans several disciplines, and I do not aim to provide an exhaustive account of all empirical research that makes use of VR HMDs across all disciplines, but rather to argue that research that makes use of VR HMDs tends to measure or explore *immersion* and *presence*. This conceptualization of VR as a technology to access a separate Virtual Reality has made the concept of immersion, as a process to become present in the virtual, the main mode of entering a virtual place.⁷¹ As it is common for immersion and presence to be used interchangeably when conceptualizing VR,⁷² I do not aim to separate or define these concepts once and for all. Rather, I conclude that they dominate in theorizing spatialities of VR and show how this conceptual dominance affects the understanding of VR as a device for going into virtual places and how embodiment in VR has been studied through how it facilitates this transition.

⁶⁴ Bailenson 2018.

⁶⁵ Bos 2021.

⁶⁶ Chan 2014.

⁶⁷ Zhou et al. 2024.

⁶⁸ Tussyadiah et al. 2018.

⁶⁹ Saker and Frith 2018.

⁷⁰ Messeri 2024.

⁷¹ Saker and Frith 2020.

⁷² Blackman 2022.

2.1.1 Studies on Presence and Immersion

The concept of presence in VR research is derived from the media and communication concept of telepresence, the sense of presence in a remote place used to describe the experience of controlling a robot to perform actions in a separate location.⁷³ VR is dependent on the sense of “...‘presence’, *that peculiar sense of ‘being there’ unique to virtual reality.*”⁷⁴ Conceptualizing VR technology as allowing users to enter Virtual Reality as a separate space creates the transition into the virtual as a research subject. This transition is conceptualized as the process of immersion. The success of the VR user’s immersion into the virtual space is understood from a more-is-more logic: the more immersed the user feels, the more present the user is in the virtual. With perfect immersion as the goal, the study of VR can easily be turned into a quest to optimize immersion. The majority of studies on XR and VR focus on improving the technology.⁷⁵ There have been many quantitative studies looking at presence in VR,⁷⁶ which we can see in the proliferation of questionnaires measuring immersion and presence. This spans from the pioneering work of Witmer and Singers in 1998,⁷⁷ to the 2018 review by Schwind et al, in which the authors compare 15 different presence questionnaires, and concludes that how presence should be understood and measured has been heavily debated.⁷⁸ While it is common in research on VR to measure presence through immersion, the different ways of measuring create an incoherent understanding of the concept.⁷⁹ Slater writes that presence is how the user responds to immersion,⁸⁰ while Baker et al. consider immersion to be achieved when the physical environment is forgotten and superseded by the virtual one.⁸¹

The measurement of presence has become a way to confirm if the VR technology is working properly. If the research participant is not feeling present, then VR is not doing what it is supposed to do. Therefore, amplifying presence is understood as a form of increasing the effectiveness of VR technology, and

⁷³ Slater 2009.

⁷⁴ Bailenson 2018, 3.

⁷⁵ Girginova 2025.

⁷⁶ Usoh et al. 2000.

⁷⁷ Witmer and Singer 1998.

⁷⁸ Schwind et al. 2019.

⁷⁹ Slater et al. 2022.

⁸⁰ Ibid.

⁸¹ Baker, Nam, and Dutt 2023.

measuring presence is a way of measuring the feeling of being there.⁸² Champions remarks that to understand VR as an experience of another place is to think about VR in terms of perfect immersion, which depends on the technology being advanced enough.⁸³ This is, of course, a technocentric understanding of VR, though not an uncommon one. Virtual Reality is commonly understood as a space generated by technology,⁸⁴ and perfecting immersion to allow for presence in the virtual becomes the means for inhabiting this space. While presence and immersion are entwined in various ways, in most presence studies, immersion is considered successful when the user feels a sense of presence in the virtual place. If immersion is achieved by a sense of presence elsewhere, being in virtual place through VR technology excludes the possibility of being in the physical place. This rests upon the idea that we can only be located or feel a sense of place in one place at one time. The focus of presence studies on how to increase immersion into a virtual place follows a transitional logic, the user going from the physical place into the virtual. This suggests that they are mutually exclusive and that the user's presence in the virtual place depends on the sensation of departing from the physical place. In actuality, the user is still very much present in the physical place, as well as the virtual.

2.1.2 VR Transport: Leaving and Going Places

Understanding VR HMDs as a medium for not only mediating a sense of place, but also working as a communication taking you somewhere, holds promise for many disciplines. The notion of VR HMDs as a medium for going places can be seen in the intersection between tourism research and VR research. The increasing interest in VR tourism⁸⁵ has been expressed in fantasies of VR as the ultimate eco-tourism,⁸⁶ providing travel for diverse and disabled bodies,⁸⁷ and servicing touristic destinations.⁸⁸ No wonder VR is considered important for the future of tourism.⁸⁹ While tourism seeks to leave the home behind for a limited amount of time,⁹⁰ the home is not reflected on in these studies of VR as a device

⁸² Tussyadiah et al. 2018.

⁸³ Champion 2021.

⁸⁴ Tryselius 2007.

⁸⁵ Tussyadiah et al. 2018; De Lurdes Calisto and Sarkar 2024.

⁸⁶ Williams and Hobson 1995; Bristow 1999.

⁸⁷ Ifitkar, Suad Khan, and Pasanchay 2023.

⁸⁸ Hassapopoulou 2018; Baker, Nam, and Dutt 2023; Izaguirre, Ferrari, and Acuto 2024.

⁸⁹ Lade et al. 2024.

⁹⁰ Nilsson and Tesfahuney 2019.

for leaving place. The relationship between VR and the home as a place has yet to be explored. Engagements with homes in research in VR underline the immersive properties of VR as a technology for going and leaving places. In Beacco et al.'s study on felt presence in a VR experience of a virtually recreated concert, the virtual experience was contrasted against the social isolation of homes during COVID-19 pandemic lockdowns, inducing sadness among the research participants.⁹¹ Another study uses VR to recreate a home, namely Grenfell, a residential building that, together with the lives of some of its inhabitants, was lost to a horrific fire.⁹² This project showcased how VR can have a great emotional impact and importance, and provide a virtual return to a lost home.

VR as a medium for going places has also been explored by media and communication scholars, who have engaged with VR as an immersive medium in a more critical manner. While still defining VR as an immersive medium, here we find studies using VR HMDs that conclude spatial relations are omnidirectional; rather than focusing only on the entering and leaving of VR as transitioning into the virtual, the virtual place and physical space depend on and leak into one another. I will give two examples of the empirical engagements media scholars have provided for more nuanced spatial thought. First, in their study of recreating real places in Virtual Reality, Turner and Turner argue that though technology cannot produce places, if mediation is strong enough, the medium creates the "*perceptual illusion of non-mediation*."⁹³ Going beyond the quantified feeling of presence and instead looking at a sense of place, Turner and Turner turn to phenomenological theories from human geography by Relph and Tuan to understand whether place is at all possible in the virtual. They find that the research participants easily connect their experiences of the virtual places to real place counterparts or experiences. This was not achieved in the study as the research participants felt tethered and bothered by the VR HMDs and cables.⁹⁴ The physical place serves as a reference point, meaning virtual places are recognized as virtual counterparts, that is, as places. The physical place of usage also disturbs the immersion into the virtual place: the physical makes itself remembered through the materiality of the VR HMD and its tethering through cables. It is not only the experience of the virtual place that is

⁹¹ Beacco et al. 2021.

⁹² Guo 2020.

⁹³ Lombard and Ditton, 1998 in Turner and Turner 2006, 207.

⁹⁴ Turner and Turner 2006.

affected by the conditions of the physical place; the appearance of a VR HMD as a technological object also changes the context of the space in which it appears. This is clear in the second example, Parker and Sakers' study on VR as an extension of space in an art museum, where a VR HMD provided an opportunity to view a virtual part of the exhibition that could only be accessed through the headset. They found that the introduction of a VR HMD to the exhibition space changed the social and spatial norms and the behaviors of the exhibition visitors.⁹⁵ Although still sharing the physical exhibition space with others, the visitors reported feeling both intimacy with the virtual space they alone were accessing through the VR HMD as well as experiences of shutting others out, feeling socially removed, and the sensation of being alone in the virtual exhibition. Parker and Saker also found that the person using the VR HMD became somewhat of a spectacle for other visitors. Here, we see VR as having the possibility to change the sense of where one is, as well as how the presence of a VR HMD user affects the spatial contexts around them.

It is also through media scholars that we find recent critiques of immersion. Though we see some studies noting the physical conditions of places affecting the sensation of being in the virtual, these are few. Frith and Saker argue that theories on virtuality, presence, and immersion have limited how to engage with what they call concrete space and that the current iteration of VR breaks with media affordances that made it fruitful to conceptualize virtual and physical environments as separate. They suggest a co-extensive space to capture how the space generated by VR relates to the concrete non-virtual space. Coextensive space works to describe the parallels between movement in the virtual and physical as well as how they, in this iteration of VR, fade into each other.⁹⁶ Burgeoning critique of immersion as the singular spatiality of VR without confronting the notion of VR as a technology for going places makes for reiterating the taxonomy of how the virtual place differs from the material, concrete, or physical place. Recognizing that there are many definitions of VR that all center around immersion, experience, thereness, and interaction, Evans states that "*VR is an active medium, and the user is the key in that activity rather than the content of the VR environment being experienced.*"⁹⁷ Next, we look to research on the active user in VR, as not only being in place, but the embodiment of navigating a virtual environment and virtual bodies.

⁹⁵ Parker and Saker 2020.

⁹⁶ Saker and Frith 2020.

⁹⁷ Evans 2018, 9.

2.1.3 Embodiment: Entering and Moving in VR

From the start, this iteration of VR has been thought of in spatial terms as well as an embodied practice. For Lanier, a pioneer developer of modern VR, a key component is to inhabit not only the virtual world, but the virtual body.⁹⁸ While immersion is a process for inhabiting virtual places, it entails inhabiting virtual bodies. Embedded in the early fictional imaginings of VR is the notion of the body as problematic; the inescapability of the body is understood as a source of annoyance and even contempt.⁹⁹ Through successful immersion, the body should feel left behind.¹⁰⁰ Accepting the virtual body follows the same logic as place presence achieved through immersion: if the virtual body is accepted, then the physical body would be forgotten or at least go unnoticed. The ability to accept a virtual, avatar body as one's own has sparked hopes for VR as an empathy machine.¹⁰¹ Although there are empirical results that we can, by inhabiting bodies through VR, overtake avatar traits,¹⁰² the notion of inhabiting other bodies and having experiences that your gendered, racialized body would not be subjected to in the power structures and norms of society has been heavily critiqued and understood as identity tourism.¹⁰³ Identification and acceptance of the virtual body has also provoked philosophical and psychological ponderings about which bodies we can accept and move as our own. To try out the limits for this, Lanier worked on making bodies strange, to test the limits of which virtual bodies could be inhabited.¹⁰⁴ The intersection of bodily strangeness and technological possibilities has also been explored through attaching extra limbs to virtual bodies for users to manipulate and move.¹⁰⁵ The feeling of ownership of strange or unfamiliar bodies is a testament to the body's ability to inhabit the virtual, but also how embodiment is crucial for navigating the virtual.¹⁰⁶ In presence studies, full body immersion is considered successful when the moving body interacts with the virtual environment in an embodied

⁹⁸ Lanier 2010.

⁹⁹ Dalton 2014.

¹⁰⁰ Chan 2014.

¹⁰¹ Milk 2015.

¹⁰² Yee and Bailenson 2007.

¹⁰³ Kukshinov 2024.

¹⁰⁴ Osborne and Jones 2022.

¹⁰⁵ Slater et al. 2008; Bailenson 2018.

¹⁰⁶ Osborne and Jones 2022.

spatial way: bending over, looking around, under, over.¹⁰⁷

If we, as Champion does, consider the body as our interface when connecting to virtual place,¹⁰⁸ what does that mean for inhabiting virtual bodies as well as physical ones? Since the mixing of virtual and real environments confuses the perceptual experience, there is an adaptation of the bodily movement when in the virtual. Cybersickness as a reaction to being and moving while wearing VR HMDs speaks to the need for sensory adaptation when entering virtual places.¹⁰⁹ This sensory shift is also noted when leaving VR, which causes a re-adaptation of the proprioceptive system to physical environments.¹¹⁰ However, the relationship is not always as clear as the body first being in the physical, and then entering the virtual. To move inside the virtual place, the user has to figure out how to move or make their virtual body move through the use of buttons, but they have to learn or already be literate in forms of mobility like 'fast travel'.¹¹¹ To complicate matters further, the movements of the body are not isolated to the virtual; the body moves in the virtual and physical simultaneously.¹¹² The body is moved in some manner when using VR.¹¹³ Even if not moved between places, we need to consider the body as moving not only into the virtual, but in-between, both in the virtual and physical at the same time. The body transgresses the boundaries made between the virtual and physical, as it does not leave the physical place when it becomes immersed in the virtual.

2.2 Empirical Work on VR and VR HMDs in Human Geography

We can conclude from the empirical research on VR in other disciplines that there is a richness of spatial relations and effects of VR HMDs on users' experiences. Yet, as an emerging technology, VR has received disproportionately little attention in the discipline of human geography compared to other technologies.¹¹⁴ This is not to say that human geography has not had an impact

¹⁰⁷ Slater 2018.

¹⁰⁸ Champion 2021.

¹⁰⁹ Wehden et al. 2021.

¹¹⁰ Valori et al. 2020.

¹¹¹ Hollett et al. 2020.

¹¹² Saker and Frith 2020.

¹¹³ Osborne and Jones 2022.

¹¹⁴ Bos 2021.

on VR research. Early contributions theorizing Virtual Reality, such as by Crang, Crang and May,¹¹⁵ and Kitchin's work on cyberspaces,¹¹⁶ were early conceptualizations of virtual spaces, imagined as soon accessible through VR technology. More recent contributions, such as Rose's work on cultural and digital objects,¹¹⁷ Ash et al.'s work on interfaces,¹¹⁸ Leszczynski's work on mediation,¹¹⁹ and Paiva's sense of place in virtual environments,¹²⁰ have created productive intersections with human-computer interaction studies and media and communication studies in VR research. In 2002, Fisher and Urwin wrote that *the geography* of VR is not singular, but the different ways to conceptualize, move through, and visualize virtual spaces accessed through VR technology made for a *geographies* of VR.¹²¹ While recognizing the work on conceptualizing VR by Bos¹²² and by Gardner, Bennett, and Sabbata,¹²³ the most prominent ongoing engagement with VR from geographers has been by Jones and Osborn, who have explored working with VR methodologically,¹²⁴ VR as an educational tool,¹²⁵ the Metaverse,¹²⁶ as well as embodiment and VR.¹²⁷ Human geography also has a longstanding engagement with empirical studies of Virtual Reality in terms of virtual environments, although not reached through VR HMDs specifically. Two examples of this highlight the most prominent intersections between VR and geography. First, Dittmer's use of Second Life for virtual field trips in virtual environments in university-level education in human geography. The authors found that virtual environments are a productive way to bridge geography education and popular media, examining how representations of geographies are constructed.¹²⁸ Second, in a study of racing simulators as virtual

¹¹⁵ Crang, Crang, and May 1999.

¹¹⁶ Kitchin 1998.

¹¹⁷ Rose 2015.

¹¹⁸ Ash et al. 2018.

¹¹⁹ Leszczynski 2015.

¹²⁰ Paiva 2015.

¹²¹ Fisher and Unwin 2001.

¹²² Bos 2021.

¹²³ Gardner, Bennett, and Sabbata 2023.

¹²⁴ Jones et al. 2022; Rzeszewski et al. 2024.

¹²⁵ Jones and Osborn 2020.

¹²⁶ Jones 2023.

¹²⁷ Osborne and Jones 2022.

¹²⁸ Dittmer 2010.

places, Paiva argues for the importance of a sense of place as conditioning of feeling presence in the virtual.¹²⁹ He theorizes place through a phenomenological framework and recognizes that virtual spaces are created to be mentally dwelled in, while virtual places provide for embodied senses of being in place.¹³⁰ Virtual places, like any places, draw geographical attention; and being in place makes for an embodied emplacement.

In the following two sections, I engage with empirical research on VR HMDs in human geography. The first section focuses on the most prominent intersection between VR research and human geography: research on using VR HMDs in geography education. If the interest of tourism scholars in VR underlines the notion of VR as a technology for going places, then the interest in VR in geography education highlights the notion of VR as a technology for knowing places. The second section is dedicated to Blackman's study of presence and immersion in VR as spatial performativity, which I argue lays the basis for a geographical critique of VR through how it notices the duality of being in place through VR HMDs.¹³¹

2.2.1 VR HMDs in Geography Education

As mentioned, the most empirically explored intersection between VR and geography is the usage of VR in geography education or education deploying geographical methods. The focus of these studies varies in what VR HMDs are imagined to do for the students and teachers, but the findings also note the spatiality of VR usage beyond the virtual place. While scholars often draw conclusions based on the performance of the technology and academic results, such as the effectiveness of VR as a tool for teaching and whether the use of VR HMDs produced higher academic results,¹³² we can trace practices, spatialities, and sensations of VR that are not isolated to the classroom or the teaching experience. VR is considered to give students a better understanding because VR HMDs allow experiencing rather than observing the teaching material.¹³³ Understanding VR as an experience rather than as another way of mediating teaching materials speaks to the discourse about VR as a device that is close to a sense of non-mediation in its very design: mediation through VR HMDs engages bodily senses in a way that makes the student feel beyond their

¹²⁹ Paiva 2015.

¹³⁰ *Ibid.*

¹³¹ Blackman 2022.

¹³² M. Bagher et al. 2022; Ozdemir and Ozturk 2022.

¹³³ Ozdemir and Ozturk 2022; McLean 2021; Bos, Miller, and Bull 2022.

emplacement in the classroom.

The relationship between the experience of a physical place versus a virtual representation of that place is in itself a subject of study. Roelfsen and Carter-White argue that using VR for virtual fieldtrips rests on a representational logic: the place visited in the virtual has a real counterpart, and is actualized somewhere.¹³⁴ Osborn and Jones find that fieldtrips in the virtual can produce place experience.¹³⁵ The use of VR technology for fieldtrips rests on the geographical assumption of experience as emplaced, and that place experience is expected to provide for a learning experience. A good example is Schott and Marshall's study of learning outcomes by using VR HMDs for students to perform geographical fieldwork on a virtual recreation of a Fijian island.¹³⁶ Following the common methodology of using a sample of one's own students to study the effects of VR, semi-structured interviews after the virtual fieldtrip were used to capture the students' experiences. Many students reported feeling like they were *actually* or *really* there on the island. Others said that it felt real, but more like a game. The students seemingly had a hard time expressing the disconnect between feeling like they had real experiences, but they did not necessarily understand the virtual place as a real one. This suggests either a radical disconnect between experience and place, or that the students had a hard time formulating how experience relates to place when that place is virtual, somewhere you are but actually are not. Notably, VR is understood as a device suitable for knowing place, suggesting that VR can take you places – even though these place experiences are hard to understand as place experiences even by geography students and teachers.

While there is a predominant focus on the virtual places accessed through VR technology, many studies note both the socio-spatial environment of the classroom as well as the embodied aspects of students' usage. Hagge finds that students are reluctant to use a VR HMD as it puts them in front of the class as a spectacle for other students, which is socially uncomfortable.¹³⁷ Again, presence is used as a measurement for the success of the VR experiences of the student, when it is rather the physical non-virtual situation that seems to have the biggest impact on whether the students use a VR HMD at all. McLean notes that the need for students to change their hair and remove make-up to use a VR

¹³⁴ Roelfsen and Carter-White 2022.

¹³⁵ Jones and Osborn 2020.

¹³⁶ Schott and Marshall 2018.

¹³⁷ Hagge 2021.

HMD strained students' willingness and notes that the socio-spatial environment has to be considered when applying immersive media in a classroom setting.¹³⁸

These studies include not only questions of the social aspects of the body using VR HMDs, but also sensory aspect including the weight of the headset and the sensation of being isolated and enclosed when wearing it,¹³⁹ nausea and comfort,¹⁴⁰ and tech literacy of both students and teachers to provide familiarity with VR as a technology and using VR HMDs as a technological object.¹⁴¹ Though none of these studies focus on immersion or VR HMD usage, studies on VR technology pick up on the emplaced and embodied aspects of the user. VR usage is noted as a social-spatial and sensuous practice. Sensuousness can also provide a starting point for immersion critique. Embodiment in VR is more complex than mental presence in the virtual, due to the body's sensuous capabilities.¹⁴²

2.2.2 VR as Being in Places

By noticing the way in which the body and device connect and the effect of the socio-spatial context of where a VR HMD is used, it is clear that VR usage is an embodied sensuous practice that is not contained in an imagined virtual realm. Rather, it is hinted at that place experience through VR HMDs is an experience of being in a virtual as well as a physical place. Few studies underline this point, among which is Blackman's study on the socio-spatial aspects of VR. The author explores immersion and presence in the virtual place as performative acts, dependent on the embodied actions of the user. Blackman uses stimulated interviews, which consist of the research participant using a VR HMD to play a VR videogame and then using semi-structured interviews to study participants' engagement and reflections. Even though this study is not as well recognized as the studies mentioned above, I pay extra attention to it due to how the approach and results demonstrate the possibilities of expanding on spatial relations beyond immersion and presence in the virtual when applying a geographical perspective to VR usage and the immersive qualities of VR HMDs.

Blackman does not understand immersion as a condition that can be fulfilled by technological solutions, but rather as a fluctuating sensation "...that

¹³⁸ McLean 2021.

¹³⁹ Roelfsen and Carter-White 2022.

¹⁴⁰ McLean 2021.

¹⁴¹ Hagge 2021; Bos, Miller, and Bull 2022.

¹⁴² Kukshinov 2024.

occurs across space and time, through discourses, technologies, and embodies subjectivities that are simultaneously wrapped up in its effect."¹⁴³ His findings include participants experiencing sensations of getting lost both in the virtual and the physical by losing track of their orientation in relation to the physical room. Immersion is reframed from a loss of stimuli from the physical place, as to facilitate a presence in the virtual space, to a sensation of losing touch with one's emplacement in the physical. This was not necessarily exhilarating or comfortable for users in the study; one participant explained it in terms of feeling consumed by the VR technology. Contrary to research in other fields centered on the spatial effects of VR usage, Blackman's study breaks with the idea of immersion as inherently positive and desired to be increased by users of VR HMDs. Expanding on the dimensions of immersion, Blackman distinguishes between the physical immersion as the technologically induced sensed *thereness* and the mental immersion as the willingness of the user to give into the sensation of going into the Virtual Reality. Blackman concludes that the usage of VR HMDs, as it is engaged with in new ways, reworks VR technology and its immersive qualities, and that the study of VR technologies must look to embodiment as well as the spatiality produced in and by usage. I highlight Blackman's study because it showcases that, in bringing a geographical perspective on immersion, the physical place plays a large role in the active performance of immersion for users. Understanding VR usage as both happening in a virtual and physical place provides for a being in places: a participant reported feeling overwhelmed by being in dual places, the virtual and physical, constantly trying to re-orient himself in the real world as he moved in the virtual world.¹⁴⁴

Engaging with Virtual Reality accessed through VR HMDs from a geographical perspective means engaging with being in place as a shifting, being in place, and being out of place. Blackman claims that "*any sense of a virtual here and an actual there is a performative practice of drawing boundaries.*"¹⁴⁵ Blackman hints that the practice of VR HMD usage still speaks to a singular emplacement of the user, but that immersion entails navigating a being in place that tends to more than one place at a time. It is clear that there is much for geographers to explore empirically when it comes to spatiality, emplacement, and being in VR as a being in place. While there is a history of engagement with

¹⁴³ Blackman 2022, 409.

¹⁴⁴ Blackman 2022.

¹⁴⁵ *Ibid.*, 417.

Virtual Reality and cyberspaces in human geography, recent engagements by geographers with VR technology and VR HMDs stem from engaging empirically with VR HMDs. This broken lineage between theorizations of Virtual Reality and VR technology and the empirical work on VR HMDs can be noted in contemporary conceptualizations of VR technology. Next, I turn to the field of virtual geographies to explain the lull in geographers' engagement with VR HMDs and why it matters for current discourses on virtual and digital places.

2.3 From Virtual to Digital Geographies

While spatiality has been important in conceptualizing VR as a medium, there have been few recent empirical studies on VR in human geography. This does not mean that VR has gone unnoticed by geographers. Rather, it is the result of the strange combination of having been understudied in an empirical sense while having been extensively theorized. Human geography was early to theorize Virtual Reality and VR technology in relation to cyberspaces, networks, and conceptualizations of virtual spaces and their effects, both actual and imagined. How we talk about VR and which metaphors we use have meaning for how we understand VR as a space or place.¹⁴⁶ Moreover, how we talk about VR in human geography is discursively layered through how the virtual has been engaged with in the subfield of virtual geographies. This area of research came to fruition during the 1990s, involving the analysis of the spatial implications of technological advances such as the internet, intranets, and cyberspaces.¹⁴⁷ Virtual geographers took an interest in the fast-paced development of virtual environments as well as devices and networks that were bringing them into being. I argue that this field has impacted how geographers understand, theorize, and study (or do not study) VR today within human geography. I also argue that there are insights to be gained from understanding how VR became so entangled with the broader concepts of virtual realities and virtual environments that they are still not separated in human geography literature today.

2.3.1 *Virtual Geographies: a Favoring of Space*

The entanglements between Virtual reality, VR HMDs, and VR technology are tied to the emergence of virtual digital places. The rise of the internet during the 1990s and 2000s marked a point in time when geographical conceptualization

¹⁴⁶ Graham 1998a, 180; Tryselius 2007, 32.

¹⁴⁷ Kinsley 2014.

for navigating these unfamiliar geographies proliferated. Early internet infrastructures were filled with geographical imaginations and spatial metaphors such as frontiers and homepages.¹⁴⁸ Metaphors for what was done online were also spatial in nature; surfing and navigating were ways of moving through the internet as an environment.¹⁴⁹ The role of spatial metaphors was to make sense of the spaces and places emerging in the virtual landscape, but they also provided the possibility to recognize these virtual spatialities as places, through invoking a sense of place.¹⁵⁰ Although the role of metaphors was to make virtual places knowable, they also provided for imaginings of disembodied and dematerialized ways of being in these spaces.¹⁵¹ As formulated in the confusing and super catchy song “World Wide Web” by Nick Borgen “*World Wide Web, Here I live happily, there is no stress, On my new home address.*” What kind of interactions were possible (“*shutting the door to your home page and serving your guests oysters and wine*”) was not clear, but the possibility of leaving the physical behind when you enter the online (“*if you are feeling depressed and the city closing in on you*”). There were great spatial promises of the technologies emerging.

In his book on cyberspace, Kitchin predicted VR to be one of three important areas in our cyberspaces, alongside the internet and intranets, and in telling the story of cyberspace’s development, VR and the internet were paired as two sides of the cyberspace coin.¹⁵² It was unclear how VR (when it arrived) would relate to cyberspace, but VR would surely be a console to enter the virtual, just like in Gibson’s novels, when the technology became good enough. We can see how this idea is still prominent today based on Meta’s envisioning of the Metaverse, in which VR is central.¹⁵³ This hyperbolic way of framing VR and the internet is also noted by Thrift, who stated that “*There is a mode of writing... According to this body of literature what we are seeing is nothing less than a new dimension coming into existence.*”¹⁵⁴ One might dismiss this as what Wilkens deems boosterist literature,¹⁵⁵ but who knew at the time? We can

¹⁴⁸ Adams 1997.

¹⁴⁹ Fraser 2023.

¹⁵⁰ Wilken 2007.

¹⁵¹ Adams 1997.

¹⁵² Kitchin 1998.

¹⁵³ Evans, Frith, and Saker 2022.

¹⁵⁴ Thrift, 1996:1465 in Kinsley 2014, 364.

¹⁵⁵ Wilken 2007.

recognize the frenzied discourse on what will happen to society as a result of rapid technology development, as seen in the recent discussions on artificial intelligence (AI).

With the emergence of the Internet and cyberspace, technological development stressed the need for new forms of geographical thought.¹⁵⁶ How would these spatial relations work? What forms would the virtual take? As technologies were making flows of communication faster, giving location less importance in relation to accessing information, one's place was seemingly less important. The virtual became associated with spaces such as cyberspace,¹⁵⁷ code/space,¹⁵⁸ or, why not a space generated by technology itself?¹⁵⁹ This reflects on the concept of space at the time, which was theorized as an abstraction of place. A typical example of this line of thinking is demonstrated by Batty in his mapping of the emerging cyberspaces and places. Place, as inherently material, could transcend into a space, but in this new regime, cyberplace was not a place within the virtual. Rather, cyberplace referred to the reorganizing effects of materiality that the virtual had on traditional places.¹⁶⁰ The connotation of the virtual as belonging to spaces juxtaposed it against the material. As posed by Batty, materiality stays in place while space is transcendental. The virtual was discussed as an immaterial realm to be conjured by technology.¹⁶¹ The abstractness of early virtual spaces provided for an immaterial understanding of the virtual.¹⁶² Therefore, it was an uphill battle for virtual geographers arguing for the materiality of the virtual. The imagined transcendental nature of the virtual made the question of materiality curricular. Kinsley argues the materiality of the virtual is both important and often underdiscussed.¹⁶³ The mantra of the 'virtual is material' can be found in later accounts of virtual geographies, but it functioned more as a conclusion than as an account of how or in what ways. While some geographers argued that cyberspaces and the

¹⁵⁶ Batty 1997.

¹⁵⁷ Shields 2003.

¹⁵⁸ Kitchin and Dodge 2011.

¹⁵⁹ Tryselius 2007.

¹⁶⁰ Batty 1997.

¹⁶¹ Kinsley 2014.

¹⁶² Ibid.

¹⁶³ Ibid.

internet were not eroding spatiality and power structures but simply giving them new forms,¹⁶⁴ the question of what to make of these spaces remained.

2.3.2 *Ontologies of the Virtual*

Even if emerging virtual worlds and spaces were exciting to theorize, the ontological complexities of the concept of the virtual posed a problem. If Virtual Reality was something other than reality without prefixes, what made it other? This was an ontological question of what the virtual should be understood as. The material, the real, the concrete, and the physical have all served as binary opposites of the virtual.¹⁶⁵ The struggle seemed to be connecting material expressions of spatiality to these lucid geographies. Geographers tried to challenge the constructed binary of the virtual as cyberspaces with questionable materiality, against the reality of everyday life expressed in the physical world.¹⁶⁶ By being pitted against what is real, the virtual became caught up in philosophical notions. There are three main strands of how to understand this relationship between the virtual and the real, each with its own ontologies and conceptualizations.

First, there is the essentialist perspective on the virtual. Here, the virtual becomes a version of the real. Shields defines the virtual through its almost-ness.¹⁶⁷ He turns to the etymology of the virtual, “*it is what is so in essence but not in form,*”¹⁶⁸ bringing the virtual up as a question of quality ascribed to virtual places such as virtual hospitals, banks, and florists we encounter in everyday life. This idea of the virtual is expressed in digital twins, VR tourism, and VR recreating people and places to either bring them back or preserve them for the future. Second, we have the Deleuzian understanding of the virtual as real but not yet actualized.¹⁶⁹ The point of the Deleuzian virtual is to bypass notions of the virtual being unreal. Tryselius explored the Deleuzian virtual in her thesis on Virtual Reality and VR, which for her, are indistinguishable.¹⁷⁰ Third, we have the Baudrillardian simulacra, understanding the virtual as more real than reality itself.¹⁷¹ Here, Virtual Reality

¹⁶⁴ Wilson 2001.

¹⁶⁵ Shields 2003.

¹⁶⁶ Rose 2019.

¹⁶⁷ Shields 2003.

¹⁶⁸ *Ibid.*, 22.

¹⁶⁹ Deleuze, 1997 in Chan 2014.

¹⁷⁰ Tryselius 2007.

¹⁷¹ Baudrillard 1981.

is a hyperreal place, and the copy of copies works to dissolve any boundaries between what we consider real or virtual, which provides for the virtual transcending reality itself.

We recognize these ontologies in Graham's taxonomy of three perspectives on how spaces and places were conceptualized in engagements with emerging information technologies and virtual worlds of the 1990s: *substitution and transcendence*, *recombination* and *co-evolution*.¹⁷² These three lines of reasoning all came with their own ontologies and debates, and we can trace their fallout in engagements with virtual and digital geographies today. First, substitution and transcendence (based on Baudrillardian ontologies, represented by early engagement with VR and virtual spaces by geographers) subscribes to the idea that new technologies will reconfigure the spatial relations of our sociality, and that some technologies will simply replace spatial behaviors by making them obsolete.¹⁷³ We can recognize these notions championed by researchers on the technological side of the spectrum, such as Bailenson. Second, recombination (drawing on the Deleuzian ontologies, represented by Actor-Network Theory (ANT), picked up by the non-representationalists). From this perspective, spatial relations become blurred, multi-directional, and cyborgian. In the recombination perspective, one can discern the embryo of more-than-human geographies that today is an applied research perspective on technologies. Third, co-evolution (ontologies from Shields) recognizes that the material and "real" will not disappear into virtuality; rather, geopolitics, inequalities, distances, and spatial relations are recreated and represented in technologically generated spaces.¹⁷⁴ This is visible in the notion of immersion in VR as entering a separate space, as well as feminist critiques of technology as neutral.

The multiple ontologies and the ontological complexities of the concept of virtual did not help in the struggle to connect virtual places and spaces to material expressions of spatiality. The different overlapping ontologies of the virtual made the question of whether the virtual was real, or the relationship between the real and the virtual, into a never-ending reasoning. In 1999, Doel and Clarke commented on the state of the virtual as used in geography, where the virtual: "*...is invariably collapsed into a badly analyzed version of the real (its degraded or resolved double) – wherein the real and the*

¹⁷² Graham 1998.

¹⁷³ Ibid.

¹⁷⁴ Ibid.

*virtual are no longer distinguishable according to qualities (power and affects), but only according to quantities (more or less).*¹⁷⁵ Further, Doel and Clarke name the ongoing striving for separating of the virtual from the real a pointless endeavor. Yet this heritage haunts the usage of the term, as geographers continuously remarked that they do not subscribe to the definition of the virtual as unreal or immaterial.¹⁷⁶

2.3.3 Digital Geographies: Ontics over Ontologies

Although the field of virtual geographies dissolved through different debates, the spaces and places it tried to understand and explain were still there. Open to theorizing, these spaces and places were picked up by the emerging field of digital geographies. Ash, Kitchin, and Leszczynski describe the digital turn as a shift in research focus toward geographies produced through, by, and of the digital; in addition, geographical practice and knowledge production are intertwined with the digital.¹⁷⁷ In the field of virtual geographies, the virtual and digital were equated. Batty as well as Kinsley use the terms “virtual” and “digital” interchangeably and to describe the same spaces and geographies.¹⁷⁸ As we have seen, however, the virtual as a concept in human geographies has baggage or immaterialities and ontological confusion. The digital was presented as more tangible, less fantastic than the virtual, whereas the virtual was always a question of qualities of the spatial, and the digital has quantitative connotations. The digital refers to the binary of ones and zeroes or *digit*, the counting finger.¹⁷⁹ The digital is not imagined or felt as much as it is counted. There are epistemological considerations to make about this: the idea of digital computation is that all knowledge can be reduced to 0s and 1s.¹⁸⁰ While virtual geographies have ties to the ontological, digital geographies pertain to ontics,¹⁸¹ the actual, rather than the virtual. Positioning against ideas defining for virtual geographies, Ash, Kitchin, and Leszczynski conclude that the virtual and cyberspace are concepts that work in creating separate realms for the “*digital and analogue, the virtual and the actual*”.¹⁸² Unlike the virtual, the digital is not

¹⁷⁵ Doel and Clarke 1999, 261.

¹⁷⁶ Kinsley 2014.

¹⁷⁷ Ash, Kitchin, and Leszczynski 2018.

¹⁷⁸ Kinsley 2014.

¹⁷⁹ Ash, Kitchin, and Leszczynski 2018

¹⁸⁰ Batty 1997.

¹⁸¹ Ash, Kitchin, and Leszczynski 2018; Ash, Kitchin, and Leszczynski 2019.

¹⁸² Ash, Kitchin, and Leszczynski 2018, 33.

a realm of its own, but “...ubiquitously embed networked digital technologies across physical landscapes...”¹⁸³ That is why the digital has found its way into practices of politics, governance, mapping, mobility, economies, everyday life, digital media, as well as imaginings.¹⁸⁴

The digital is defined broadly as the flows, discourses, interactions, rhythms, and spatial relations that are generated, related, or emerge through digital computerized systems.¹⁸⁵ Location and its role in organizing data and people have been an exciting articulation of the intersection of mediation, digital mapping, and geography. The exhilarating possibilities of the geolocatable user have given rise to a plethora of scholarship of creative mapping. However, in mapping digital spaces, place is a point within space: place becomes location as in coordinates.¹⁸⁶ Moreover, the idea of emplaced, embodied usage of technology can get lost in translation. This can be by design, an ANT or more-than-human-approach to decentralize the focus on the human,¹⁸⁷ or the result of the lack of the human body: not digital on its own, it needs devices to be connected. One can argue that the body is reduced to a locatable body, rather than the body as located. It can almost seem that the devices are location-aware rather than us. This is not to say that work on mapping digital spaces cannot be rich and tending to significance or bodies.¹⁸⁸ Mapping practices can be researched as embodied, felt, and part of the historical and material fabric of places.¹⁸⁹

The ubiquitous nature of the digital and the possibilities for fluid and accelerated mobilities are perhaps reasons why we still see struggles with conceptualizing being in digital places. Digital place is somewhat uninhabitable. According to Relph, digital media produces a sense of uncertainty about where you are and the implications of your position. Due to the overwhelming amount of information and imagery that floods the users’ senses, digital places are “*inherently disorienting*”.¹⁹⁰ Maciej conceptualizes digital place as something

¹⁸³ Ash, Kitchin, and Leszczynski 2018, 26.

¹⁸⁴ Ash, Kitchin, and Leszczynski 2018.

¹⁸⁵ Ibid.

¹⁸⁶ Malpas 2017.

¹⁸⁷ Dowling, Lloyd, and Suchet-Pearson 2017.

¹⁸⁸ Leszczynski and Elwood 2015.

¹⁸⁹ Wilmott 2020.

¹⁹⁰ Relph 2021, 572.

we move through,¹⁹¹ and Jansson and Adams, in their critical examination of disconnection practices from digital media, conclude that place is often understood as something to withdraw to from the digital.¹⁹² The ubiquity of the digital, for some reason, refuses traditional understandings of place on a level that seems almost ontological. Maybe there is a clue in Galloway's argument that experience or affect falls outside of what is computable,¹⁹³ and Pugh explores how saturation of logic, logistics, and measurement makes the world feel increasingly un-beable.¹⁹⁴ In a strange full circle, Turnbull et al. name VR an entry point for talking about the relationship between the material and the digital.¹⁹⁵ The spatial relations of VR emergence are different today than in the 1990s. At the time, VR HMDs were devices imagined to use the body as an interface to inhabit cyberspace, a separate realm. Today, cyberspace is everywhere. Through our digitally infused everyday life and through the ubiquity of the internet.¹⁹⁶ Still, digital places are either reduced to location or hard to conceptualize as somewhere we can be. We can see these examples as making the digital out to be something other than the physical and the material. When approaching places through the concept of the digital, some problems are eerily similar to those of virtual geographies. Rather than trying to create a taxonomy of how virtual, digital, material, and physical relate to each other, I argue for approaching the usage of VR HMDs as a mode of being in place through devices. Kinsley asks for "*...studying contemporary sociotechnical situations that recognizes the inherently material character of 'virtual' geographies.*"¹⁹⁷ He also suggests, fleetingly, that place could provide for a material component within the virtual.¹⁹⁸ We find the same notion from Osborne and Jones, who argue to "*...move beyond glib phrases about the inseparability of the material and the digital, to start thinking about how different technologies are being constructed to blur that boundary in quite disturbing ways.*"¹⁹⁹ The case of VR usage as happening in place and as a mode

¹⁹¹ Maciej 2024.

¹⁹² Adams and Jansson 2023.

¹⁹³ Galloway 2021.

¹⁹⁴ Pugh 2023.

¹⁹⁵ Turnbull et al. 2023.

¹⁹⁶ Evans 2018.

¹⁹⁷ Kinsley 2014, 365.

¹⁹⁸ Ibid., 370.

¹⁹⁹ Osborne and Jones 2022, 6.

of being in place, provides an opportunity to revisit and expand on the notion of being in virtual digital places, without expanding on the disembodied, displaced, and spatialized schools of thought.

3. Theoretical Framework

The rooting of place as part of everyday experience precedes its academic conceptualization.²⁰⁰ Place can feel everyday and mundane, which is why it becomes easy to glance over. Place tends to be “*forgotten, overlooked or ignored,*”²⁰¹ and for many, it is simply there. This theoretical chapter begins in place. Place is a way of knowing and understanding the world as connected, meaningful, and experienced.²⁰² Theoretically, places are complex entities, and understanding the being in them and sharing them with other bodies and objects is further complicated through technological development and emerging media.

In his exposé of the philosophical history of place, Casey claims that our understanding of space and place, and their relation, is one of our oldest philosophical quandaries.²⁰³ Casey notes that the association with particularity has made place unpopular within Western philosophy. The *somewhere* of place is not as appealing as the universal claims of the everywhere associated with space.²⁰⁴ Place seems almost stagnant in relation to the fast-paced, mediated society of today. Turning to place as for theorizing spatiality and embodied virtual practices in relation to VR-usage might seem contradictory when considering where place has ended up in the current paradigm of digital geographies; digital places are seemingly uncomfortable and un-dwellable.²⁰⁵ Studies like that by Maciej suggest that digital places are for passing through, leaving marks by nudging the algorithm.²⁰⁶ Places are instead considered as locations productive for studying certain digital geographies: maps, locate-ability, and so forth, or reduced to location-coordinates. However, places are not locations or areas on maps.²⁰⁷ Looking to understand place, Malpas writes, “*As soon as one shifts away from the simplistic notion of place as mere ‘location’ (the notion of place that is at work in the use of a map of giving of an address) and towards the notion of place as that wherein things appear or come to*

²⁰⁰ Foreword from 2008, in Relph 1976.

²⁰¹ Malpas 2017, 389.

²⁰² Cresswell 2015.

²⁰³ Casey 1996.

²⁰⁴ Casey 1997.

²⁰⁵ Relph 2021.

²⁰⁶ Maciej 2024.

²⁰⁷ Massey 2004.

presence .../... then one is also forced towards a recognition of place as given always and only relationally – not only inasmuch as any and every place is embedded within a network of other places, nor even inasmuch as any and every place embeds a myriad of other places within it, but also inasmuch as things are themselves shaped by the places in which they appear, even as they also contribute of the shaping of those very places... ”²⁰⁸

Place is connected, related, and myriad: shaping and being shaped by places is our very mode of being. Yet emerging media technologies are imagined to grab at this core of human experience, reshape it, and explode place.²⁰⁹ Emerging media technologies play with distance,²¹⁰ blur boundaries,²¹¹ and the significance of place,²¹² and they are expected to affect our very sense of what being in place means.²¹³ As established in my literature review, exploring how VR usage affects places and our sense of being in place is a question of emplacement and embodiment in virtual digital spaces as well as physical ones. Irreducible to immersion, being in place through VR needs to be explored not only through presence in the virtual, and the inhabiting of a virtual body, but conceptualize user emplacement through immersive media as being in place. This emplacement is Ekopic, the user is present in the virtual place and the physical place simultaneously, both here and not here. This begs the question: how can we understand being in place with and through a medium like VR?

This conundrum, how places and being in place are reshaped by emerging technologies such as VR devices, or how emplacement and embodiment are affected by media technologies, guides this theoretical chapter. Building a theoretical framework for analyzing how our being in place is affected by emerging media, I begin in place: starting by moving beyond place as a mere location by introducing how place as a core concept in human geography has come to take on shifting meanings and attributes. I conclude that understanding place as combining different elements, people, and processes: a multiplicity relating to the limits of the single place. Second, I turn to the phenomenology of being in place, to understand place as somewhere we are: embodied, emplaced, and in relation to others. Focusing on the emplacement of the living, moving

²⁰⁸ Malpas 2017, 381–382.

²⁰⁹ Graham 1998.

²¹⁰ Marvin 1988.

²¹¹ Adams 2005.

²¹² Relph 2021.

²¹³ Meyrowitz 1985.

body, I frame our being in the world through the sensuous inhabitation of bodies and objects. Third, I discuss media technologies as an ontological in-between. Media technologies both disrupt and reshape how we understand what it means to be in place, being here and there as well as distance. I build on the spatial phenomenology of the medium as a technology conditioning our very being in the world, being in place.

3.1 (T)Here: Place

*“Geography is about place and places.”*²¹⁴

Tim Cresswell famously asserts that place is the most important term in geography.²¹⁵ I am not writing that to make myself (as a geographer researching place) important, or to say that all geography must start at the beginning with discussing place, space, landscape, region, and so on. As a core concept of human geography, place should not be taken for granted; it needs to be returned to and continuously re-examined as having multiple ambiguous relations.²¹⁶ Place has a long history. In myths of creation, place is regarded as necessary for the world to come into being. For the Greek philosophers Archytas and Aristotle, place is the beginning, as in the Archytian Axiom: *“Place is the first of all things.”*²¹⁷ For Aristotle, place depends on location, as it is unchangeable and unmovable.²¹⁸ This harsh and cemented definition of place dominated until questions about the movement of the world around the sun raised the question of whether place could move.²¹⁹ What was the point of place, if it was not fixed? How could place then be navigated, except as precisely a location in space? (Kant even goes so far as to ask why do we need the concept place when position is both locative and ancillary to force?²²⁰) The meaning of place was reduced to a location within space.²²¹ As Edward Casey shows with his historical reading of place and space as brethren concepts, during the Middle Ages, place is drained

²¹⁴ Cresswell 2015, 1.

²¹⁵ Cresswell 2015.

²¹⁶ Trigg 2012.

²¹⁷ Casey 1996, 16.

²¹⁸ Casey 1997, 55.

²¹⁹ *Ibid.*, 133.

²²⁰ *Ibid.*, 188.

²²¹ *Ibid.*, 134, 182.

of significance and takes over of characteristics earlier prescribed to space.²²² This might explain some of the double prescriptions of characteristics when talking about spaces and places, and the apparent evasiveness of place. Perhaps it is fitting that a current preferred understanding of place in human geography, place as thrown-together, comes from someone who had a passionate love for space, Doreen Massey.

My understanding of place draws upon Casey's and Massey's conceptualizations of place. I have chosen Casey and Massey because they are prominent spatial theorists. Casey is a proponent of place, who has both traced its history as well as underlined its importance for our understanding of the world. I utilize his historical descriptions of place as well as his phenomenological texts. Massey is one of the great geographers of our time. A champion of space, she remains dominant for geographical understandings of developing spatial relations of space and place on a scale from the located to the global. One might argue that Massey's conceptualization of place as global and indistinguishable from space makes it a concept for macro processes rather than a phenomenological approach. Moore concludes that Massey's conceptualization of place as throw-together has dominated among geographers, not only looking at macro-scale geographies, but places as lived and encountered.²²³ Another reason for choosing Massey and Casey is due to their similarities and differences in outlooks and place definitions. While both understand place as tending to the presence of various bodies, objects, processes, and relations, they differ in their understanding, or rather views, of the limits of place. I start by discussing what I call the multiplicity of place, how Casey and Massey handle the myriad of bodies, objects, relations present in place, and those that are not present. I then look to boundaries since Casey and Massey agree about their existence, but they differ on their significance for understanding place.

3.1.1 The Multiplicity of Place

The wish to handle the multitude of place has led to theorizations of place as a complex arrangement. Two such conceptualizations of place are Massey's place as *thrown-together* and Casey's place as *gathering*. In her exposé of space as significant and meaningful, Massey poses place as thrown-together to counter the idea of place being unified and beforehand decided. For Massey, place is: "...the coming together of the previously unrelated, a constellation of processes

²²² *ibid.*, 115.

²²³ Moore 2025.

rather than a thing."²²⁴ The thrown-togetherness of place is exemplified by the street, where the trajectories of different people, processes, and establishments are scrambled into something perceived as one.²²⁵ Places are not equal for all; the movement of different bodies and trajectories through places is conditioned. Massey's places (1) should be understood as processes, (2) are not dependent on boundaries, but shaped by the outside of place, (3) have multiple identities, and (4) can be important and unique.²²⁶

Casey conceptualizes places as gathering. The gathering qualities of place happen on many levels, from the profound to the mundane.²²⁷ This is the main condition of place: "*Minimally, places gather things in their midst – where 'things' connote various animate and inanimate entities. Places also gather experiences and histories, even languages and thought.*"²²⁸ Gathering for Casey is not simply an accumulation, but rather a "*holding together.*"²²⁹ This holding happens in four ways: (1) various elements in space are held in such a way that we feel that they are arranged. This does not mean ordered; a place can be a place of conflict, but in such a way that we make sense of what is *in* the place. (2) Place holds in and out, it has boundaries. (3) This holding is not simply happening in and of place; it happens in relation to the surrounding landscape. Place is not contained by landscape but shaped by it. (4) Place keeps: the gathering is not an event of the moment, but bodies, things, and memories mark and shape places.²³⁰

I am not the first one to note the similarities between these two conceptualizations of place: both Cresswell and Pink point to overlaps in Casey's and Massey's place definitions based on how they handle multitudes of bodies, objects, and spatial relations present in place.²³¹ Both Casey and Massey recognize the outsideness of place as shaping it; Casey finds place as part of a landscape, while Massey's place has global relations. Both recognize the ongoing process of place. For Casey, the experiences, histories, and memories shape

²²⁴ Massey 2004, 141.

²²⁵ Massey 2004.

²²⁶ Cresswell 2015.

²²⁷ Casey 1996.

²²⁸ *Ibid.*, 24.

²²⁹ *Ibid.*, 25.

²³⁰ Casey 1996.

²³¹ Cresswell 2015; Pink 2015.

place.²³² This is reminiscent of Massey's notion of place as collecting stories so far.²³³ Another similarity is to think of place as an event.²³⁴ While Casey's place is an event or a thing, place is more of the moment for Massey. For both, places are temporal entities, although the prime temporality of place for Casey seems to be the past shaping place. For Massey, the present is the fixity of place: "*This is an understanding of place – as open ('a global sense of place'), as woven together out of ongoing stories, as a moment within power-geometries, as a particular constellation within the wider topographies of space, and as in process, as unfinished business...*"²³⁵

For Massey, place happens in space. For Casey, it is not a question of whether place is placed within space when it comes to understanding place, because so is *everything else*.²³⁶ Rather than reducing this to a question of topology and topography, Casey argues for understanding place not only as a location within time/space, but rather that place also contains space/time.²³⁷ Both Massey and Casey have conceptualized place in ways that allow it to relate to various bodies, objects, processes, and temporalities – what I call the multiplicity of place. This multiplicity is defined not only by what is present, but also by what is outside of place, having left, not getting in, or simply being not here. How something is deemed as being in place rather than out of place becomes a question of the limits of place, where boundaries are drawn.

3.1.2 The Question of Boundaries

Casey's and Massey's conceptualizations of place differ when it comes to the role of boundaries. For Casey, place can hold things in and out of itself, whereas for Massey, place is open-ended.²³⁸ This is not to say that Massey does not think that there are boundaries at work when talking about place, or that Casey does not consider place open-ended.²³⁹ Rather, boundaries do different work and take on different roles for Massey and Casey when it comes to furthering their understanding of place. The open-endedness in Massey's conceptualization of place is contextualized by the debates in geography of the time: theorizing forces

²³² Pink 2015.

²³³ Cresswell 2015.

²³⁴ Pink 2015.

²³⁵ Massey 2004, 131.

²³⁶ Casey 1996.

²³⁷ Ibid.

²³⁸ Pink 2015.

²³⁹ Casey 1996.

of globalization.²⁴⁰ However, the imperative to look beyond boundaries and understand place as flowing, process, and open-ended is key to Massey's place definition, beyond situated debates. The notion of place as open-ended is important because it produces different politics and power geometries. Boundaries for Massey produce insiderness and outsiderness that overshadows the flows that happen in place: "*Sometimes there are attempts of drawing boundaries, but even these do not usually refer to everything: they are selective filtering systems; their meaning and effect is constantly renegotiated. And they are persistently transgressed.*"²⁴¹ Massey states that her ambition is not to dissolve place,²⁴² breaking down of place as unique and authentic, as some theorists fear.²⁴³ "*But rather, what is special about place is precisely that thrown-togetherness, the unavoidable challenge of negotiating a here-and-now.../... a negotiation which must take place within and between both humans and non-human.*"²⁴⁴ What is here and not here is constantly negotiated in Massey's place. What is in and what is out of place must be decided in the given moment, because boundaries are not reliable for explaining and defining place.

For Casey, boundaries define the inside and outside of a place. In this sense, boundaries are phenomenological; they relate to the *being* in place. Casey's boundaries do not refer to place as a container; they are not meant to be seen as impenetrable walls. For gathering to happen, place must have "*porosity of boundaries.*"²⁴⁵ There must be the ability of place to acquire as well as lose people, objects, processes, and meanings. There must be a "*permeable margin of transition*"²⁴⁶ into and out of place. Although Casey's boundaries let bodies, things, and entities in and out, they are not politicized. Casey does recognize that encountering place cannot be separated from the social and society,²⁴⁷ but there is no explicit discussion of the power relations of recognizing that everyone and everything cannot enter every place, or leave. Boundaries are perceived; they are noticed by those not getting in, those trying to remain, and those unable to

²⁴⁰ Cresswell 2015.

²⁴¹ Massey 2004, 130.

²⁴² Massey 2004.

²⁴³ Relph 1976.

²⁴⁴ Massey 2004, 140.

²⁴⁵ Casey 1996, 42.

²⁴⁶ Ibid.

²⁴⁷ Casey 1996.

leave.²⁴⁸ Massey and Casey agree on how place boundaries function: they are leaky and unable to contain anything in an absolute manner. For Massey, this means that boundaries are insufficient for defining place, while for Casey, boundaries become pivotal to understanding place.

3.1.3 Digital Technologies, Virtual Places

Throughout the philosophical history of the concept, place has been understood both as the center for conceptualizing our very being in the world as well as simply a location in space. In the age of immersive technologies and the ubiquitous digital, there has been a primacy of space: emerging media suggest an explosion²⁴⁹ or blurring²⁵⁰ of boundaries, and examples such as the internet-connected smartphone allow for an omnipresent quality to the virtual/digital beyond one's physical place. You do not have to log on; you are always online. We could consider immersive media technologies such as VR as related to the type of boundaries Massey suggests: a dissolving, not of place, but of boundaries, as defining how we should understand place. Rather, we have infinite reach through a digital space.

Still, there is a limit to place: we are not everywhere all at once, but here. As Casey would have it, there is an inside and an outside to place, and even if place is thrown together, of the moment, there is a limit to what is present with us. The multiplicity of bodies, spatialities, objects, and processes that co-exist in place is also defined by what is not present. To understand being in place, however, one must also seek the limits of place, when the here becomes over there, when one becomes out of place rather than in place. In relation to VR usage in the home, the question of being in place becomes a question of understanding one's being in a virtual as well as physical place. This Ektopic being in place must consider the user's emplacement: the socio-spatial negotiation of hereness and thereness, and shifting multiplicity of who and what are *here* with you. This is not a given from the bounded place, but as Massey notes, negotiated with humans, other people, and non-humans as well, such as technological objects, animals, and devices in the household. Regardless of whether place *gathers* and *holds together* or is *thrown together*, this togetherness is marked by the multiplicity of the present and non-present, inside and outside the bounded place.

Theorizing place as an entity is not enough for understanding being

²⁴⁸ Casey 1997.

²⁴⁹ Graham 1998.

²⁵⁰ Adams 2005.

in place through VR devices. After all, we started from contemplating what kind of space or place virtual reality is, and how immersion can facilitate transitioning into a virtual place and forgetting about the physical place. To capture this Ektopic being in places, we need to explore *being in place*: how the insideness and outsideness of place works, and how various bodies and objects come together in place. In the next section, I turn to what being in place means in the phenomenological tradition and the multiple bodies, objects, and processes that are together in place.

3.2 With and Through: Phenomenology of Bodies and Objects in Place

*“To be at all – to exist in any way is to be somewhere.”*²⁵¹

Being in the world is being in place. For some, the very consideration of place invites one to become a phenomenologist, and in turning to place, one sparks a geographical interest.²⁵² Some argue that an inquiry into place must have a phenomenological approach,²⁵³ and the very thinking of place turns you toward phenomenology.²⁵⁴ While I do think that place can be conceptualized in ways other than experienced in a traditional sense, I still use phenomenological theory to explore VR as a form of being in place. Phenomenology and place are connected through a seemingly circular theoretical approach, one giving the other,²⁵⁵ and thinkers like Malpas argue that noticing your being in place is the most basic form of the hermeneutic circle.²⁵⁶ Though place has a long philosophical history,²⁵⁷ in philosophy place was revived during the 1900s through phenomenologists such as Heidegger, Merleau-Ponty, and Bachelard.²⁵⁸ This was followed by a reinvigorated exchange between geography and philosophy during the 1980s and 1990s.²⁵⁹ At this time within the discipline of geography, the bond between place and phenomenology was most heavily

²⁵¹ Casey 1997, ix.

²⁵² Malpas 2019.

²⁵³ Ibid.; Relph 1976.

²⁵⁴ Malpas 2019.

²⁵⁵ Trigg 2012.

²⁵⁶ Malpas 2017.

²⁵⁷ Casey 1997.

²⁵⁸ Idhe and Champion 2019.

²⁵⁹ Casey 2001.

forged through the works of humanistic geographers. This tradition of thought was criticized for its essentialist approach and masculinist subjectivism,²⁶⁰ and critiqued for assuming that being in place would be the same for all bodies.²⁶¹

When looking back to the first places, those mentioned in early myths of creation, Casey notes that in every place there is body, and every-body is in place.²⁶² These intimate ties between bodies and places are partly due to the fact that our bodies are inescapable; they condition our perception of the world. It is the sensing body and not our conscious mind that regulates how we can understand the world.²⁶³ Rediscovering place, therefore, constitutes a return to the living human body.²⁶⁴ To state that being in the world as a human is being somewhere through a sensuous body is, in itself, not very radical. However, we are not alone in this world; we co-inhabit it with others, human and non-human, bodies and objects. Ash and Simpson express how alongside-ness of the human and the non-human, such as technologies become part of our everyday life as we engage with technological objects and devices.²⁶⁵ How we understand our being in the world is increasingly affected by complex technological devices that affect spatial perceptions, practices, and embodiment of our everyday experiences. This ties into debates of how the everyday is affected by how digital/virtual spaces are becoming part of our daily life, and how geographers understand and engage with these spaces.²⁶⁶ For example, Kinsley urges us to engage with expressions of the materiality of the virtual/digital, rather than merely restate it.²⁶⁷ Since this thesis explores user perceptions of places through VR-usage, but also how being in place becomes dual, split, and shifting: an Ektopic being in place, we need to look to the *being in* itself. While I have treated places as spatial entities made of boundaries and multiplicity, being in place is about the experience of emplacement, embodiment, and being together-with. Exploring being in place through VR devices requires theories that enable us to inquire about being in place not only through our sensuous emplaced body, but also with and through objects.

²⁶⁰ Seamon, Aitken, and Valentine 2015.

²⁶¹ Rose 1993.

²⁶² Casey 1997, 54.

²⁶³ *Ibid.*, 214.

²⁶⁴ *Ibid.*, 203.

²⁶⁵ Ash and Simpson 2016.

²⁶⁶ Ash, Kitchin, and Leszczynski 2018; Ash, Kitchin, and Leszczynski 2019.

²⁶⁷ Kinsley 2014.

Since the immersive medium is expected to make us feel transported and removed, I'll first engage with the question of the emplaced body. Here, I continue to draw on Casey as well as the phenomenology of Merleau-Ponty to theorize that our moving and sensing body is how we find ourselves in place. Second, I describe being together with and through objects in place. This serves to develop the phenomenological complexity of multiplicity of place.

3.2.1 Being in the World: Bodies Moving through/in/out of Place

The body is most commonly claimed by phenomenological thinkers as the center of our being in and understanding of the world; it is our here. Being in the world is being in and through one's body. For Merleau-Ponty, the body is a nexus of living meanings.²⁶⁸ He even states that the act of being in the world is what holds the body together: "*My body is not a collection of adjacent organs but a synergic system, all of the functions of which are exercised and linked together in the general action of being in the world.*"²⁶⁹

Being in the world is what creates the sense of the body being one, and the sensation of being here holds the body together: it is what constitutes being. The body's connection to being in place is intense enough that they are sometimes hard to separate in the discussion of the here. Our body carries our here, and while it can pass in and out of place, it cannot be of no place. Casey argues that the body is always in a process of emplacement: "*At the very least, we can agree that the living-moving body is essential to the process of emplacement: lived bodies belong to places and help constitute them. Even if such bodies may be displaced in certain respects, they are never placeless: they are never only at discrete positions in the world time or space, though they may also be at such positions.*"²⁷⁰ Just as place should never be reduced to location, the hereness of the body also should not. Our body creates and lets us discover our here, and our body takes its here with it as we move through places and spaces. The here of the body is also the where of the body, and leaving a place is felt at the level of the body.²⁷¹

Movement is an opportunity to understand the body inhabiting space, due to the body assuming space through movement.²⁷² The body is our vehicle for crossing boundaries of place, but the body's here is not fixed: it moves

²⁶⁸ Merleau-Ponty 1962.

²⁶⁹ *Ibid.*, 234.

²⁷⁰ Casey 1996, 24.

²⁷¹ Ahmed 2006.

²⁷² Merleau-Ponty 1962, 102.

as part of its emplacement. Traditionally, in human geography, movement belongs to space; famously, humanist geographers like Tuan consider the body turning place into space when moving. However, not all movement moves us out of place. Even the dwelling body is vibrating, ever moving. The universe is never still. Casey distinguishes between three mobilities in relation to place. First to stay in place, the body is not still: it twitches and breathes, but even those bodies we consider still can be moving if transported, in extreme cases. Comatose bodies do not need to stay in place, and in more mundane examples; bodies move through cars or trains. Second, a body can be moving within a place, and a body can move around a room as well as within a room. Third, we can move between places, leaving and entering them.²⁷³

Since the body can move within place, phenomenologically speaking, the moving body “*serves as both a point of departure and as destination*”²⁷⁴ within itself. In understanding place, I treated place as pertaining to boundaries and as containing multiplicity of bodies, objects, processes, and relations. Being in place, the body comes up against these boundaries, crosses, and remains within them. Next, I discuss the multiplicity of place in a phenomenological sense: how the body shares its place with other bodies and objects.

3.2.2 Inhabiting Objects, Dwelling with Things

For Merleau-Ponty, being in the world is embodied, in place and in relation to objects. The bodily position, the here, starts with the being through an object, in place: “*The word ‘here’ applied to my body does not refer to a determinate position in relation to other positions or to external co-ordinates, but to the laying down of the first co-ordinates, the anchoring of the active body in an object, the situation of the body in face of its tasks.*”²⁷⁵ It is in being together with the object that the body can notice its position and fall into place. Merleau-Ponty even goes as far as to say that the body’s spatiality surpasses its positionality.

The object stands in relation to our situated outlook of it, as well as the placed-ness of the object. This is what Merleau-Ponty calls the horizon. Although the object does not appear against this horizon as singular, but in relation to other objects that are mirrored in the object itself. Therefore, objects do not exist only in relationship to the horizon and to our bodies, but also in

²⁷³ Casey 1996.

²⁷⁴ Lefebvre, 1991:194 in Casey 2001, 687.

²⁷⁵ Merleau-Ponty 1962, 100.

relation to other objects.²⁷⁶ We use objects to perceive the world. In perceiving an object, one anchors oneself within it to separate it from the landscape. The object, together with the body against the horizon, works as a form of triangulation of our being in place, creating distance and depth. Here, Merleau-Ponty builds on Heidegger's being-in-the-world as dwelling with things.²⁷⁷ For Heidegger, not all objects are things, but things assume nearness and bring near the world.²⁷⁸ Nearness and farness constitute each other, in the same manner that we assume that hereness assumes an un-hereness or over there-ness.²⁷⁹ Heidegger does not relate nearness to farness in an absolute manner. The here and the over there are in a constant process of giving each other. This is expressed as distance, the spatial relationship between things and bodies. If there is no distance we are not relating, not sensing anything. Without distance, there is no sensation of being in the world, only indifference.²⁸⁰

Objects are not only used as tools for making out our here. Our relationships with them are also sensuous: we shape and are shaped by our interactions with objects.²⁸¹ For Merleau-Ponty, to perceive an object is also to inhabit it. This is no stranger than our embodied being in the world; we perceive our bodies as objects of outlook.²⁸² This inhabitation does not come with a clear separation. Through habits that are both perceptual and bodily, the body merges with objects. Merleau-Ponty makes the example of the cane used by a blind person to perceive the surroundings. When merged with the object, the cane is not a tool for interpretation. The body does not perceive the cane touching and interacting; rather, the cane becomes an extension of the body's own perception.²⁸³ We perceive the world through objects, and our bodies through how they interconnect with objects. This does not mean that the body is noticed in every moment and in every fiber. Rather, the body image, as Merleau-Ponty deems it, works in the way that parts of the body envelop the whole: by supporting oneself on one's hands, the back, core, and arms are tensioned. However, it is the connection between the hands and the surface, the task being

²⁷⁶ Merleau-Ponty 1962.

²⁷⁷ Casey 1997.

²⁷⁸ *Ibid.*, 273.

²⁷⁹ Heidegger 2012.

²⁸⁰ *Ibid.*

²⁸¹ Ahmed 2006.

²⁸² Merleau-Ponty 1962.

²⁸³ *Ibid.*

performed, that marks the body's sensation of holding itself. While this might be an internal sensation, the orienting properties of tasks, Merleau-Ponty argues that we cannot have an analysis of the body without horizons; the body and objects relate to each other in space, and their relationship is always spatial.²⁸⁴

3.2.3 *Technological Objects in Place*

Developing on the multiplicity of place, I have established our being in the world as always through our sensuous body, and that being in the world is with and through objects. Our relationships to these objects are complex: we perceive, handle, inhabit them, and we sense and feel through them. These objects are constitutive of how we are in the world, through which we perceive distance and our own position. Malpas even argues that we need to recognize place as where things appear and that things shape place as well as place shapes things.²⁸⁵ To do so in the case of VR HMDs, we need to look to what happens when the objects we inhabit are not a cane, but a technological device that disrupts the previously agreed-upon spatialities of our society. If we, as Merleau-Ponty suggests, can inhabit objects, anchor ourselves within them and be through them, a process which allows us to shape and be shaped by these objects, we should take seriously how these objects organize our sensuousness and the technological objects themselves relate to the world.

If we assume that our being in the world is, as Casey formulates it, a *process of emplacement*, we should consider how being with and through technological objects changes our emplacement. If these objects are in place through their own spatial conditions, the emplacement of objects must be part of the inquiry into being in place through VR HMDs. The evergreen idea that technology works in ways that erode the authenticity of being in place and places is also found in human geography.²⁸⁶ In the question of how to understand place as multiple and bounded, and being in place as always embodied, spatial, and together with other objects and bodies, technology is expected to warp both the how and what of places and being in them is experienced. There is an aloneness of bodies and objects that must be acknowledged. If bodies, objects, and places all shape each other, we need to care about how they come together. This is not to say that the way we engage with technology is given by the technological object. Rather, as Rose argues, "*It is necessary to look not only at what people do with technologies, but also at what the technologies themselves are*

²⁸⁴ Merleau-Ponty 1962.

²⁸⁵ Malpas 2017.

²⁸⁶ Ash and Simpson 2016.

doing."²⁸⁷ Therefore, we turn to the question of technology, especially media technologies, and theories on the effect they are expected to have on our being in the world.

3.3 Disruptions: The Effects of Media Technologies on Being in Place

*"Nothing can be further from the spirit of the new technology than 'a place for everything and everything in its place.'"*²⁸⁸

Technology shapes how places appear to and before us.²⁸⁹ Historically, communication and travel have been inextricably linked, and both have had to be transported to appear elsewhere.²⁹⁰ Like our bodies, information needed to travel, while today we, like information, can seemingly arrive without departure. This is not only a question of distance, but also about behavior linked to handling those distances. One can argue that media technologies shape our sense of being in the world even more so, since the ambition of a medium is to disrupt spatial relations, bypassing the primacy of the here and now. Media technologies are inherently spatial,²⁹¹ and changes in media technologies alter the relationships among places.²⁹² Emerging media technologies, as the terms suggest, have not yet established their own spatialities, socialities, and behaviors. (One might even argue that what makes a medium new is the lack of stable patterns of usage that are societally agreed upon.) Rather, they might seem to bend or break the spatialities and socialities that have been established by earlier media, disordering and restructuring the world.²⁹³ Due to its novelty, an emerging medium seems to offer moments of societal change as it might provide for negotiation of our reach.²⁹⁴

So far in this theoretical chapter, I have defined place through its boundaries and multiplicity. Being in place, we come up against these

²⁸⁷ Rose, 2015 in Ash et al. 2018, 166.

²⁸⁸ McLuhan in Meyrowitz 1985.

²⁸⁹ Malpas 2019.

²⁹⁰ Meyrowitz 1985.

²⁹¹ Couldry and McCarthy 2004; Ek 2006; Falkheimer and Jansson 2006; McQuire 2016; Fast 2018.

²⁹² Meyrowitz 1985.

²⁹³ Marvin 1988.

²⁹⁴ Ibid.; Mosco 2004.

boundaries and perceive this multiplicity through our moving bodies, which inhabit and orient themselves through their spatial and sensuous relations to objects. I now look to how to theorize being in place when some of those objects are emerging media technologies, i.e., objects that play with and shift our spatial perceptions. Before moving forward, I want to note that the order in this theory chapter within itself suggests that places and being in the world are stable processes that become disrupted by media technologies. Here, I want to make clear that I do not consider technology or media technologies as strange or invasive to a given order. Technology as a phenomenon is not alien to us; it is a product of and a constitutive part of the human condition.²⁹⁵ Technology is entwined with our very perception of how the world unravels for us,²⁹⁶ and this also means that the conditions of technology affect how we can perceive being in the world. To quote Casetti: “*We experience reality in the ways that a technology allows us to.*”²⁹⁷

This process of new emerging spatial conditions is neither an erosion of place nor a reduction of the spatial as explanatory. Media technologies, through their disruption of socially agreed spatial relations, blurring of boundaries, unclear multiplicity of what is present in and absent from place, create objects and positions that allow us to perceive the world in new ways. Rather than understanding media as creating a liminal, separate space, I create a framework for exploring users Ektopic emplacement as a shifting complex phenomenology: a being in place that, through media, simultaneously exists in dual places. To theorize how both the disruptive and reframing properties of the medium affect our being in place, I start by discussing the medium as a spatial in-between, drawing on Heidegger and Kittler. I then turn to Casetti’s phenomenology of the medium, establishing media devices as conditioning our sensuous and spatial experience of being in the world.

3.3.1 Media Technologies as Ontological In-Betweens

Media technologies bridge distance and play with what we perceive as *here* and *there*. Through Heidegger, I have argued that distance is central to our being in the world: it is the spatial relationship between all bodies and objects. So, when a medium finds ways of bridging distances, it affects our very understanding of what it means to be in the world.²⁹⁸ In the Western philosophical tradition,

²⁹⁵ Heidegger 1974.

²⁹⁶ Ibid.

²⁹⁷ Casetti 2015, 20.

²⁹⁸ Kittler 2009.

physical and technical media have been excluded from ontology because the focus has traditionally been on “being” as tied to the here, now, and the present. This leaves little room for understanding being as anything other than an immediate occurrence, which is why the ontology of mediated experience has been understudied by philosophers. Kittler traces this back to Aristotle, claiming that the philosophical focus on form and matter ignores “...relations between things in time and space.”²⁹⁹ Relations become what is between matter and form, a distance if you will, and this in-between is the arena of the medium. However, these relations are not void; Aristotle gives the examples of air and water as *metaxú*, that which is *between*, media.³⁰⁰ These media are necessary for our perceptions and sensory being in the world; we cannot hear without the air as a medium for sounds to vibrate through.

In his argument, Kittler names Heidegger as an exception; Heidegger did contemplate both what it meant to be in the world and what technology did to the phenomenology of being.³⁰¹ Heidegger’s notion of being with things as pertaining to distances lends itself to theorizing the medium, which seeks to bridge distances. For Heidegger, technology is the manner through which we unravel the world, and he notes that in the era of technology, everything appears to us as “*equally far and equally near*.”³⁰² Media changes the perception of here-ness and there-ness,³⁰³ and the emerging medium allows for renegotiating spatial relations; who is reachable and who is not, as well as ontologically affects our sense of what is near and far. This can be understood as a weakening of boundaries between the here and the non-here that is especially prevalent in electronic media.³⁰⁴ Media technologies seem to work in both separating and convallescening ways, corroding distance and blurring boundaries, obscuring what is present. Parallel to these fluid perceptions of spatial relations, as a medium the VR HMD is a wearable device, material, and very much in place. To anchor these processes of disruption and dissolution in the body and in place, we turn to the medium as a sensuous device.

²⁹⁹ Ibid., 24.

³⁰⁰ Kittler 2009.

³⁰¹ Ibid.; Heidegger 1974.

³⁰² Casey 1997, 272.

³⁰³ Marvin 1988.

³⁰⁴ Meyrowitz 1985.

3.3.2 *The Sensuous Medium: a Mode of Seeing*

Media usage for Casetti is geographical as well as phenomenological. The medium creates a relation with reality that is sensed, placed, and experienced.³⁰⁵ Using a medium is a sensory practice, and understanding a medium phenomenologically, therefore, entails exploring the way it activates our senses and its spatial relations. Casetti argues that a medium should not be understood as a locale or a machine, but as a way of seeing.³⁰⁶ This mode of seeing is not given or orchestrated by the machine; the sensations felt in an experience are not produced by the technology itself, but rather through the participation of the spectator and the frictions of usage.³⁰⁷ The medium provides a specific mode of viewing, which Casetti deems an experience in a phenomenological sense. Making the experience of a medium the main focus for how we theorize it also serves to get away from a techno-deterministic perspective: getting stuck in discussions about whether subtle changes in usage or design change the medium itself.³⁰⁸

Although Casetti discusses a mode of seeing, his medium is a device as well as a spatial organization that is sensuous beyond the sense of sight. According to Casetti, “...*What constitutes the defining core of a medium is the way that it activates our senses, our reflexivity, and our practices.*”³⁰⁹ The medium is not the machine but “...*first and foremost a mode of seeing, feeling, reflecting, and reacting...*”³¹⁰ In a phenomenological sense, if a medium conditions our body’s ways of perceiving its surroundings, it conditions our way of being in place. Rather than a mode of seeing, the medium becomes a mode of being in the world. According to Casetti, the way immersive media conditions our outlook has the properties of encapsulating us. The medium creates an existential bubble, which is the “*sensation of inhabiting a protected space*”³¹¹ through the usage of a medium. This existential bubble can vary in construction and should not be understood as a shelter but as a temporary refuge of experience.³¹² Because the walls of the existential bubble do not necessarily

³⁰⁵ Casetti 2015.

³⁰⁶ Casetti 2015.

³⁰⁷ *Ibid.*

³⁰⁸ *Ibid.*

³⁰⁹ *Ibid.*, 5.

³¹⁰ *Ibid.*

³¹¹ *Ibid.*, 73.

³¹² Casetti 2015.

obscure you from view or hearing, it is also marked by the absence and presence of others. The walls of the bubble can pop, immersion lost, by simply noticing that someone else is there. It can have ever so fragile borders, but it is constituted by its possibility to make you feel elsewhere. We can compare this to Meyrowitz, who states that the social situation in place is marked by where you are and whom you are with, just as by where you are not and who is not present.³¹³ It is confusing when these spatial conditions are disrupted, and there is discomfort when things get too close. Social distance works to maintain order as well as power relations in society.³¹⁴ Moreover, electronic media have an especially uncanny tendency to confuse us about the hereness of others.³¹⁵ As we experience the multiplicity of place, what and whom are there together with us matters. Emergent media confuse this, as they break with spatialities of other media. Therefore, our way of using a medium, our mode of seeing/being through it is not only a question of the body's connection to the device, an individual, and a machine; it ties into the agreed-upon societal spatial patterns, as well as our very being in place.

3.3.3 *In Place, Out of Place*

Due to the physical embodied nature of the experience of media usage, we have to recognize that it happens somewhere: in place.³¹⁶ Looking at VR as a medium from a phenomenological point of view, being in place through the medium constitutes a here for us that is directly conditioned by the medium's properties and how it provides for being in place. When an emerging medium has yet to establish its ways of being in place, new ways of being in place through media emerge. Merleau-Ponty writes, "*Sometimes a new cluster of meanings is formed, our former movements are integrated into a fresh motor entity, the first visual data into a fresh sensory entity, our natural powers suddenly come together in a richer meaning, which hitherto has been merely foreshadowed in our perceptual of practical field, and which has made itself felt in our experience by no more than a certain lack, and which by its coming suddenly reshuffles the elements of our equilibrium and fulfils our blind expectations.*"³¹⁷

Merleau-Ponty mentions this in relation to a child learning to see colors. Learning to perceive in new ways creates shifts in our perception of the

³¹³ Meyrowitz 1985.

³¹⁴ Marvin 1988.

³¹⁵ Meyrowitz 1985.

³¹⁶ Casetti 2015.

³¹⁷ Merleau-Ponty 1962, 153.

world. This should not necessarily be understood as media technologies opening up the world. It can just as well close off senses and make our perceiving of being in place as more partial and narrower, or in the case of VR, as dual, shifting, and simultaneous. Exploring the phenomenologies of the embodied, emplaced usage of VR as a medium that, through its embodiment and emplacement, provides for the remaking of spatial relations, could be seen as introducing new modes of being in place.

Emerging media often promise an end of geography,³¹⁸ and especially in the case of virtual/digital spaces.³¹⁹ Just as Meyrowitz describes the TV entering the living room as shifting the gravity of the room,³²⁰ Cranford poses VR as dissolving the very walls of our homes, bringing the world into the home place as well as entering the world without leaving home.³²¹ Place is shaped by media, and the medium is shaped through emplaced usage. Media technologies are inherently spatial; they relate to distances and are used somewhere. Rather than framing the disruption of distance and reshaping of places that media technologies provide as good or bad, we can frame them as profoundly reworking our sense of being in place, through the effect on boundaries and multiplicity of place. The role of the medium is/becomes bridging distance.³²² This implies a lucid quality to the medium: it is both present and absent because it is both here and over there. Rather than making this out to be a separate form of space, the line between here and there, it creates a phenomenology of the immersed user navigating spaces and places appearing before them without distance. It is this being in place that is both in and out of place, that I explore as Ektopic emplacement.

3.4 Conclusion of the Theoretical Framework

This thesis is an inquiry into what it means to be in place in relation to VR usage. Therefore, I have aimed to build a theoretical framework that combines and allows for understanding places as complex entities, where we are, together with other objects and bodies, and how these objects and bodies, especially technological and mediating objects, affect our very notion of what it means to

³¹⁸ Mosco 2004.

³¹⁹ Graham 1998b.

³²⁰ Meyrowitz 1985.

³²¹ Cranford 1996.

³²² Kittler 2009.

be in place. As a core concept of human geography, place is constantly revisited and developed. This thesis theorizes place as first having boundaries and tending to multiplicity. The multiplicity of place is distinguished by the various elements and dimensions of place: bodies, objects, processes, relationships, and temporalities, all passing through, being present and non-present, leaving their marks on and in places. Further, phenomenology is understood as a way to theorize being in place through the ever-moving body emplaced with and through objects. These bodies and objects are always in place through their embodiment and *emplacedness*; their relations to each other are always spatial and sensuously experienced.

Finally, media technologies affect both places and our sense of being in place. This is due to how the medium disrupts and remakes spatial relationships. It does this not by creating separate spaces, but by affecting our mode of being in place. Both in the reworking of distance, what we perceive as near and far, present and non-present in place, and in blurring here-ness and there-ness, the phenomenological conditions for our being in place. The medium also conditions our being in place through how it activates our senses, how it enables us to perceive the world. This affects both how we understand the workings and significance of boundaries as well as what is present in the already multiple nature of place. Since the medium affects how we perceive distance to other places, bodies, and objects, it provides an opportunity for an ontological shift in how we perceive being in the world. Media technologies can create new, distinct spaces, but in the case of VR, theorizing how to understand the effects of emergent media technologies on place cannot be reduced to looking at virtual spaces and places as separate. The presence in the physical home space is also a being in place: though the body might inhabit the device, it has not ceased to be in place. Through this theoretical framework, I seek to analyze how VR users are emplaced and embodied through VR usage: both how they relate to being in virtual and physical place through their living, moving bodies, as well as how they inhabit their VR devices sensuously. Moreover, I examine how this disruption of spatialities is navigated as a renegotiation of boundaries and presence of the home place.

4. Fieldwork: Encountering Domestic VR Usage

My research participant, Beata, greeted me at the door, “Excuse the mess,” she said. Women in the study tend to do this; apologize for the state of their home, and I always say, “No worries, I have toddlers at home, this is nothing.” Beata found time in between meetings to be interviewed on a weekday, something I greatly appreciated since being away from my kids on the weekends is starting to show in tantrums and hugs that the girls and I had a hard time letting go of. Today I did not have to go very far, only 3 hours by train, then some local buses. I will be home tonight, late, but tonight. Even so, as I was leaving for the earliest train my eldest was running a fever, and I could hear the tiny morning voice of my youngest asking where I was as I shut the door behind me. “Separation is painful. It’s going to work out, but this is really hard,” I write in angst in my field diary on the train. In her living room, Beata handed me a cup of coffee and asked, “So, what are you writing about?” I contemplated briefly on how to talk about the study I’m carrying out, not wanting to steer her before the interview even starts. I decided on talking about how I got to research VR in homes, a sort of biography of my research interests. Later, walking to the homebound train, I feel like I made a good choice, noting the success in my field diary on my Dictaphone. However, when I’m listening back to the interview, I find that Beata refers to “the things you’re interested in, such as spatiality” a couple of times in the interview.”³²³

This chapter is an account of the epistemological considerations, data collection, and analytical practices of this thesis. As demonstrated in the paragraph above, when your research entails encountering research participants as a researcher in the social situation of data collection, parameters and conditions well beyond the study find their way into how it is being carried out. Given that data collection is entangled with the lives of the research participants as well as that of the researcher, this demands a thorough account of one’s methodological process. The materials analyzed in this thesis are the result of ethnographic data collection consisting of interviews and participant observations of VR usage in 22 Swedish homes in 2023–2024. The data were collected in the research participants’ homes, the loci of their VR practices. This research design rests on the somewhat romantic idea and ontological stance that places matter and therefore going to them to do research as vital. Located practices make sense in relation to the place and situation where they are

³²³ Interview with Beata 2023; Observation Beata 2023.

performed, and placed experiences are experiences of and in place. When we want to study experiences in and of place, we should, if possible, be in place.

I start by giving an account of the ethnographic approach to study VR usage as a mode of being in place. This approach draws on Pink's sensory ethnography³²⁴ and Haraway's figurationing³²⁵ as an epistemological framework for doing science. If such a difference can be made, while epistemologically I have drawn on Pink and Haraway, I introduce structural rigor to the research design through Lofland et al.'s qualitative field study³²⁶ and Rose's ethnographical User study.³²⁷ There are four steps for planning your ethnography: access to the field, observation techniques, data collection, and data analysis.³²⁸ I utilize this structure to provide an account of my data collection process and flesh out the various steps of ethnographic research. While connectedness to technological devices is the focus of this thesis, and I account for how technology has affected data collection and analysis, I do not make any post-phenomenological claims or deploy more-than-human methods. The data collected and analysis are on the perspectives and practices of users. In engaging with digital devices, there are studies that inquire about the agency of devices, deploying methods to let devices express themselves.³²⁹ These methods were not used here; users spoke for their devices.

4.1 An Ethnographic Approach to Studying VR in Homes

Although a phenomenological approach does not imply a specific method,³³⁰ there is an advantage in combining ethnographic methods with phenomenology. With ethnographic methods, one can collect rich materials that allow for exploratory studies into emerging phenomena. VR is an emerging technology with spatial relations and behaviors formed through interactions with VR devices in place. Osborn and Jones note the need for ethnographic work, recognizing its possibilities in exploring how VR bodies and spaces intersect

³²⁴ Pink 2015.

³²⁵ Haraway 1988.

³²⁶ Lofland et al. 2006.

³²⁷ Rose 2016.

³²⁸ Ibid.

³²⁹ Leszczynski 2020.

³³⁰ Malpas 2019, X.

with VR to create experience.³³¹ Bos also comments that the complicated relations between the embodied, represented, imagined, and material in relation to VR call for methodological considerations.³³² Ash et al. suggest methods that notice combinations of digital objects and how we connect to them, the relationship between digital objects, as well as users' sensory experience and feel of connectivity, interaction, and effects.³³³

There is no agreed-upon standard form of ethnography. Throughout this chapter, I use the terms ethnography, ethnographic methods, and ethnographic approach to describe the data collection in this study. Studies similar to this one have been deemed ethnographic, such as Ash, Gordon, and Mills' phenomenological study into interface experiences in domestic youth gaming.³³⁴ Wilmott's instead prefers the term ethnographic encounter to describe the data collection of her ride-along study of users' practices of mapping and movement.³³⁵ Demonstrated by both these studies are the ethnographic methods possibilities for studying phenomena that occur in both digital and physical places. The digital is not immaterial but ubiquitous and interwoven in the physical/analogue, and separating them only works to reinforce a digital/physical, virtual/material binary.³³⁶ Digital phenomena appear in the physical and analogue, and one way of studying them is through ethnographic inquiry into sites of hardware and bodily interaction.³³⁷ This study seeks to capture relations and connections between bodies, devices, and their environment, as they relate, move, and interact in and with place. In this case, the place is the home. Though the home has eclectic conditions as a field site, it is not the home as a site that is studied per se, but the usage of VR in the home as a spatial context. Studying how the usage of VR devices in the home becomes an examination of how this usage is a negotiation between the physical conditions, users' bodies, and others in the home. While designing my ethnographic usage study, I drew inspiration from the user study, a form of audience study presented by Rose. The term user works to upset the notion of linearity, usually associated with audience studies where producers are senders

³³¹ Osborne and Jones 2022.

³³² Bos 2021; Bos, Miller, and Bull 2022.

³³³ Ash et al. 2018.

³³⁴ Ash, Gordon, and Mills 2023.

³³⁵ Wilmott 2020.

³³⁶ Duggan 2017.

³³⁷ Longan 2015.

and audiences as receivers.³³⁸ (Note that Rose warns not to let the word user rather than audience mask hegemonies and assume that power relations do not occur). To find a way to capture these various elements in a methodological framework, I briefly present Pink's sensuous ethnography and Harawayian figuration of diffraction, and how they have informed my research design as well as reflexivity throughout this study.

4.1.1 Sensuous Ethnographies

Recognizing that there is no agreed-upon standard ethnography, Pink describes the particulars of her ethnographic approach as informed by the sensuous. In *Sensuous Ethnography*, Pink defines ethnography as “...a process of creating and representing knowledge or ways of knowing that are based on ethnographers’ own experience and the ways these intersect with the persons, places and things encountered during that process. Therefore, [sensuous] ethnography, as I interpret it, does not claim to produce an objective or truthful account of reality, but should aim to offer versions of ethnographers’ experiences of reality that are as loyal as possible to the context, the embodied, sensory and affective experiences, and the negotiations and intersubjectivities through which knowledge was produced.”³³⁹

The sensory does not only refer to our five senses; rather, it refers to the sensuous as informing the ethnographic process of data collection, tending to the interplay between the researcher and research participants. The sensuous has a dual role in Pink's ethnographic approach. First, it informs the research design to attend to the sensuous as a quality of experience. Pink's sensuous ethnography is both geographical and phenomenological; sensitive to the place of research and to how bodies and embodiment happen in relation to the environment.³⁴⁰ This study seeks to understand what it means to be in place with and through VR devices, so it is concerned with the research participants' sense of being in place and how the sensuous informs their embodied emplacement. The body is not only activated by objects, but also by its environment through how it sensuously perceives it. The sensuous can provide an entry point to notice how connections between devices, bodies, and places are formed and acted out. Research performed in the home is always multisensory.³⁴¹ Second, the sensuous is also a property of the researcher,

³³⁸ Rose 2016.

³³⁹ Pink 2013, 35 cited in Pink 2015, 5.

³⁴⁰ Pink 2015.

³⁴¹ Pink 2004.

affecting how the study is carried out (i.e., reflexivity). Reflexivity is the practice of ethical reflection and discussion of what the researcher's presence does to the field, as well as how it affects the research outcome. It has been mostly developed in ethnographic and feminist research, two research traditions that have had an effect on contemporary human geography.³⁴²

The need for reflexivity stems from the presence of the researcher in the research situation. By entering the field, the researcher does not shed her social position, body, or the power relations she inhabits.³⁴³ The body is still gendered and carries connotations of class, age, race, ability, and so on. Yet, being aware of power relations does not remove them.³⁴⁴ Rose demonstrates how even exhaustive positioning and accounts of the reflexive researcher's identity and positioning fail to meet the posed demands of reflexivity.³⁴⁵ While it is important to understand how different reflexive practices, such as insider/outside identification as well as noticing sameness and difference, to some level assume the stability of the researcher's identity, Valentine concludes that the researcher, just like the researched participant, is "*contradicting and shifting*."³⁴⁶ Recognizing the practice of reflexivity as imperfect yet productive for giving an account of the data collection, sections on reflexivity and ethical considerations are found throughout the chapter.

4.1.2 Diffraction

The second pillar of my ethnographic approach is an epistemological frame of diffraction, a figuration that has been developed by Haraway and Barad into methodological approaches.³⁴⁷ A figuration is a way of organizing thought through metaphors that work in relating histories and materiality to bodies. In the Harawayian practice, diffraction is both making visible and recognizing the material histories of objects and relations. Here, science is a difference-making process, not a voyeuristic practice.³⁴⁸ Figurations as practice have a geographical dimension through how they are: "*interested in differences and displacements*."³⁴⁹ Figurations work as metaphorical devices for noticing

³⁴² Shaw, DeLyser, and Crang 2015; Dowling, Lloyd, and Suchet-Pearson 2017.

³⁴³ Valentine 2002.

³⁴⁴ Cope 2002.

³⁴⁵ Rose 1997.

³⁴⁶ Valentine 2002, 120.

³⁴⁷ Haraway 1988; Barad 2003; Dawney 2018a.

³⁴⁸ Dawney 2018a.

³⁴⁹ Dawney 2018b, 114.

difference and diffraction, as a figuration seeks to break up phenomena into parts that might be understood separately and together. The figuration of diffraction is derived from how waves break in physics.³⁵⁰ Dawney describes the waves of water breaking against shores, passing through and around objects, shifting form.³⁵¹ For Haraway, diffraction is best portrayed by a prism: breaking up light waves into different colors.³⁵² To understand diffraction as a figuration, one needs to consider that vision for Haraway is a way to re-frame the doing of science. Haraway poses the question of science as either producing difference or reproducing sameness. She proposes that, rather than reflecting (as reproducing sameness) and reflexivity as the practice of accounting for the quality of that representation, researchers should adopt situatedness as a form of reflexivity or feminist objectivity for doing science in a way that recognizes that perspectives are always partial and placed.³⁵³ Haraway's sighting is paired with siting; to witness something as an accentuated seeing is to place and recreate that very object. Science is not apart from culture but rather co-creates objects and relations.³⁵⁴ Through centering vision, Haraway emphasizes that seeing is always spatial, and the spatiality of the situated outlook cannot be separated from the body. Seeing is always from somewhere, an embodied outlook.³⁵⁵

The figuration of diffraction is used as an epistemological frame in the sense of looking at domestic VR usage as a phenomenon that can be separated into elements that clash and swirl against each other. Diffraction informs my understanding of how objects and bodies in place affect each other while being parts of the same phenomenon. Methodologically, diffraction works as a mode of writing in the analysis where, through the prism of sensuous ethnographies, connections between VR devices, user bodies, and homes can be considered entities that can be looked at alone (singular, combined) or together (connected, related) to understand users' embodied emplacement through VR devices.

³⁵⁰ Dawney 2018a.

³⁵¹ *Ibid.*

³⁵² Haraway 2008.

³⁵³ Haraway 1988.

³⁵⁴ Haraway 2020.

³⁵⁵ Haraway 1988.

4.2 Access to the Field

The field holds a special position for geographers; it is romanticized as The Site of Doing Research.³⁵⁶ For the data collection in this thesis, the field was Swedish homes with VR devices. Lofland et al. notes that going to the field is not a question of topological distance; rather, distance to one's research subject is created through the process of looking upon everyday life and finding the strangeness of it.³⁵⁷ I hold an insider position toward my field; as a Swedish native, going into home environments in Sweden is not an exotic setting. The home is a complex place; it holds many meanings and connotations. Whether romanticized, feared, a sanctuary, somewhere to break free from, or somewhere one can be desperate to return to, the home can be understood as simultaneously mundane and intensely intimate. The home as a field site carries its own conditions, which makes placing the home in the field complicated. This is due to the cultural status of the home, and also because ethnographies of homes are often multi-sited, since they involve different homes.³⁵⁸ The home is not one, and the singular home contains many properties. From identity, the relations in and extending from the home, décor, and to the increased presence of the global through digitalization,³⁵⁹ the home is both located and continuously situationally constructed. The publicness of the home has been reframed through social media via practices of sharing and posting pictures in and of homes, providing digital windows into everyday life. Still, entering the home is an intrusive act because the home is an intimate context.³⁶⁰ Therefore, entering someone's home not only as a researcher but as a person was important for this study. The complexity of the home as a field site requires reflection on how that access is gained. This section starts with an evaluation of the home as a field site, discusses recruitment in this study, and ends with a reflexive discussion on entering the home.

4.2.1 *Evaluating the Home as a Field Site*

Lofland et al. establish five ways of evaluating your field site: appropriateness, access, physical and emotional risk, ethics, and personal consequence.³⁶¹ I note

³⁵⁶ Mawdsley and Bracken 2004; Leyland et al. 2022.

³⁵⁷ Lofland et al. 2006.

³⁵⁸ Pink 2004.

³⁵⁹ Ibid.

³⁶⁰ Ibid.

³⁶¹ Lofland et al. 2006.

upon each of them, though some of them are more complex than others in relation to this thesis.

Appropriateness: The question of appropriateness relates to whether the methods chosen are appropriate to capture the intended data, or they have to be complemented and/or revised to be sensitive to the studied subject and participants.³⁶² As I wanted to study VR usage taking place in a spatial and social manner, I chose the home as an environment where this would be noticed and negotiated by the research participants and others in the household. In studying the home, the presence of a researcher disrupts everyday life. The western home is somewhere “...where it would be impractical and inappropriate for researchers to go live...”³⁶³ Therefore, according to Pink, studying the home is rather a study of how your research participants represent their everyday lives to you.³⁶⁴ The lack of possibility to spend longer periods of time in the home as a field site complicates the temporality of ethnographic research on homes. To get rich data from the field, Lofland et al. argues for a “...wide and diverse range of information collected over a relatively prolonged period of time in a persistent and systematic manner.”³⁶⁵ So, what is a relatively prolonged period of time? The most classical anthropological ethnographies are to live with one’s research participants.³⁶⁶ In her ethnography on homemaking practices as gender manifestations, Pink states that some will contest whether her study can be understood as an ethnography at all due to the nature of the home as a research site and the time one can spend in a home performing research.³⁶⁷

Access: This refers to the relationship to the field, with the researcher being an insider or an outsider to the field site.³⁶⁸ This positioning was twofold in this study: being part of the very loosely defined group of VR users, and being part of the researched home environment. Immersing oneself in the field of VR usage to see if there were specific user groups that should not be overlooked since it also had an effect on my own home: I got my own headset and joined groups, games, and channels to get a grasp on the Swedish VR

³⁶² Lofland et al. 2006.

³⁶³ Pink 2015, 6.

³⁶⁴ Pink 2004.

³⁶⁵ Lofland et al. 2006, 15.

³⁶⁶ Pink 2015.

³⁶⁷ Pink 2004.

³⁶⁸ Lofland et al. 2006.

landscape and the users moving in and through it. In relation to the homes I was researching, I was, as mentioned, familiar with the practices of Swedish homemaking and hospitality, but of course a stranger in the context of the specific homes. Therefore, one question of access was the simple fact of whether the research participant felt safe to let me into their home. I expand on this in section 4.2.2 on recruitment.

Physical and emotional risk: I have already mentioned that the home is a complex social environment. Though the topic of VR usage might seem harmless to research participants consenting to the study, it is entangled with everyday life and relations in the home. For some of the research participants, this meant reflecting on parenting, past homes, and past relationships. Given that VR technology is entangled with imaginings of a positive future, users would also describe problems of their everyday life that they would hope VR could solve or improve. Also arising in interviews were discussions on safety practices in relation to VR and, at times, bodily matters such as medical conditions. Recounting this can, of course, be emotional in a way that the research participants or I did not expect. Just as I factored in the research participants' physical and emotional safety, I reflected on my physical and emotional safety by keeping a field diary throughout the study. In one entry from 2023, my voice thickens as I reflect on how researching technology usage as a specific practice in the myriad of ongoings in domestic settings: "*This, that you enter people's homes, and there is so much going on there. That even if you enter to study just a tiny, tiny habit, it is part of a whole ecosystem and family relations and situations.*" Although the subject of the study is not sensitive, everyday life encompasses universes, and crossing paths with people and their realities through field work was at times overwhelming. I had to consider physical safety since I would often travel alone to the research participants' homes. I maintained the privacy of my research participants by leaving the addresses to my field locations accessible to my supervisors.

Ethics: The Karlstad University ethics board conducted an ethical evaluation and deemed the study design to cause no harm to those participating. Some homes in the study were shared environments. These households would contain family members who were not VR users, and/or underage, and thus could not participate in my study. When transcribing the data to form the material for analysis, I only identified family members through their relation to the user and the home, removing names. Research participants were recruited through ads, and therefore, self-selected to participate in the study.

4.2.2 Recruitment

The research participants were recruited based on being home users of VR HMDs, adults (over 18 years old), and living in Sweden. There were some early difficulties in reaching research participants. First, only 4 percent of the population in Sweden has a VR HMD, and the group is not homogeneous (the largest ingroup is men born in the 1970s, which comprises 9 percent).³⁶⁹ The second difficulty was the lack of generalization around the technology, including differences in VR hardware and practices (games, traveling, and workouts). Therefore, media infrastructure and social media connected to group identities, such as gamers, would be a partial way to approach the population. Third, VR as an emerging medium is still finding connections in the media landscape and digital ecosystem with other media. Fourth, some of these channels were somewhat hidden, such as Discord channels that one needed an invite to join. Finally, the research participants would need to be okay with letting a previously unknown person into their home to collect data. Therefore, different tactics for recruitment were deployed. Ads were placed in Meta groups formed around the VR technology, VR hardware (specific headsets), and software (specific games). This was based on the assumption that users would seek solutions to tech problems in hardware-oriented Meta groups and look to connect with other users playing certain games (this was confirmed by the research participants). Ads were also placed through Discord channels tied to technological interests of VR and VR technology with ties to Sweden. This mixing of channels for reaching potential participants was strategic: Discord and Meta attract different age and social groups, and I was not seeking to make any conclusions on the typical VR user by choosing a channel for advertising over another.

I immediately identified a point of tension in the research design: the data collection rested on the research participants' willingness to let a researcher into their home. I got replies to my ads informing me that my research design was bad because no one would ever let me, a stranger, into their home. Not only that, I was informed by friendly strangers that the entire point of VR technology was to be independent of place, why my research design focused on the wrong thing. I was met by some with a lot of suspicion and ridicule. In an attempt to reach users who would not trust me into their home as a stranger off the Internet, I also told family and friends about my research and let them know that if they knew or came across someone who used VR at home to mention my research and provide my contact information if there was interest in

³⁶⁹ Andersson and Blomdahl 2022.

participating. This resulted in friends also advertising the study through Facebook posts and word of mouth, making me a known stranger, creating a convenience sample. Lastly, selection entailed snowballing from research participants who put me in contact with others, including specific individuals, and inviting me to groups and channels where I could advertise. Like the VR users in Sweden at this time, the research participants in the study are a heterogeneous group. It is notable that one person who expressed interest in joining the study reported using VR as a way to handle their social anxiety. Thus, I would not be able to visit their home. The imaginings of VR as a way to treat medical and therapeutic issues, such as pain and phobias, are present in the materials, and there is a possibility that social anxieties and stress related to the presence of others in one's home were on the rise after the COVID-19 pandemic restrictions were lifted, which is when this study was carried out.

4.2.3 Reflexivity: Entry into the Home

The home visit takes on different meanings in this study and its methodology. Longan suggests that visiting the site of the hardware reveals spatial relations that become hidden when just looking at virtual places as the loci of technologies.³⁷⁰ Because the practice of domestic VR usage happens in both a virtual and physical place, visiting the home as a site of overlap becomes one way of approaching the elusive materialities of the virtual/digital. Leszczynski also underlines the power of visiting as a way to uncover mundane spaces of interactions with the digital.³⁷¹ The physical visit to the home was, as described above, critiqued as a naïve research design. Two effects of the physical visit that were important to this study were the researcher's presence as a signifier of importance and the body as a medical entity in the wake of the COVID-19 pandemic. First, the home visit serves to give weight to the research participants' accounts; the travelling researcher becomes a physical articulation of the significance of the research participants' accounts.³⁷² My research participants recognized this: I sensed that they felt that their experiences and practice carried importance because I would drive for hours, fly, take long train rides for the chance to talk to and observe them and their homes. Second, because the study received ethical approval during the COVID-19 pandemic and was carried out right after the pandemic-related restrictions were lifted, the body was reframed

³⁷⁰ Longan 2015.

³⁷¹ Leszczynski 2020.

³⁷² Longan 2015.

in new medical and political contexts. Because I worked for a state institution (a university), as a researcher, also had to communicate clearly to my research participants that I was following the guidelines set by my employer. By the time I began my data collection, the pandemic was considered over in Sweden. My status as vaccinated, which I included in my information letter about the study, took on new meanings. Some research participants interpreted it as a provocation, and some positioned themselves politically by commenting on their views on the vaccine and my status as vaccinated. In doing so, I found myself strangely positioned as employed by and representing the body politics of the Swedish state.

My embodied presence and the traits of my body also followed established behavioral politics of gender, class, and power. As part of introducing myself to my research participants, I would be asked about my thesis work in ways that spanned from curiosity to almost interrogation, confirming my work. Sometimes I was “downgraded” from researcher to student (is this thesis your bachelor’s?). In conversations with female colleagues, this experience was recognized as a neutralizing tactic for research participants. In entering the home of my research participant while being recognized as a stranger, a lot of interactions underlined my being female. Male research participants would at times express uncertainty about my previous knowledge about VR technology and disarmingly conclude they might be mansplaining VR to me, recognizing the gendered aspect of the social situation. Another position that was enabled through a gendered context was being identified as a mother of two toddlers. This would come up in different ways. Women I interviewed would, to a greater extent than men, apologize for the messiness of their homes. I would often answer this with the statement that I had two small children and, therefore, a very messy home myself, inviting them to relax about what I was there to observe. The question of my household and kids would also come up in relation to whether I myself were a VR user, or by discussing my travel arrangements. Because around 50 percent (n=13) of the research participants were parents, and nine of them would have their children staying with them full or part-time, this opened for discussion VR usage in relation to child care in a way that did not romanticize parenthood. Finally, I recognize that not every body is recognized as an empiricist; some bodies are deemed incapable of knowing the field or being recognized as knowing in the field.³⁷³ Distinct traits of my body were recognized immediately at the doorstep. I would guess without

³⁷³ Asher 2019.

much of a leap that my body and person were recognized as Swedish, white, and middle-class based on my name and the language I used to communicate with the research participants and to book my visits to their homes.

4.3 Observation Techniques

VR usage in the home is a located practice; it is a type of domestic usage separate from other contexts such as industry, medicine, and classrooms. Through the assumption that the home as an environment shapes the practice of domestic VR usage, this located practice and knowledge about it are found in homes. When a practice is located somewhere, Lofland et al. call for us to go and observe it.³⁷⁴ Because I studied VR usage as connections between technological objects, bodies, and places as they unfold in a specific location, I wanted the observation techniques to be capture how the practice was conditioned by the place of usage and the VR device, including how VR usage shaped and was shaped by the home as a shared environment, and how users made sense of the spatial relations of these processes. Given the exploratory nature of this study, my methods needed to capture not only the diverse elements of objects, bodies, and spatiality in the homes, but also connections between them: frictions, movement, imaginings, and sensemaking. Thus, I wanted my observation techniques to capture what Rose presents as basic techno-ethnography: looking to the materiality (and immateriality), the particular location (and how that is relationally understood), and mobility (or immobility).³⁷⁵

Ethnography is not a singular or multiple set of methods.³⁷⁶ I collected data in the form of interviews, observations, and a field diary. Combining interviews and observations can serve multiple purposes; it can provide insight into the discrepancy between what people think and say they do in relation to what they actually do.³⁷⁷ It can also patch up leakiness of meaning that falls outside the data-collecting capacity of a specific method.³⁷⁸ In the ethnographic tradition, there is not necessarily a strict separation between interviews and observations,³⁷⁹ so it could seem superfluous to describe them in

³⁷⁴ Lofland et al. 2006.

³⁷⁵ Rose 2016.

³⁷⁶ Low 2010.

³⁷⁷ Lofland et al. 2006.

³⁷⁸ Nairn 2002.

³⁷⁹ Lofland et al. 2006; Pink 2015.

separate sections. There were two reasons for separating interviews and observations and considering them in that order. First, for ethical reasons, data collection was separated into a sit-down interview and an observation of VR usage. This served to give opportunity for the research participants to opt out of the observation if they only wanted to participate in the interview. Second, because I was interested in spatial relations beyond the virtual place and the affordance of the technology, rather than figuring out the capabilities of technology per se, like Longan suggests, I looked to how people develop meanings and possibilities through practice.³⁸⁰ In VR research, it is common to conduct interviews after the research participants have had a VR experience, i.e., a stimulated interview. However, these studies tend to inquire about VR technology or the virtual place. As my focus was not only on the experience of using VR, or the virtual place, but also on VR usage as an emplaced, embodied practice that was both a sensory, everyday experience affecting the spatial relations of the home, I did not want the interview to only focus on a single occasion of use. Instead, the interviews addressed how usage changed over time, as well as how the users' imaginaries and memories of VR technology informed their practices.

4.3.1 The Sit-Down Interview

Interviews are situations where (often two) people discuss a specific subject in a way that mimics conversation.³⁸¹ The ethnographic interview is usually not performed in a singular style; rather, it can be understood as a combination of different interview techniques.³⁸² This study made use of sit-down interviews with semi-structured interview guides with interview questions formulated around the household, the VR device, the VR usage area, as well as experiences and usage of VR technology and devices. To capture the sensory, questions were included about sensing and sensations, such as points of connection between the body and the VR device, discomfort, nausea, as well as fear and giddiness related to the VR usage. Interviews enable inquiry into usage practices as well as users' hopes for and disappointments with the technology. They also reveal discrepancies between imagined and actual usage shaped by technological limitations, and how practices develop pragmatically in response to the tension between imaginations and physical conditions.³⁸³

³⁸⁰ Hine 2000.

³⁸¹ Pink 2015.

³⁸² Pink 2004.

³⁸³ Longan 2015.

The sensuous ethnographic interview is participatory and placemaking.³⁸⁴ First, the participatory aspect of the interview underlines the active, embodied communication of the interview situation for both the research participant and the researcher.³⁸⁵ Second, through sitting down, taking time, and creating a space for sharing stories, the interview creates a space to talk about specific experiences that might not be in focus or reflected on otherwise.³⁸⁶ I chose the term sit-down interview from May and Lewis as it contrasts with the trend toward walk-along interviews in the social sciences, and the discourse about its dynamic properties.³⁸⁷ Within this discourse, sit-down interviews are understood as situationally removed from and insufficiently stimulating. May and Lewis show that sit-down interviews can provide rich accounts of place relations, place attachment, and embodied experience of place, particularly when conducted in participants' homes. Because the participants has intimate knowledge of their homes, their accounts were neither removed nor displaced (like some might suggest might occur during the sit-down interview) but rather grounded in lived sensory experiences that unfolded over time. In contrast, walk-along interviews stimulate attention to the here and now.³⁸⁸ In May and Lewis's study, the research participants' knowledge of their home environment made their descriptions highly sensory as well as spatial, often taking the form of *virtual walks* through the home during the interview.³⁸⁹ Similarly, in this study, the sit-down did not imply that the research participants would not be allowed to get up. Rather, most of them did, to show me something or to get their VR devices to show which alterations had been made and to describe their sensuous experience of them.

In this study, interviews can be understood as place-making based on the practice of entering the research participants' homes. I was usually offered coffee as a part of the interview, a common Swedish greeting for a guest, but also fika. Place-making would also emerge through the stories the participants told of their home: of household members, moving, changes to the home over time, and former homes that continued to linger and shape the sense of home. This was related to VR usage practices that were lost due to moves,

³⁸⁴ Pink 2015.

³⁸⁵ Ibid.

³⁸⁶ Ibid.

³⁸⁷ May and Lewis 2020.

³⁸⁸ Ibid.

³⁸⁹ Ibid.

divorce, health problems, children leaving home, a family crisis, or subtle changes in one's own person.

The sit-down interview situation, however formal it might feel, is a familiar method of transmitting knowledge and gives participants a clear sense of participating in the production of science. None of my research participants commented on the strangeness of the sit-down interview, nor did they seem uncomfortable in the interview situation. In contrast, some participants found it strange that I wanted to observe their VR HMD usage. When asked to demonstrate how they normally use their headsets, the research participants would usually ask me for more instructions or if they should narrate what they were doing. I argue that the confusion of what knowledge could be gained from observing their practice reflects the unfamiliarity of the situation of being observed as part of a research study.

4.3.2 Observation of Usage

Just like with interviews, observations can range from stricter forms to almost merging with other data-gathering practices, such as interviews. For Pink, the spatial is ever-present in inquiries about sensuous practices. “*The experiencing, knowing and placed body...*”³⁹⁰ is therefore integral to the sensuous ethnography. “*The body is a site of knowing,*”³⁹¹ although this knowledge is not stored; rather, knowing is a process.³⁹² Pink makes an epistemological point that there is knowledge in practices as well as practices of knowing.³⁹³ Dowling et al. make a similar argument in their proposal that *knowing through showing* yields enriched data.³⁹⁴ When inquired about a mundane practice, research participants have better access to knowledge about that practice when demonstrating it.³⁹⁵ This is prominent in evoking sensory stories, feelings, and memories about practices experienced and performed in environments like homes.³⁹⁶ Research participants showing a practice lends to what Pink calls the apprenticeship as a structure for participatory observations: the researcher being introduced to cultural practices by first being shown and then trying for

³⁹⁰ Pink 2015, 28.

³⁹¹ *Ibid.*, 27.

³⁹² Pink 2015.

³⁹³ *Ibid.*

³⁹⁴ Dowling, Lloyd, and Suchet-Pearson 2017.

³⁹⁵ Pink 2015.

³⁹⁶ Pink 2004.

oneself.³⁹⁷ This occurred in several of the observations in my study. I was asked to join and try the hardware or software as part of the observation. This could range from simply looking into the headset to see what place was being talked about, to being offered to try out a round of a game.

The observations were structured around two basic requests: “*Would you like show me your usage area?*” and “*Would you like to show me a typical usage of your VR?*” Using participatory observation for data collection on the usage area and usage practice relies on the notion that there is knowledge expressed in how the usage area is prepared and navigated, and in the emplaced handling of the device and the embodied practices of VR usage. Here, the embodied is not an expression of knowledge beyond or out of the mind, but rather a way to underline the relation between the user and the device to their emplacement. I chose to record my observations with video due to the different qualities I wanted to observe: how the usage area was prepared for usage, how the user would move while in VR, and how the user handled the VR device. The use of video in research has become increasingly more common,³⁹⁸ and we might understand this as an example of normalizing the use of digital means as a part of the research process.³⁹⁹ Nevertheless, the use of videography can also be understood as a way of challenging the written form of science,⁴⁰⁰ enriching materials,⁴⁰¹ or providing a means of co-producing materials.⁴⁰² Recording observations with video might also help the researcher to remember more details than just from note-taking. Paterson and Glass note that watching back video of data collection would elicit sensory memories from the researchers’ experiences of said data collection.⁴⁰³ In coding and analysis, the videos also make the material more open-ended. Analysis around mobility, such as the constant tweaking of how the headset fit with the body, and micro-preparations of the usage area, such as a research participant pushing a plant a couple of centimeters with their foot as they walked by it, would have been lost to the more general actions of how users moved around and moved furniture in their preparation of the usage area. The videos were invaluable in capturing sublime

³⁹⁷ Pink 2015.

³⁹⁸ Leszczynski 2019.

³⁹⁹ Ash, Kitchin, and Leszczynski 2018.

⁴⁰⁰ Leszczynski 2019.

⁴⁰¹ Dowling, Lloyd, and Suchet-Pearson 2016.

⁴⁰² Pink 2004.

⁴⁰³ Paterson and Glass 2018.

actions.

The use of video also led to different ethical considerations compared with the audio-recorded interviews. The research participants were somewhat sensorily removed when wearing the headset and had little to no idea about what I was doing as I was observing them. Moreover, the recording took place in their home, which was an intimate space not usually recorded or accessed by outsiders. There are also methodological ethics of how one, as a researcher, appears or disappears in one's own materials, which is complicated by video. As an observer in place, the researcher has a certain thereness and an obvious effect on the research situation. Nairn argues against trying to minimize the effect of one's presence in the observation.⁴⁰⁴ One way of doing this can be to include oneself in the data. While capturing data by video provides an opportunity for the researcher to literally place oneself out of the frame, the pointing of the camera provides an opportunity for basic reflexivity (whose perspective are we trying to emulate with the camera's gaze?).⁴⁰⁵ Being wary of not turning the researcher spectator into a specter, I made a conscious choice to hold the camera and talk during filming, treating it as an elongation of the interview, rather than creating video materials where I would be invisible, such as by using a tripod and staying quiet.

4.3.3 Field Notes

I kept a field diary while collecting the data, starting from the point of advertising the study and moving through the field-work, data transcription into materials for analysis and the coding process. I started out by viewing the field diary as Lofland et al. describes taking field notes: "*a more or less chronological log of what is happening to and in the setting and to and in the observer*"⁴⁰⁶ to capture the data collection process as well as continuously analyze, code, and reflect. The field diary is a way of collecting data, but also of capturing the conditions under which the data were collected and made into materials for analysis. I took extra care to record entries in my field diary while on my way to the research participants' homes and when I left them to reflect on the process and the encounter. In cases where entries could not be recorded by talking into my Dictaphone, they were typed down on my computer or in a notepad. The field diary was also a way of noticing emergent codes and significant themes,

⁴⁰⁴ Nairn 2002.

⁴⁰⁵ Paterson and Glass 2018.

⁴⁰⁶ Lofland et al. 2006, 112.

what Saldaña calls codable moments.⁴⁰⁷

The field diary served multiple functions: a way to make notes on things I did not want to forget, a way to evaluate my performance and methods during field work, and a way to document fieldwork conditions and their effect on me. These insights were crucial for writing this chapter as they provided an honest description of my fieldwork and accounted for the choices I made while designing the study. In addition to recording my data collection process, the field diary was also part of the materials I analyzed since it held statements of the people, places, and conditions of the research. I structured the field diary by date and what kind of work was being done (data collection, transcription, coding), but it also contained free-form writing about working on my thesis, such as comments on writing, theoretical developments, and backlashes.

4.3.4 Data Collection

The data in this study were collected from August 2023 to April 2024. It consists of 22 homes and 24 research participants located in various parts of Sweden. On-site data collection was structured into two parts. Part one was a sit-down interview recorded with a Dictaphone. The interview recordings ranged from 25 minutes and 24 seconds to 1 hour, 34 minutes, and 7 seconds. Part two involved observation of the VRusage area as well as a demonstration of how the research participants used their VR HMDs. It began with the preparation of the physical usage area, including moving objects to get the VR from its place in the home, and then the participants would put their headsets on and show me a typical example of their usage. The video recordings of observations ranged from 1 minute and 51 seconds to 23 minutes and 15 seconds. I obtained informed consent from the research participants prior to collecting any data. They were sent a letter informing them of the structure and topics of the study beforehand, and given a physical copy of that letter when we met. The research participants provided separate consent for each part of the study: they had the option of either doing part one only or part one and two. Hence, they had the option of skipping the observation or doing the observation part without it being video recorded. Some research participant expressed beforehand that they would not be interested in demoing their VR device, expressing that their usage was uninteresting or did not happen frequently enough (e.g., they were having an off-season in their VR usage). Nevertheless, all of the research participants participated in the interview and observation and consented to the audio and video recordings. Those who expressed that their VR usage was not interesting

⁴⁰⁷ Saldaña 2016.

enough to observe changed their mind during the interview as they talked about their VR usage and the forms it took as a spatial expression.

The choice to record the interviews and observations with different devices was based on both ethical considerations and practicality: recording the interviews with audio only, and the observation with videos, allowed the research participants to only have their voice recorded and not be filmed unnecessarily. It was also a question of digital materiality; the video files were harder to work with and could overwhelm the analysis due to the volume of data. Another ethical consideration was the connectedness of my devices: I recorded the interviews on a Dictaphone and the observations with a GoPro 9 camera. These devices could be used without internet connectivity, and the data was only stored on the devices and not anywhere else (like cloud storage solutions).

4.3.5 Reflexivity: Femaleness as an Outsider Trait

One approaches the field from a position of being on the inside or outside, what Lofland et al. consider a convert (insider) or a Martian (outsider).⁴⁰⁸ This results in different practices of creating distance (when on the inside) or bridging distance (when on the outside) in fieldwork. In the situation of observing VR usage in Swedish homes, I found myself in both positions. While I am a native Swede and therefore familiar with the hospitality practices and ongoings of Swedish homes, I was still very noticeably a stranger to the specific home environments where I gathered my data. In addition, my position shifted in relation to the VR technology: at times, the research participants felt the need to explain VR technology very thoroughly, as if I had no previous knowledge at all. In other instances, they understood me as a fellow user and asked questions such as *Which model do you have at home? What do you play?* which I answered and shared my personal use of VR devices. Pink dubs this sharing *reciprocity talk*.⁴⁰⁹ In my case, it functioned as a form of calibration for the interview, which I argue is directly related to how talking about technology is gendered. There is an inherent outsider-ness to being female and asking about devices and machines, while at the same time, in the context of discussion technology, the female gender lends itself to wondering. Asking open questions about technology usage can sometimes generate answers on different levels, which is the nature and purpose of the open-ended question. There would sometimes be a need to calibrate the interview so that answers would not be too general. I found myself sharing more of my own experiences in interviews with

⁴⁰⁸ Lofland et al. 2006.

⁴⁰⁹ Pink 2004.

men, to open up levels of inquiry, and to not get stuck in a basic level of short descriptions. Sometimes it was as a reaction to questions from the research participant, hints that I did not know about a specific environment or technological condition of VR HMDs. This would also come in the form of gendered language, where men I interviewed would feel that they were talking about things I already knew, referring to that they were *mansplaining* or just *killgissade* (guy-guessing). It is hard to balance this because too much familiarity with the conditions and environments can lead to the other end of the spectrum: answers are shortened to “*you know,*” and the research participant's own interpretations are missed.

4.3.6 Reflexivity: Data Collection as a Family Affair

Pink asks sensory ethnographers to reflect on their fieldwork in order to understand and account for how sensory experiences affect research.⁴¹⁰ At times, these sensory experiences tie into the bodily experience of carrying out research, a body that carries with it and experiences gender, class, and race relations. As eloquently stated by Reich: “*Women in academia strive in many ways to be ungendered.*”⁴¹¹ Therefore, when this document was still under construction, this started with a parenthetical reminder: “(Now is the time to stay true and not take the comfortable route)”. Hopefully, this account of perceived and felt messiness can provide for both a more truthful account of how the study was conducted and insights into methodological possibilities. Discomfort and messiness in the data collection process were, as noted in the reflexivity sections throughout this chapter, in many instances connected to my gender. Though the messiness and effects of my person on the fieldwork are in many ways entangled with gender, as I have accounted for, it cannot be reduced to a question of gender, and the gender discussion cannot be reduced to a question of messiness. Therefore, it is not without great discomfort that I start the discussion of how my motherhood and understanding of fieldwork as a family affair have affected my data collection process. What is it about the role of the mother that is so hard to reconcile with the role of the researcher? Perhaps it is the bodily implications, the personal relationships. Even though I have references for talking about lactating and fieldwork,⁴¹² writing about it floods me with discomfort, my shoulders creep up, and there is a tension between my

⁴¹⁰ Pink 2015.

⁴¹¹ Reich 2003, 355.

⁴¹² Neuilly 2019; Wolf 2019; Bastia et al. 2022.

shoulder blades. Although it seems like soul-baring,⁴¹³ it should be stated that the single biggest condition of my field work was my family situation and the feeding conditions of my youngest child, which meant I had to be home every night during my data-collection period. This fact had the single most significant effect on my fieldwork, given that I conducted interviews all over Sweden. I had to travel anywhere from 45 minutes to 3 days to reach field sites, so sometimes it was not possible to get home on the day of data collection. In those instances, I had to bring my family along into the radius of getting home-ness. This was only possible because my husband was on parental leave at the time of my fieldwork. The implications of having a family brought along into the field can have economic and logistical impacts, and also affect the level of immersion into the field.⁴¹⁴ Rather than the ethnographic goal of full immersion into the field, focus would shift to minimizing separation, often planning shorter trips. Neuilly emphasizes how being a mother of a breastfeeding baby made her realize that a sense of total immersion in her fieldwork was not possible anymore, something she had considered a condition for doing fieldwork.⁴¹⁵ I discovered that I held a similar view: that my previous understanding of fieldwork had been a totalizing experience, excluding other aspects of my life to fully assume the role of the researcher. However, this was no longer possible because research was now work, not life.

4.4 Analyzing Data

The research process is often presented as something that happens in clearly defined phases. I have structured this chapter according to a somewhat chronological idea of fieldwork. However, these steps are rarely taken after each other; rather, they overlap, moving back and forth.⁴¹⁶ This section is presented according to the structure of my analytical process: transcription as an interpretation of the data, (as well as) working it into materials, (which is also the beginning of) coding, (which is also kind of) analysis, and (then reworking again for) presenting the material. As this study is concerned with the effects of technology on our sense of being in place, not accounting for the technological entanglements of how it was carried out would be heretical. Our knowledge is

⁴¹³ Lofland et al. 2006.

⁴¹⁴ Bastia et al. 2022.

⁴¹⁵ Neuilly 2019.

⁴¹⁶ Lofland et al. 2006.

technologically mediated,⁴¹⁷ not only in the sense of how it is put out into the world and received by the reader, but also in its production.

When it comes to technological developments that shape both the subjects of research and how we study them, some of this change in the scientific mode of being and doing is often taken for granted. Yet, research today is increasingly digital and dependent on computation.⁴¹⁸ For example, machines and software carry out tasks such as transcription, auto-coding, correcting spelling errors, and searching for connections. As Crang observes, “...*I sometimes feel about the relationship of research and digital devices that everything has changed and nothing has changed.*”⁴¹⁹ The study of technology is always situated in time: by the moment I write these words, the specific devices and practices I encountered might have lost their spatial and social conditions, and by the time of publication, they may well belong to history. For an interesting example, see Thulin’s time geography on media usage.⁴²⁰ As eloquently put by Haraway, the world is happening at warp speed,⁴²¹ but our ways of scientifically handling this increasing flux are not necessarily reflected in our methodologies.⁴²² I have therefore made an effort in this section to showcase the technologies I used and the ethical considerations they evoked. Since if one, as I do, considers science as happening as a part of as well as constituting of society, it is necessary to acknowledge how technological changes shape how research approaches, represents and produces understandings of the world.

4.4.1 Transcribing with Machine Learning/AI

To prepare the materials for analysis, they were transcribed. This brief sentence meets the standards requirements for describing transcription practices. Transcription is usually understood as background work, a time-consuming chore.⁴²³ Yet transcription is also often mentioned as the first step of analysis and as a theoretical practice.⁴²⁴ While some argue that transcriptions are

⁴¹⁷ Duranti 2006.

⁴¹⁸ Ash, Kitchin, and Leszczynski 2018.

⁴¹⁹ Crang 2015, 352.

⁴²⁰ Thulin 2004.

⁴²¹ Haraway 2008.

⁴²² Law 2004.

⁴²³ Oliver, Serovich, and Mason 2005; Davidson 2009.

⁴²⁴ Davidson 2009; Pink 2015.

research data,⁴²⁵ my position is that transcriptions should be understood as both a translation and a transformation of data into research material, a process that needs to be guided by the research questions of the study. The lasting claim of Ochs that “*transcription is a selective process reflecting theoretical goals and definitions*”⁴²⁶ calls on us to acknowledge how these selections were made. A transcription that aims to capture everything on the tape would be unworkable and not very productive. Choices regarding transcription methods are therefore important to reflect on if one is to meet their research goals.⁴²⁷ I thus reflect on my choice to use a machine learning program for transcription. This program (claimed to) produce transcriptions with 85 percent accuracy that I would then check against the audio and video recordings. Because I got access to this program after having transcribed my first interview, I could compare automated and non-automated transcription practices.

First, I will say that machine learning transcription was practical, and saved time, and it heard words on the tape that I would have had to write as [unable to distinguish]. With that said, transcription as a practice became different. This is a result of the machine not hearing in a human manner, but rather producing texts as a result of understanding what is being said in relation to its training in deciphering human voices. The program had a hard time distinguishing between who was talking and long parts of back and forth in the conversation were lumped into chunks presented as one person talking. In addition, the machine would sometimes make up what was being said. This could vary between something that for the human ear was remotely similar: my favorite example is one respondent talking about his cats in the living room, judging him, which the machine interpreted as “*Catholics in the living room*” (apparently it had been trained to assume that there was a greater possibility of judgement coming from Catholics. Which is crazy because cats have you met them). Other examples are more nonsensical: Yu saying “*You barely move*” was transcribed as “*You’re now rebelling most*”. Moreover, some faulty interpretations were distorted in a way that could be misleading to the analysis in the study: Matilda saying that something was “*fiction*” was transcribed as “*real*” by the machine.

Second, I argue that working with machine learning transcription made the process of transcribing multidirectional. This can be exemplified by

⁴²⁵ Bird 2005.

⁴²⁶ Ochs 1979:44 in Davidson 2009.

⁴²⁷ Oliver, Serovich, and Mason 2005.

the question of producing a naturalized or denaturalized transcript. A naturalized transcript is one where what is said is transcribed verbatim, which means keeping the repetitions, blurred words, cut-off sentences, as well as the erhs, ums, and oughffgs. One looks for meaning in the mechanics of how things are said, and this is of value to conversation analysts, linguistics, and some discourse analysis.⁴²⁸ On the other hand, denaturalizing makes speech into statements by removing repetitions and filler words and placing punctuation. It is preferred by grounded theorists and ethnographers.⁴²⁹ Because my approach to transcription is that of meaning being created in what is said rather than how, I chose a denaturalized approach with the addition of laughter and tone of voice that changes the meaning of what is being said, such as sarcasm and pretending to be someone else by reenacting something they said or would say. The program I used did not provide the option of choosing between these two styles of transcription. Rather, the program aimed at producing a naturalized account, which it was quite successful at in the transcription of the English-speaking interviews, and not successful at in the Swedish-speaking interviews. This created two different transcription practices for me to try to make the material coherent; as I was going through the English transcriptions, I had to denaturalize the accounts, while I had to check for words that the machine interpreted as sounds that were not in the transcript, as well as check for words spoken in the interviews that were missing in the transcript. In the Swedish transcripts, there was no need for denaturalizing, because the program did not perceive uhms and ehms, which resulted in my transcription work also including making the transcriptions coherent in the transcription style.

Nevertheless, I argue that machine learning transcription is still transcription work. I still had to listen to every word my research participants said and either write them out, rewrite, or delete some gibberish the machine had written, and then write out what they said. In some cases, the machine did such a bad job that I had to transcribe most of the interview anyway, just with the extra work of deleting something else that was written on the page. In other cases, I could follow along with the written text, doing more of a check. Still, I was exposed to the materials and could revisit not only the words but the notions and sensations expressed by my research participants.

⁴²⁸ Ibid.

⁴²⁹ Ibid.; Davidson 2009.

4.4.2 Coding and Thematic Analysis

Coding is a way to restructure and reorganize materials to answer research questions.⁴³⁰ It is a way to distill or condense materials as the richness of materials and data, to analyze them, but coding is itself also an interpretative and analytical act.⁴³¹ Elliott frames coding as first and foremost a process of decision making and recognizes that each project needs its own coding strategy.⁴³² She also notes that it is quite common for PhD students to over-collect materials, and in these materials, not everything needs to be coded.

Coding started during the fieldwork and transcription phases, via fieldnotes that recorded what Saldana calls *codable moments* and possible codes. I then used NVivo, a Qualitative Data Analysis Software (QDAS) program. Saldaña warns that QDAS invites over-coding and code proliferation because the program allows for coding the same piece of material in many ways, and also has no limits to how many codes one can use. One suggested way to work against this is the strategy of lumping data in the first round of coding.⁴³³ Therefore, the coding strategy was to create overarching code structures based on research questions, theory, early analysis of codable moments, and codes. The materials were coded in two rounds: the first round aimed to be descriptive and interpretative, in chunks, and had a lumping effect, gathering the material on the same topic. The second round was interpretative, theory-focused and splitting, aimed at finding differences in the gathered codes. This strategy is called lumping and splitting.⁴³⁴ This approach was informed by Saldaña's caution against staying within only the descriptive when coding, which can distort materials, obscure analytical points, and create code proliferation. It also heeded to the idea of "*commonality in difference*."⁴³⁵

The coding was abductive and thematic. Funneling codes were developed from my research questions to sort materials, and codes were allowed to emerge from the material. While the themes of Boundaries and Remaining came from theory, the themes of Movement and the specifics of Sensuousness arose from the materials.

⁴³⁰ Elliott 2018.

⁴³¹ Saldaña 2016.

⁴³² Elliott 2018.

⁴³³ Saldaña 2016.

⁴³⁴ Ibid.; Elliott 2018.

⁴³⁵ Saldaña 2016, 7.

4.4.3 Ethical Considerations: Technologies and Presenting Materials

As I use different technologies and programs for most steps of data collection and storage, transcribing, and coding materials, I will make some comments about the ethical considerations in coding and presenting the materials. I have distinguished between the collected data and the materials used for analysis because I consider working with the data through transcription and analysis reshapes it into materials that can be used to answer research questions. The difference between data and materials is a relevant issue when working with QDAS programs, which provide the technical possibility to put data straight into the analytical program and code directly into videos and images. I chose not to put any data, but only materials, into the program. Putting data in the program would raise a number of ethical dilemmas: first, it would have affected how the files could be stored in compliance with Karlstad University safety regulations. Second, how would others in the homes appear if the data and materials were conflated? The fact that the homes were shared environments made the separation between the data and the material ever more important. Transcribing into materials made it possible to write out any others appearing in the home and to protect their privacy. Third, I did not have to include sensitive information offered by the research participants in the interviews. A clear example was that in discussions of the hopes of what VR could be in the future, there were some accounts on imaginings of VR solving medical and personal issues. Even though these situations were treated with sensitivity and respect in turning the data into materials, descriptions of specific medical information were not transcribed. Instead, they were reworked into topical descriptions such as **describes medical situation**.

I have chosen to present the materials in the analysis chapter both in tables, by paraphrasing, and with direct quotes and longer written paragraphs. You have already encountered some, including the description of Chiv's home, which starts off this thesis. These paragraphs are not moments; rather, they contain warped temporality, as I inform you as a reader of things that are not happening or said in the situation, but before or after. The paragraphs should therefore be understood as written moments describing the home as a situation. They can be understood as written snapshots of what Pink calls ethnographic places: *"Ethnographic places are thus not the same actual real experiences places ethnographers participate in when they do fieldwork. Rather, they are the places that we as ethnographers make when communicating about our research to others. Whatever medium is involved, ethnographic representation involves combining, connecting and interweaving of theory, experience,*

reflection, discourse, memory and imagination."⁴³⁶

For these paragraphs, I have used the spatial, relational, and sensory as guiding themes. I have also deliberately kept them a bit “messy”. Rather than point to a singular theme or theoretical point that I want to make, they contain multiple processes, places, sensations, objects, and bodies. My hope is to allow for the homes as places rather than to use theory as a way to distort and disfigure bodies and places (and objects) and their meaning to make a point. I also want to note that there is a certain type of violence in the act of sculpting materials; some things expressed in the data are cut, broken off, and pressed into shape. There is a frankenesque quality to meshing together the bodies, minds, and experiences of the people researched to construct material. Davidson asks what is represented in her transcripts.⁴³⁷ Similarly, Oliver Serovich and Mason ask whose words are on the page.⁴³⁸ This is the arrival at the intersection between using ethnographic methods while relying on Harawayian epistemologies. Although I have presented ethical considerations about keeping and protecting the personhood of my research participants throughout, such as providing the option for research participants to choose their own alias in the study, or have me choose it for them. Sometimes, the option to be oneself and have one’s statements remain un-anonymized can feel important to the research participant.⁴³⁹ I have also chosen not to present an exhaustive table of the research participants with ages, family constellations, type of VR devices, and so on, to prevent their potential identification. Guided by Pink, I have aimed to present my materials as “...loyal as possible to the context, the embodied, sensory and affective experiences, and the negotiations and intersubjectivities through which the knowledge was produced.”⁴⁴⁰ Hopefully, they are as true as possible to the accounts given and the lives shared by my research participants. With that said, I am humbled by the people sharing their views, words, and practices with me for the sake of this study. If you are reading: Thank you.

⁴³⁶ Pink 2015, 48.

⁴³⁷ Davidson 2009.

⁴³⁸ Oliver, Serovich, and Mason 2005.

⁴³⁹ Wilmott 2020.

⁴⁴⁰ Pink, 2013:35 in Pink 2015, 5.

5. Ektopic Emplacement

“This is the thing I find amazing,” Beata says. “This is what I’m looking for. To suddenly get to feel that it is really important that I hit the drums just right. To get pulled by the game, the music, the ship next to me, and the Vikings screaming AOUHH AOUHH!” We laugh. Beata is sitting on the bed. Her hair is a bit messy; it has escaped from the scrunchie she used to hold it in place, and she is a bit out of breath and is drinking from a glass of water. The VR HMD is heavy and warm to wear, hard to keep in place when moving around. She has been demoing a rhythm game where she is a drummer on a Viking ship. We are in her child’s bedroom, where she uses the VR HMD during the weeks when her kids are staying with their dad. Beata has been experimenting with different social settings through her VR HMD: going to parties in VR, date nights in VR, as a break from family life, and having gaming weekends where she and friends share a physical space, taking turns in the virtual through the VR HMD. She would also use it as a workout tool and for taking breaks from home during the pandemic. Beata thinks VR provides a possibility to leave that is hard to describe: “When you see me just now, it’s hard for you to really understand that I’m in another place. You don’t experience it like that; for you, it’s like I’m here in the room, which I am. But for me it’s like I’m...calling out to you. Because I’m on the ship.”⁴⁴¹

This strange presence that Beata describes, the user’s emplacement that extends into the virtual place of the Viking ship while remaining in the physical place of the home, is the starting point for the exploration of the phenomenology of the Ektopic. There is a simultaneous presence in the virtual and physical, which is not without distance: others in the home are there, yet far away. In the same manner, Beata is here with me, yet not here. This is contextualized through the socio-spatial relations of the home, and conditioned by the relationship between the device and the user’s body, as the VR HMD is intimately worn over the face.

I have concluded through my review of earlier research on VR and VR HMDs that spatialities of VR should not be reduced to immersion as a process of entering the virtual. Rather, being in place through VR usage could be looked at as a simultaneous navigation of the virtual and physical place.⁴⁴² Here, I analyze how this practice, of handling one’s embodied emplacement in

⁴⁴¹ Interview with Beata 2023; Observation Beata 2023.

⁴⁴² Blackman 2022.

and through VR HMDs and the home, plays out in the located practice of domestic VR usage. To explore emplacement through immersive media technologies, I have presented a theoretical framework where I argue that first, we are always in place and that we should understand place as having boundaries and multiplicity. Second, this bounded place is encountered by our living, moving body, whose being in place is marked by a sensuous being together with other bodies and objects. Finally, this embodied emplacement, the being in place with and through objects, is increasingly complicated because some of these objects are media devices with the capability of warping our perception of spatial relations; leading to confusion regarding the conditions of how other bodies and objects are present and with us.

This chapter introduces and develops the phenomenology of Ektopic emplacement. Being in place through VR devices neither dissolves the physical place, nor the spatial conditions for being in place. Rather, there is a layering of the virtual and physical place conditions, conditioned by the device's needs, and providing for new sensuousness produced by the moving body as it navigates this emplacement. This emplacement with and through immersive media provides for a being in place that is dual and shifting. Emplacement and embodiment are at the core of the Ektopic. Although they cannot be fully separated, since the body is always in place, and we are always through our bodies, the themes in this chapter lean either towards emplacement or embodiment to show how they give each other dialectically.

In chapter 5.1, I introduce the users, devices, and households involved in this study. It is more descriptive and intended to foreground that even though the users in the study do not represent a homogenous group, they have had similar experiences of VR usage and the connections between VR HMDs, user bodies, and places of usage. I then move into a thematic analysis, with each section focusing on one theme: boundaries, movement, sensuousness, and remaining. The order of the themes is meant to present the analysis of the empirical material in a way that establishes VR usage as a being in place and emphasizes the user's encountering and acquainting themselves with their VR HMDs. The reason for this is twofold. First, as a reader, you might have limited experience with VR, and I do not assume you know anything about using VR HMDs or being in virtual places. Second, research on technology does not keep very well. Therefore, I have made it a point to be clear about the connections between devices, bodies, and places that are specific to this iteration of VR HMDs. As these connections and conditions do not affect VR HMDs, users, and homes in the same way, I utilize a repeated structure to show how each theme relates to devices, bodies, and places.

In section 5.2, focusing on Boundaries, I look at how devices, users, and others in the households relate to boundaries as part of the user's Ektopic emplacement. The device needs boundaries to be used, and the user has to attend to this need. This includes overlap work between the virtual and the physical place, and the user's serious consideration of the device's need for emplacement as part of their own being in place. After establishing a usage area, users start to move. The second theme, movement, is treated in section 5.3. Movement in VR is complex and split; for devices, their untethered capabilities offer more mobility and potential usage areas. For users, movement takes many forms; movement as entering and leaving places, and bodily movement within place, both the virtual place and the physical place. Again, the user has to consider the device's properties as they navigate different and, at times, conflicting forms of movement in place.

As users master moving in and through VR HMDs, they start to notice other things: the connection between the body and the device, pleasures, and discomforts. The third theme regards the sensuous experience of VR HMDs. Section 5.4 explores the sensuous connections between devices, bodies, and place, which create frictions and highlight sensations new to users. These sensations are specific to the VR HMD as a medium that conditions our embodied emplacement. Finally, we leave the inside of the headset and look from inside and outside at the same time, at the practice of Remaining, the theme treated in section 5.5. Although users never leave the physical place through VR usage, this theme zooms out to the household context, including the other bodies, objects, and responsibilities that surround the users, but to which they are temporarily blinded. Together, these themes tell the story of users being in place through VR HMDs. This Ektopic phenomenology of paradoxical, conflicting emplacement navigated through the sensuous, moving user body serves to enrich how we understand and conceptualize being in place with and through immersive media technologies.

5.1 Description of Research Participants and Households

“Where do you use your VR? I guess right here in the living room?” It is my first interview, and I am nervous. Sanna shares her household, a townhouse, with her wife, one dog, and three cats. To even be allowed to enter Sanna’s home, we first had to take a walk with her dog so that I could be accepted as a guest. The pets are curious, circling us. They lose interest when they realize all we are doing is talking. Sanna says she got the VR as a workout device. She had been feeling depressed and knows that working out makes it better. But with her current energy levels, going to the gym is not an option. She got a Quest 2 so she could leave home without leaving home. After sampling, Sanna found a workout app with live workout sessions and encouraging trainers, calling for her to keep going and telling her she could do it. But the app stopped working recently, and Sanna’s current go-to virtual place is a game of slow-paced mini golf. “No, I play in the kitchen,” says Sanna. It turns out that the kitchen was the obvious usage area as it was the largest clear space in the home. The only preparation needed for the usage area is slightly moving a cabinet that is waiting for transport to recycling. When Sanna is using the VR HMD in the kitchen, the room becomes occupied, and Sanna’s wife cannot cook or use the space. Moreover, Sanna tells me that wearing the VR HMD makes her feel closed off from the home, which makes it a bit antisocial to use when her wife is home. This inaccessibility, that Sanna wouldn’t hear if her wife was calling for her, makes Sanna more likely to use the VR HMD when her wife is away.⁴⁴³

Though I will refrain from framing the VR user or VR usage as a uniform position and practice, I wanted to let Sanna introduce you to a typical scenario of domestic VR usage. First, Sanna got her headset in hopes that it would be a solution to a problem she was having: wanting to move more but not having the energy to leave home. Looking to feel as if she had left her home, Sanna found a virtual gym through her VR HMD. Second, as the VR HMD enters the home, it finds its place through the home’s layout and the device’s needs: demanding a usage area of a certain size. Third, VR usage ties into and disrupts the spatial and social patterns of the household. In Sanna’s case, claiming the kitchen becomes part of the everyday activities of the household, competing with cooking. The enclosing properties of the VR HMD, the same sensation of feeling removed from the home that Sanna was looking for as a way of leaving without leaving, also play out in other ways in the home as a social environment; Sanna

⁴⁴³ Interview with Sanna 2023.

does not want to use the VR when her wife was at home, because it made her feel rude and out of reach. Using a VR HMD has social and spatial implications for the household, and how these play out depends on the individual user, the needs of the device, the household, and the spatialities of the home.

This section introduces the research participants, their devices, and their households. I begin by describing the users as a population and the VR HMDs that were part of the study. I then move on to the usage areas and their locations in the home. Finally, I comment on how the users' experiences of non-usage or loss of usage tie into the home as a physical place as well as virtual places accessed through the VR HMDs.

5.1.1 Research Participants: Users and Devices

Many users in this study share their homes with family and pets, making the households shared environments. The users in the study all had one or more VR HMDs in their home that they themselves used or had been using. Several participants did not identify as a "VR user". I have chosen this term chosen to describe the role or position of the person using the VR HMD. In fact, several users described a loss of usage over time, to which we will return. As I further discuss the research participants in the study, I refer to them as users, and by that, I imply VR users. Similarly, I use the term usage referring to VR usage.

The materials in this study represent data collected from 22 homes and 24 users. The research participants were between the ages of 19 and 58 years at the time of data collection. One third of participants in this study were women, the rest men. Tables 1 and 2 describe some demographic traits of the users, devices, and households in this study. The VR users in this study are not a homogeneous group, but represent a variety of family constellations and homes. The users have different reasons for using VR: as an exploratory device for travel and discovering an imagined future, as a device for solving personal problems (such as immobility and health issues), and to make everyday life better through workouts and play. This speaks to what Marvin and Mosco describe as common patterns for emerging technologies becoming an arena to explore which problems can be solved through a renegotiation of spatial patterns and behaviors.⁴⁴⁴

⁴⁴⁴ Marvin 1988; Mosco 2004.

Table 1. Users and Households

	Male		Female		Total
	n	%	n	%	%
Total (n=24)	16	67%	8	33%	100%
Age in years (n=24)					
18-29	2	8%	0	0%	8%
30-39	7	29%	3	13%	42%
40-49	5	21%	4	17%	38%
50-59	2	8%	1	4%	13%
60+	0	0%	0	0%	0%
Family status (n=24)					
Single	4	17%	3	13%	29%
Married/living with partner	9	38%	5	21%	58%
Separate residence	2	8%	0	0%	8%
Other	1	4%	0	0%	4%
Children at home (full or part-time) (n=24)					
0	11	46%	4	17%	63%
1-2	4	17%	3	13%	29%
3+	1	4%	1	4%	8%
Pets in the home (n=24)					
No pets	12	50%	5	21%	71%
Cats	3	13%	1	4%	17%
Dogs	0	0%	1	4%	4%
Cats and dogs	0	0%	1	4%	4%

Table 2. Devices and Homes

	Male		Female		Total
	n	%	n	%	%
Total (n=24)	16	67%	8	33%	100%
Year when the VR HMD was purchased (n=24)					
2016	1	4%	0	0%	4%
2019	5	21%	1	4%	25%
2020	4	17%	3	13%	29%
2021	2	8%	0	0%	8%
2022	2	8%	1	4%	13%
2023	1	4%	3	13%	17%
Type o VR HMD in the home (n=24)					
Quest 2	8	33%	6	25%	58%
Quest 3	2	8%	2	8%	17%
PSVR 2	2	8%	0	0%	8%
Other	4	17%	0	0%	17%
Type of home (n=24)					
Rented apartment	5	21%	1	4%	25%
Owned apartment	4	17%	2	8%	25%
Owned townhouse	3	13%	1	4%	17%
Rented house	0	0%	1	4%	4%
Owned house	3	13%	2	8%	21%
No info	1	4%	1	4%	8%
Number of usage areas (n=24)					
1	10	42%	5	21%	63%
2 or more	6	25%	3	13%	38%
Moved after getting VR HMD (n=24)					
No	7	29%	2	8%	38%
Yes	8	33%	6	25%	58%

5.1.2 *Introducing: Users*

Since each household contains its own set of bodies, devices, relations, and types of housing, I have chosen to summarize the research participants according to these demographics. The purpose of this study is not to define a type of person who uses VR HMDs, nor to determine whether there were certain types of households that would be using VR devices. An examination of the research participants shows that they have diverse living conditions, household constellations, family situations, and lives. The number of research participants is not large enough that one could draw any conclusions on VR-users as a population beyond the participants of the study. Nevertheless, I want to note a gendered aspect of VR HMDs in my study population. Specifically, the men obtained their devices earlier and had earlier versions and models of VR HMDs than the women.

A user aspect that is not represented in Tables 1 and 2 is expressing a passion for technology or identifying as a tech enthusiast. Many research participants mentioned an interest in technology was a reason for getting a VR device. This is not included in the tables because this interest could not be reduced to a general or singular technology. For example, PärLAN was interested in VR technology,⁴⁴⁵ and Joel was into 3D modelling, which includes VR and 3D television.⁴⁴⁶ Wilke had a work-related interest in keeping up with technological developments,⁴⁴⁷ and Linus' and Vincent's interests in technology related to gaming and creative endeavors of developing digital games and experiences.⁴⁴⁸ There is a gendered quality to who describes themselves as interested in technology. Beata, for example, did not call herself a tech enthusiast or interested in technology, but she has been closely following the development of VR HMDs and their accessibility to casual users for many years.⁴⁴⁹ Anna also did not describe herself as a tech person, even though she had a home filled with technological solutions. Because one of her family members had chronic health conditions, her everyday life involved navigating and connecting with a variety of technologies.⁴⁵⁰

⁴⁴⁵ Interview with PärLAN 2023.

⁴⁴⁶ Interview with Joel 2023.

⁴⁴⁷ Interview with Wilke 2024.

⁴⁴⁸ Interview with Linus 2023; Interview with Vincent 2024.

⁴⁴⁹ Interview with Beata 2023.

⁴⁵⁰ Interview with Anna 2023; Observation Anna 2023.

5.1.3 VR Devices Represented in the Study

The VR devices represented in this study include PSVR1 (n = 1), PSVR2 (n = 3), Oculus Quest (n = 1), Oculus Rift 1 (n = 1), Oculus Rift S (n = 1), Meta Quest 2 (n = 15), and Meta Quest 3 (n = 4). All the VR HMDs have built-in cameras to orient themselves in the room, except for the PSVR1, which uses a mounted camera that registers lights on the controllers. None of the devices employs external sensors placed in the room to locate the device. Five of these headsets require tethering to a computer or console (PSVR1, PSVR2, Oculus Rift 1, and Oculus Rift S), which means that they must be connected through a cable to a video game console or computer. The Oculus Quest, the Meta Quest 2, and the Meta Quest 3 are untethered headsets, which can be used as stand-alone devices. Though some participants mention the untethered aspect of the Quest VR HMDs as a reason for getting that particular model, some preferred to use their Quest 2 and Quest 3 devices connected to a computer (PCVR), either via Wi-Fi or cable. This was due to either the battery (keeping the headset charging during usage) or the prospect of having access to different experiences and games. There are two aspects related to accessing different experiences and games when using the Quest VR HMDs, tethered or not tethered. First, there is a difference in where computation occurs. When using the VR HMD untethered, the computation must happen in the headset. When using it tethered, you have access to more processing, which allows for accessing experiences and games that demand on more computation. However, this also means that the computer must be VR compatible and have sufficient processing capabilities. For Andreas, this made him spend extra money when getting a new computer because he imagined the future need for VR compatibility. For Linus, it made for an expensive Black Friday, as he got his VR HMD and computer together.⁴⁵¹ This was a source of great frustration for Joffe, who had accidentally gotten an expensive computer that was not VR compatible. She was now stuck using her VR HMD untethered, even though this meant a restriction in which places she could access.⁴⁵² Second, the use of PCVR makes it possible to buy games through other stores than the one accessed through the VR HMD. For PSVR, one would use the PlayStation Store. For the Quest VR HMDs when used as PCVR, users had the option of either using Meta's own store (which stores your experiences and games in the headset) or using other platforms for buying experiences and games, such as STEAM. Different apps, experiences, and games are accessible

⁴⁵¹ Interview with Andreas 2023; Interview with Linus 2023.

⁴⁵² Interview with Joffe 2024.

through the different platforms. This means that the user would invest in a platform for buying and storing experiences and games because they are not transferable between VR HMDs, platforms, or systems. This lack of mobility of software within VR HMDs that can be user tethered or untethered, and old and new headsets, meant that some of the users chose whether to use the headset tethered or untethered based on the location of the software they wanted to use, rather than the possibilities of the device. Moreover, the experiences and games would be limited to the account that bought them: even though the VR HMD had the capacity to switch between accounts, experiences and games could not be accessed through different user accounts. Therefore, it was common for users within the same household who were sharing a headset to also share accounts and avatars, because they did not want to pay double or triple to own the same experiences and games on different accounts. Some households had multiple VR HMDs. In Table 2, the VR HMD that the research participant uses most is the one listed. Sometimes, this is related to having a later version of a VR HMD, like for Mirea and Cam, who had recently upgraded to a Quest 3 from a Quest 2. Nevertheless, there are also examples of remaining on your older VR HMD. Wilke had a newer VR HMD, PSVR2, but had only used it once. He preferred using the older Quest 1, which contained games that were not transferable between systems.

5.1.4 Usage Areas as Locations within the Home

The Usage areas were found throughout the users' homes. The VR HMD depends on having access to an area of a certain size, so many users indicated that they did not choose the usage area, rather it was given by the conditions of their homes. They would use the most open space they had in the home. 9 research participants had more than one usage area, while 15 research participants had one usage area. In both groups, the living room was most common as *the* one or one *of* the usage areas (Table 3).

Table 3. Usage Areas

User	Bed-room	Child's bed-room	Guest room	Hallway	Home cinema	Home gym	Home office	Kitchen	Living room	Shed
Sanna								X		
Guy									X	
Chiv									X	X
Pärlan									X	
Mikael					X					
Linus							X			
Stefan			X						X	
Thomas									X	
Beata		X							X	
Andreas									X	
Anna									X	
Jing			X							
Joel	X			X					X	
Matilda						X				
Matteo	X							X		
Robert									X	
Mirea		X		X					X	
Cam	X								X	
Joffe									X	
Max							X			
Vincent	X									
Wilke	X								X	
Kunru								X	X	
Yu									X	
Total	5	2	2	2	1	1	2	4	15	1

The level of adaptation of the usage area to enable or better facilitate VR usage varied among the users. It ranged from having to move furniture for each usage, to adding gym mats to the floor that would remain there permanently, to decorating the room in a way that had it optimized for VR usage. Some users had designated rooms whose main function would be to house VR usage. Other usage areas, such as living rooms, shared their function with other domestic practices and home life: watching TV, home workouts, and a general area for being in one's home. This is not to say that these places were not adapted for VR usage; they could still be furnished in a way that allowed for VR usage, such as keeping part of the room cleared. Joffe tells me that her mother commented on her peculiar placement of furniture, referring to her VR usage area, which was an open space in her living room.⁴⁵³ Thomas, who used his VR HMD in his living room, put gym mats underneath the living room carpet, which marked the usage area for him and his wife.⁴⁵⁴

At the most adapted end of the spectrum, we find rooms designated specifically for VR usage. Though designated, this would not mean they required zero preparation before VR usage. Two examples are Stefan's and Matilda's setups. Stefan, who had two usage areas, one in his living room and one in his guest room, preferred the guest room where he had installed black out curtains and an infrared (IR) lamp that would flood the room with light only the VR HMD could perceive. Stefan had spent money and time setting up the room to cater to his and the headset's needs, and he kept the room free of furniture, except for a comfy chair. Still, this did not mean that the VR was totally at hand: the guest room was also used to hang laundry for drying, so Stefan still needed to put away clothes hung to dry before using the VR HMD.⁴⁵⁵ Matilda got her VR HMD when living in a home with less open area to provide a suitable usage area. She used her VR device for moving and getting her pulse up in a gamified manner. When she and her family moved to a larger home, they designated a room that took the form of a gym, with mats on the ground, weights for lifting, and a charging station for the VR device. Although Matilda had a room set up focused on the conditions of the VR HMD, the device would often make her clear her usage area. Her headset would react to minute changes in the room, such as a door being slightly too open and appearing to the VR HMD as an object invading the

⁴⁵³ Interview with Joffe 2024.

⁴⁵⁴ Interview with Thomas 2023.

⁴⁵⁵ Interview with Stefan 2023; Observation Stefan 2023.

usage area.⁴⁵⁶ Curiously, having a designated area for VR usage does not equate with more usage. Both Max and Mikael had tethered VR devices that they used in designated rooms: a gaming room for Max, and a home cinema for Mikael. Though they both indicate that they are not against changing a space in their home to facilitate the usage of technology, neither of them has considered the spatial needs of their VR HMDs in their redecoration. Both seldomly used their headsets.⁴⁵⁷

5.1.5 Non-usage: Loss of Place(s)

The research participants represented both daily VR users and users who took long breaks in their usage. Rather than discussing usage based on frequency, I want to underline how usage, non-usage, and loss of usage were related to the spatial conditions for usage, as well as the at-hand-ness of VR HMDs through usage areas as part of the home environment. Several users reported having recurring periods of non-usage or not using their VR HMDs as of late. Actually, some users mention their loss of usage as their reason for participating in this study, as a way to get excited about and get back into VR again.⁴⁵⁸ Part of this non-usage was attributed to a general loss of interest in VR HMDs, as the excitement of it being a new device in the home subsided over time. For others, non-usage was part of the mismatch of the framing of VR HMDs as devices for relaxing. While users talk about VR as leisure, VR HMDs were both tiring and taxing to use. Compared to playing a video game or watching TV, VR was considered physically and mentally straining.⁴⁵⁹ Nevertheless, loss of usage also related to spatial changes in the users' lives, such as losing one's usage area or losing the virtual places one would visit.

A common way of losing one's usage area was through moving into a new home. Notably, 14 of the 24 research participants had moved to their current home within the last 4 years. Of these, 13 had purchased their VR HMDs before the move. This means a few things. First, the VR HMDs had a usage area in another home before this one. Second, the research participants knew of the spatial needs of their VR HMDs when choosing their new homes and the new usage areas. Third, this meant users would compare their current usage area with former usage areas. Joel and Beata provide prime examples. Joel and his

⁴⁵⁶ Interview with Matilda 2023; Observation Matilda 2023.

⁴⁵⁷ Interview with Max 2024; Interview with Mikael 2023.

⁴⁵⁸ Interview with Beata 2023; Interview with Vincent 2024.

⁴⁵⁹ Interview with Mikael 2023; Interview with Vincent 2024; Interview with Wilke 2024.

wife had frequently used their VR HMD in their old home, where their usage area was placed in their bedroom with a good Wi-Fi connection and gym mats on the floor. Since moving, Joel had multiple usage areas rather than a designated one. The gym mats were lost in the move. Joel's own usage had gone down significantly, and his wife had not used the VR HMD once in the new home.⁴⁶⁰ Beata, who moved to an apartment after separating from her husband, describes how moving led to a loss of usage: "*VR isn't a big part of this home yet. It was a big part of the house. Yeah, I'm trying to find a place for it here.*"⁴⁶¹ Recovering from the loss of a usage area in an old home can take some time. Thomas was especially wary of this as he and his wife were looking at apartments for moving: though he would never let the VR HMD be a decider for which apartment they move to, he did not want to move somewhere where he would not be able to use the device.⁴⁶²

Sometimes the loss of the virtual and the physical place coincided. For Max, moving to a new apartment with his girlfriend meant that the gaming computer got its own dedicated room. The couple agreed that the computer and tethered VR HMD would be hidden away in its own gaming room. This was more aesthetically pleasing than having the setup in the living room, as it had been in their previous home. However, the tiny gaming room was not really suited for VR. Max told me about being excited regarding a specific set of VR games that take place in the Star Wars universe. After having finished the storyline in the games, Max found himself without virtual places to go. The loss of both usage area and virtual place to visit led to a steep decline in usage.⁴⁶³ Similarly to how the loss of usage correlated with a loss of usage areas and virtual places, the research participants who used their VR HMDs the most had stark spatial patterns to their VR usage. These users either had specific virtual places to which they returned, a dedicated usage area to keep the VR HMD at hand for usage, or a combination of the two. Kunru and Matteo would return to the same virtual place many times a week, knowing where they were going as they put on their headset.⁴⁶⁴ For Robert, Mirea, and Cam, this return to a virtual place was enhanced by a gaming community; they knew where they were going and who

⁴⁶⁰ Interview with Joel 2023.

⁴⁶¹ Interview with Beata 2023.

⁴⁶² Interview with Thomas 2023.

⁴⁶³ Interview with Max 2024.

⁴⁶⁴ Interview with Matteo 2023; Interview with Kunru and Yu 2024.

they could expect to meet there.⁴⁶⁵ Chiv and Matilda were daily users with dedicated usage areas adapted to VR usage, as well as specific virtual places where they would go.⁴⁶⁶

How much the VR HMD is used relates to both virtual and physical places. Losing a good usage area or a virtual place you want to go can lead to a loss of usage. VR HMDs are also place-shaping technologies: the usage areas are altered to facilitate VR usage. Several users were wary of declines in usage and discussed actions to ensure that using their VR HMDs had a low threshold: framing VR HMDs as devices for entering virtual places. Because both users and devices both have needs and preferences for the physical environment, keeping the device at hand requires more than keeping the VR HMD charged; it also requires keeping the usage area cleared and optimized to suit the device's needs. To further explore the threshold quality for entering virtual places through VR HMDs, I turn to the role of boundaries in VR usage, expanding on the interplay between spatial perceptions of users and devices. The way the usage area is arranged for the device and to facilitate users' emplacement in both the virtual and physical forms, the basis of Ektopic emplacement: being both in and out of place simultaneously.

5.2 Boundaries: Establishing Emplacements

VR technology draws upon the sense of being in place, being (t)here.⁴⁶⁷ A significant focus of the literature on emergent media is how they affect our perceptions of what it means to be in place. Often described in hyperbolic ways, it can blur and extend,⁴⁶⁸ confuse,⁴⁶⁹ change,⁴⁷⁰ and explode⁴⁷¹ our experiences of places, altering perceptions of what is happening in the here, where the boundary of a place lies, and what can become present with us within a place. Frith and Saker note that this iteration of VR HMDs has a different way of relating to place and therefore provides for different spatialities than the previous unwired VR. How the current iteration of VR HMDs works to establish

⁴⁶⁵ Interview with Mirea and Cam 2023; Interview with Robert 2023.

⁴⁶⁶ Interview with Chiv 2023; Interview with Matilda 2023.

⁴⁶⁷ Bailenson 2018; Evans 2018.

⁴⁶⁸ Adams 2005.

⁴⁶⁹ Marvin 1988.

⁴⁷⁰ Meyrowitz 1985.

⁴⁷¹ Graham 1998.

the usage area has implications for the spatialities of VR technology.⁴⁷² Blackman describes how being in virtual places through VR HMDs facilitates boundary work between the virtual and physical.⁴⁷³ Although the user is present in both the virtual and the physical place simultaneously, there is only one body and one emplacement in the world; it is a phenomenological mode of emplacement that needs to recognize being in dual places, which I call Ektopic. Ektopic emplacement underlines the being in place that users experience through/in immersive media technologies such as VR, as split and shifting. The Ektopic emplacement attends to the duality in the sense that users handle a simultaneous emplacement in the physical and the virtual. This is not to say that users are cloned, split up, or transported: they remain in place, but are also removed, sensuously present, and non-present at the same time. Since being in place through the VR HMD makes the user present in the virtual, while remaining in the physical, the boundaries of and between these places require attention. Boundaries mark the here and over there, and help constitute the multiplicity of place, delineating who and what are present and non-present with you. The possibility of being in a physical and virtual place simultaneously through VR technology makes users' understandings of boundaries and multiplicity further complicated.

In this section, I look at how VR users and VR devices relate to and navigate boundaries. At a glance, it may seem pointless to theorize VR technology in terms of boundaries because media such as VR constantly promise to dissolve boundaries,⁴⁷⁴ to challenge the importance of them through being here and there at the same time,⁴⁷⁵ to blur them enough to confuse their significance for our embodied being. Yet as boundaries mark the inside and outside of place,⁴⁷⁶ it is important to understand how boundaries are perceived by users, devices, and others in the household so that we can understand the relationship between VR usage and place. To conceptualize VR usage as a mode of being in place, there is a need to explore how these places are navigated by users and devices. It is necessary to clarify the various boundaries at work here: first, there is the boundary as a theoretical entity, marking the limit of a place. This boundary works to establish an *in-place* and an *out-of-place*. Second, there

⁴⁷² Saker and Frith 2020.

⁴⁷³ Blackman 2022.

⁴⁷⁴ Graham 1998.

⁴⁷⁵ Kittler 2009.

⁴⁷⁶ Casey 1996.

is the room boundary, that is, how the VR HMD relates to its place of usage. Third, there is the user's negotiation and practice of understanding, marking, and navigating these boundaries as they overlap, mismatch, and contradict each other. I start by describing the device's needs for boundaries. Room boundaries are important for the VR setup in this study. Since the device requires these boundaries to function, it imposes spatial conditions to which the users must adapt. I then turn to the users' perceptions and experiences of their VR HMD's ability to establish boundaries, including examples of users disliking having to accept the conditions set by their device, and users finding ways to utilize the room boundaries for their own being in place. I end by exploring the leakiness of these boundaries, their ability to be transgressed by others in the household, and how the porosity of these boundaries affects VR usage in the home.

5.2.1 Drawing Room Boundaries: Devices' Perspectives

The most common headset in this study, the Meta Quest 2, would, as part of starting up, ask users to define a usage area. The headset instructs the user to perform two steps: first, by bending down and placing a controller on the floor, the user assists the headset in recognizing the floor level. Second, room boundaries have to be drawn. When doing this, you see an eerie black and white, somewhat low-resolution version of the room you are in, watching the physical surroundings through the pass-through camera mode. It is not the actual room, but a video reference of the room you are in, shot by the headset in real time. Nevertheless, PärLAN explains that it feels like seeing the room through the VR HMD.⁴⁷⁷ As the user pushes the trigger button of their right-hand controller, a fluorescent beam shoots out from their controller and connects to the floor. When turning around the axis of one's body, tracing this beam along the floor, the dot becomes a line. When the line connects to its starting point, the user has created an area with themselves wearing the headset inside it; their usage area.

Room boundaries are important to this iteration of VR because the headset orients itself via cameras that register the surroundings. The prior generation of VR HMDs used sensors placed throughout the room, often high up on walls or in the ceiling, tracking the position of the headset. The use of sensors would mean modifying the room, often in a semi-permanent way, by finding positions for the sensors and leaving them up. This would define the usage area for the VR HMD beyond a single use. Because the current iteration of VR HMDs has cameras built into the headset, the usage area can be created at the moment of each usage, without any preparations or lasting effects on the

⁴⁷⁷ Interview with PärLAN 2023.

physical area. This creates an anywhere-ness of usage for untethered VR HMDs such as the Meta Quest 2. Because the headset requires reference points to orient itself, room boundaries are intrinsic to how the VR HMD relates to place. In later iterations, like Meta Quest 3, the headset could perform a scanning action, creating a usage area that the user can then modify to overlap with the room. With Meta Quest 2, it is up to the user to draw and shape the usage area.

Casey argues that boundaries are defining for our understanding of place; being in place entails a need to know where the limits of that place lie.⁴⁷⁸ This notion has been built into the VR HMD design: it wants to establish boundaries to orient itself, and to be used, it needs to understand the limits of its place of usage. Therefore, the demand from the VR HMD to establish room boundaries is a shared experience among the users. Because the device requires defined boundaries, setting up these boundaries is a threshold practice for entering virtual places. When demonstrating how they establish these boundaries, most users refer to the practice of *drawing* boundaries, even though it is really tracing a virtual line on the floor with the controller. When showing me their usage, it was clear whether users needed to redraw their boundaries since the drawing was signified by the user performing a spinning motion. Some users did this delicately, quite slowly and methodically,⁴⁷⁹ while others roughly sketched their area through swipes.⁴⁸⁰ Some users did not have to draw any boundaries: their VR HMD remembered the boundaries from before, so they would simply put the headset on and enter the virtual place without having to do any matching, layering, or overlapping with their physical place.⁴⁸¹

Casey's and Massey's definitions of place differ in the temporality of boundaries: the former sees boundaries as establishing themselves over time, while the latter understands boundaries as of the moment. While the device is capable of remembering boundaries, it also offers the possibility of establishing boundaries for its emplacement at the given moment, making a bounded place within an environment. Many users say that they barely ever have to redraw their room boundaries between uses or even when they move their devices between different established usage areas in their homes. Matteo states that he has only had to redraw his usage area a couple of times in the two years that he

⁴⁷⁸ Casey 1996.

⁴⁷⁹ Observation Sanna 2023.

⁴⁸⁰ Observation Pärilan 2023.

⁴⁸¹ Interview with Beata 2023; Observation Anna 2023; Observation Chiv 2023; Observation Linus 2023; Observation Matilda 2023; Observation Thomas 2023.

had his headset,⁴⁸² a common account. Others say they have had to redraw their boundaries often, and sometimes over and over, for their VR HMDs to recognize it as a usage area. The most extreme case was Max, who had an older headset, Oculus Rift S. He expressed frustration that he had to redraw 5-6 times before the boundary would stick. For some reason, the area was not accepted by the headset, and without a defined usage area, the VR HMD does not work. At times, he had considered getting complementary sensors because his headset struggled to make the drawn boundaries work.⁴⁸³

For the VR HMD to accept a drawn usage area, it cannot be too small, too dark, or perceived as having objects that are placed over the drawn boundary. In other words, the device itself has preferences and demands on the spatial conditions to recognize its emplacement. For most users, it was not clear why or how their devices would remember boundaries from before or require new ones. Their strategy was to follow the directions given by their VR HMDs. The device communicates to the user that it needs more light or to remove an object that is in the way through text appearing on the screens in the headset. The devices have variable sensitivity for this. Anna's VR HMD complained about larger objects like her coffee table, telling her to clear the area to establish boundaries.⁴⁸⁴ Matilda claimed to have a sensitive headset that often picked up on objects infringing on boundaries. Even smaller objects, like an open door or something sticking out from a shelf. "*It's gift-wrapping paper on a shelf, it won't hurt me!*" Matilda exclaimed in annoyance when her VR device demanded she remove objects during the observation.⁴⁸⁵ Not only does the device understand boundaries differently than users, but the multiplicity of what goes on or does not go on within that place had to be negotiated. In other words, Matilda gave in to the device's notion that the wrapping paper was a hindrance that needed to be removed.

Although the device has specific requirements on the physical place where the room boundaries are drawn, exactly where these boundaries lie, or should lie, is not obvious to users. They are not given by the physical place and moved into the virtual, nor does the headset provide them. Boundaries are made through a negotiation between the users, devices, and the spatial conditions of the home. To use their VR devices, the users must assist in creating boundaries,

⁴⁸² Interview with Matteo 2023.

⁴⁸³ Interview with Max 2024.

⁴⁸⁴ Observation Anna 2023.

⁴⁸⁵ Observation Matilda 2023.

negotiating with the spatialities of the home, and adapting the home environment to make it recognizable as a usage area. The suggestion is offered to the device, which might accept it. Massey's place definition includes the idea that boundaries are not given or simply made but rather constantly renegotiated between humans and non-humans to define the here and now of place.⁴⁸⁶ For Massey, however, it is not only where boundaries lie and what they mean that is negotiated, but how they work and what they let through as well.⁴⁸⁷ By making their VR HMDs a part of these negotiations, users find themselves confused by what is perceived or considered important in the device's boundary making. A relevant example comes from Sanna. When showing me her setup process, Sanna's VR HMD starts to obsess over a spot on the floor. "*It says to remove object,*" Sanna tells me, and sweeps her foot over the indicated spot, which is just empty floor to the naked eye. I suggest that the headset might have picked up on one of the animals that are joining us in the kitchen: my being in the home is a spectacle for both the cats and the dog. Or perhaps it is the light from the windows that makes the floor into an object. In any case, whatever object the device is directing Sanna to remove could only be perceived by the VR HMD, and not us.⁴⁸⁸

The fact that the device and users understand differently what is present in place, as well as where boundaries lie, is perhaps most obvious when it comes to ceilings. To establish the room boundary, the VR HMD needs an unbroken line on the floor and a base level, which relates to the floor level established by the user. Boundaries cannot be drawn over walls or objects that the device finds infringing. Meanwhile, the device does not recognize upward boundaries like ceilings or objects infringing on the usage area from above. Beata tells me that when she introduced her friend to VR, the very first thing that happened was her friend hit a lamp hanging from the ceiling. There was no warning or indication from the headset because it does not recognize upward boundaries.⁴⁸⁹ Wilke described his old usage area in a basement with a low ceiling as problematic since the device does not check upwards; it only understands horizontal boundaries.⁴⁹⁰ Although how users and devices perceive

⁴⁸⁶ Massey 2004.

⁴⁸⁷ Ibid.

⁴⁸⁸ Observation Sanna 2023.

⁴⁸⁹ Interview with Beata 2023.

⁴⁹⁰ Interview with Wilke 2024.

the limits of place differs, users still have to consider the perceptions of their VR HMD, and ensure that their device is pleased before they can use it.

5.2.2 Recognizing and Removing Boundaries: User Practices

While the device depends on established boundaries for its emplacement, room boundaries are not necessarily needed, appreciated, or even noticed by users. This does not mean that users can simply overlook the room boundaries. Since the VR device understands place through boundaries and cannot function without a room boundary, the user is not able to enter the virtual place until these room boundaries are established, and the boundary function cannot be turned off on the device. Users have to at least satisfy their device's spatial needs and adapt their usage to the device's conditions in their negotiation of boundaries. This takes on different forms depending on the users' practices and perspectives. Already in the drawing, users employ different strategies. The fact that users define the usage area provides them with agency. Because the Meta Quest 2 does not demand a certain shape for the usage area, some users simply try to encompass all available area, layering the virtual place over the physical one, making for skewed rectangular shapes that edge towards walls and furniture. This was sometimes the result of needing to use all of the accessible area (true for about half of the users in this study) to satisfy the device's specifications for a usage area: a well-lit, two-by-two-meter area. While the usage area needs to functionally overlap with the physical environment of the home, it does not need to correlate with the physical place. Boundaries can be drawn in any shape the user wants if the physical environment allows for it. Some users, who had larger spaces than they needed or wanted to claim for the usage areas, still preferred to overlap the usage area with the physical room in some manner, either by following the edges of furniture or using mats on the floor where the edge of the physical mat corresponded with the virtual boundary.⁴⁹¹

After the initial setup of the usage area, the room boundaries are mostly noticed by users in the form of a red grid. When the device got too close to the room boundary, a fluorescent red grid marking the boundary of the virtual place would be faded in over the visuals in the headset. The closer the user got to the boundary, the brighter the red grid got, creating a sharp sensation of alertness. Some users utilized the possibility to shape room boundaries as a navigational trick. For example, Linus and Robert told me they would draw a spike where they considered the front of their usage area. In practice, this means

⁴⁹¹ Observation Matilda 2023; Observation Thomas 2023.

that if they lost their sense of direction in the physical room from moving around and turning in the physical/virtual place, they could instantly find their bearing by putting out their arms and activating the red grid.⁴⁹²

Wilke and Kunru, who did not shape their usage areas in any specific way, still made use of the red grid to orient themselves in the same manner. When feeling disoriented, they would simply put their arms out in a T shape. This made the red grid appear, showing the boundaries, and they could immediately check their position in the physical room.⁴⁹³ This was dependent on them having smaller usage areas, where the Red Grid was activated without walking or reaching very far. Both Kunru and Wilke use the Red Grid as a manifestation of boundaries to try to stay centered within their usage area and not float around in the physical room as they move around the virtual place. The red grid functions as a visual cue for users, directing them to remain within the room boundaries, where the user would be safe, as it should correlate to a cleared space.

What users call room boundaries, Meta calls *guardian*. The device does not state what is guarded, and how well the protection works was not agreed upon by users. Max, for example, drew boundaries to keep their usage area smaller than the available physical area. This was a protective measure for the space itself, creating a buffer zone between the usage area and other things, such as shelves or walls, if he stepped over the room boundary.⁴⁹⁴ However, most users understood that the room boundary's function was to contain and keep the user inside, rather than to keep the environment safe. This is due to the fact that moving around in the virtual environment through the VR device often corresponds to moving around simultaneously in the physical environment. Linus explained how the room boundary is an attempt to contain the user: "*If you go outside it, you get an indication that 'you are outside,' wherever you put the line.*"⁴⁹⁵ The red grid lets the user know that they are at risk of crossing the boundary, leaving their place.

Casey finds that the body is always in a process of emplacement.⁴⁹⁶ This extends to objects, such as the VR HMD, which is constantly checking its position against the room boundaries, checking the user's movement so that

⁴⁹² Interview with Linus 2023; Interview with Robert 2023.

⁴⁹³ Interview with Kunru and Yu 2024; Interview with Wilke 2024.

⁴⁹⁴ Interview with Max 2024.

⁴⁹⁵ Interview with Linus 2023.

⁴⁹⁶ Casey 1996.

they do not cross over these boundaries into space that has not been marked as safe. The red grid does not actually appear because the user gets too close to the room boundary. Rather, it appears because the device worn by the user approaches the room boundary, creating a somewhat parasitic relationship where the device protects itself by alerting the user that they are at risk of leaving the usage area. Casey and Massey agree that boundaries do not contain in an absolute manner.⁴⁹⁷ The device is, of course, free to cross boundaries; they are only drawn virtual lines that can be moved if necessary. However, the VR HMD demands being inside these boundaries to allow the user to enter a virtual place through it, underlining the importance that the device places on boundaries as the pivotal difference between being in place and out of place.

I have argued that the biggest difference between Massey's and Casey's conceptualizations of place is the role of boundaries in our understanding of place. Although neither Casey nor Massey considers place as a container, boundaries are transgressed and porous; their definitions differ. Casey prescribes a sort of force to place, a push and pull. Place gathers, and it can also hold things in and out of itself. However, Casey describes boundaries as essential for understanding place. Since the key aspect of place for Casey is that it gathers,⁴⁹⁸ boundaries mark the where and when of something transitioning from the inside of place to the outside of place, or vice versa. The device deploying the red grid to keep the user in place can be read from a Masseyan point of view: the transitions show how boundaries do not do anything,⁴⁹⁹ and the virtual reminder of the red grid underlines the uselessness of the room boundary as an actual boundary. We can also see it as a boundary behaving just as boundaries should in Casey terms, by marking the transition from inside to outside, trying to gather and keep in and out.

The users perceive their devices' attempt to guard themselves and users from the risk of leaving the usage area in two ways: as an annoying nuisance or as a reasonable attempt at a safety measure. Feelings about the Red Grid as a boundary vary among users. Yu thinks that the emergence of the grid is very annoying.⁵⁰⁰ Matilda describes becoming furious by how the grid keeps appearing sometimes when she uses her VR HMD: when playing Beat Saber, where one uses a lightsaber to slice cubes coming at you, the grid continuously

⁴⁹⁷ Ibid.; Massey 2004.

⁴⁹⁸ Casey 1996.

⁴⁹⁹ Massey 2004.

⁵⁰⁰ Interview with Kunru and Yu 2024.

bothered her. *“I would keep getting warnings about leaving my space, but I was standing in the middle. It was the swords that were outside. The swords don’t exist! They are in no trouble! Can you see all this space I have?!”* According to Matilda, the device should let her draw her usage area as she wants, and stop nagging her about miscellaneous items like stray socks on the floor. It should be up to her to define her usage area: *“I don’t get how a normal person can use VR in their living room if it’s warning you this much?”*⁵⁰¹ Cam found the appearance of the red grid so annoying and disruptive to his being in the virtual place that he turned it off altogether.⁵⁰²

Because the device needs room boundaries to orient itself, this requirement cannot be turned off. However, some users removed the red grid as a visualization of room boundaries. Joel talked about the Red Grid in oppressive terms. Like Matilda, he does not think that his VR HMD should be telling him what to do and says that turning off the red grid allows for using the VR within a smaller usage area. When using his VR HMD in a smaller usage area, the red grid appeared constantly if not turned off: *“Otherwise, it would keep warning me.”* Joel tells me, imitating a nagging voice: *“You are too close to the wall. Alright, I’ll be too close then, hit the controller against the wall. Correct myself.”*⁵⁰³ Joel found the notion of the headset telling him what to do to be offensive: if there is no technological need for it, let it be up to the user to decide what they want.

The users express different feelings regarding the notion of the red grid as a measure to keep them contained and safe within the usage area. Even users who had bought into the idea of boundaries as protection did not think that the red grid worked to contain users in the usage area. Andreas, who considers the red grid a good thing due to VR’s enclosing capabilities, says that he still experienced finding himself too close to walls when taking his headset off.⁵⁰⁴ This suggests that even though the red grid is an intense visualization, users can, over time, stop perceiving it. Vincent and Kunru confirm this: they visually filtered out the red grid and were not bothered by its appearance.⁵⁰⁵ Mirea, on the other hand, feels like she really needs the red grid due to her playing style of moving around a lot within her usage area. Mirea finds that her

⁵⁰¹ Observation Matilda 2023.

⁵⁰² Interview with Mirea and Cam 2023.

⁵⁰³ Interview with Joel 2023.

⁵⁰⁴ Interview with Andreas 2023.

⁵⁰⁵ Interview with Kunru and Yu 2024; Interview with Vincent 2024.

ability to filter out the red grid is a bit dangerous: at times when she took the headset off, she noticed that she was very close to a wall. “*Like this close,*” she told me and held the palm of her hand a decimeter from her face, as to demonstrate the in-your-face-ness of the sudden physicality of the wall materializing. Mirea was unsure if the VR HMD had been warning her; she did not notice the grid when she was too “*into it.*”⁵⁰⁶

For most users who had problems noticing the red grid, it was a question of speed. For some, the red grid appeared only as a flash, telling the user that they were just about to cross the room boundary. While the red grid might be understood as an attempt to protect the user, all the users in this study had accidentally crossed their room boundary, or recognized accidents as common in domestic VR usage. Matteo said that when you see the grid, it is already too late.⁵⁰⁷ Wilke thinks the grid does not fulfill the role it is supposed to; it does not work if one is already in motion. He tells me about a memorable incident when he destroyed his computer monitor. Even though Wilke did register the grid flashing, it was too late.⁵⁰⁸ In discussions of accidents, which we will return to later, the red grid as a representation of the room boundary did not protect, contain, or keep out; rather, it was porous and leaky.

5.2.3 Porosity of Boundaries: Leakage

In the previous sections, I have discussed the devices’ needs for boundaries and users’ navigation of them. We have seen that users are not contained by boundaries even as they try to remain within them. In the same manner, there are other bodies and (bodies as) objects that are not kept out. Because the devices only tend to the preset room boundaries, which are attached to the ground of the physical place, they do not register when anyone or anything enters the usage area. The possibility of others being present without the user noticing it, due to them being engaged by the virtual place, is off-putting even to those who do not expect others in the home. Robert explains that even though he lives alone and therefore has no reason to expect anyone getting too close to him when in VR, he does not use headphones due to wanting to be able to notice someone else’s presence.⁵⁰⁹

Many users who shared their households with others, such as partners, family, and pets, developed strategies for passing by or through usage

⁵⁰⁶ Interview with Mirea and Cam 2023.

⁵⁰⁷ Interview with Matteo 2023.

⁵⁰⁸ Interview with Wilke 2024.

⁵⁰⁹ Interview with Robert 2023.

areas. When Matilda first got her VR HMD, she and her family lived in a smaller space, which meant their VR usage area was placed so that other family members had to move through it on occasion. Simply knowing that other people might pass through was not enough, as the user would get no indication of someone else being present in the usage area. “*We developed this call, PASSING THROUGH,*”⁵¹⁰ Matilda told me. Anyone walking through the usage area would shout this to alert the person using the headset. For those who had not developed a system, the presence of others could be sudden and discomfoting. Mikael told about how he became frightened when his daughters called on him while he was using the VR HMD.⁵¹¹ His daughters were old enough to recognize and avoid stepping into the usage area, so it was not a fear of hurting anyone by accidentally walking into them or blindly hitting them that would frighten Mikael. Rather, it speaks to the sensation of being engaged elsewhere in a virtual place and being suddenly made aware of people and ongoings in the non-virtual. Even though others are present, this presence is visually concealed, and thus their presence in the physical place felt as a sudden reminder for the user that they were also present in the physical place.

The users’ emplacement through VR usage becomes shifting; it is both in a bounded physical place, and the virtual place which overlaps it. The multiplicity of those places is at times unclear to the users: what is present and what is not. Since VR HMDs work in enclosing ways, the conditions and the sensations of the physical place can go unperceived even if they are not completely absent; the multiplicities of the virtual and the physical shift between being muted and becoming hyper-charged. Following Kittler’s definition of the medium as an in-between,⁵¹² we find that in the case of VR, it is not a separate in-between space that is conjured through the medium; rather, it is the user’s sense of being in place that is mediated through the VR HMD. It is the user’s perception that shifts between two places, which at times feel far away from each other and sometimes overlap. However, the emplaced user body never leaves the physical place and therefore, it can be affected by the multiplicity of the physical place as well.

Not all who pass through the room boundaries into the usage area can talk. Perhaps the porosity of boundaries and fluctuating multiplicity is most apparent when pets cross into the usage area, providing for a sudden presence.

⁵¹⁰ Interview with Matilda 2023.

⁵¹¹ Interview with Mikael 2023.

⁵¹² Kittler 2009.

This is not to say that all pets are hindering when it comes to VR usage. Some users report having no problems at all with their pets when using their VR HMDs. For example, Sanna's cats and dog have shown mild interest, but enjoyed positioning themselves to watch her wearing her VR HMD and move strangely.⁵¹³ Other pets not only entered the usage area but also tried to make physical contact, snuggling up to the user who is present, while not really present. When using his VR HMD, Linus sometimes noticed one of the family cats present with him in the physical place by the sensation of the cat stroking itself against his leg. Due to being sensorily cut off, Linus was only made aware of his cat at the very moment he felt bodily contact. This happened so often that part of Linus's preparation of his usage area was to put out things for the cats to sleep on.⁵¹⁴

For Massey, place is negotiated between humans as well as non-humans.⁵¹⁵ While I have accounted for technological objects like VR HMDs as negotiating boundaries with the user, pets are more mobile by themselves. Their movements show that the homes are also their places. Stefan, who had a tethered VR HMD, had cats who considered his VR HMD cable a toy, moving seductively when Stefan wore the headset.⁵¹⁶ While Joel had not had any accidents with the cats in his home, he told me they are social and curious about when he uses his VR device. Joel thought this could be problematic because cats were invisible to the user in the virtual environment: "*They are not in there in the VR world, yet. Imagine having small kids. You don't see them, because the device only checks for its boundaries.*"⁵¹⁷ Of course, accidents do happen when you, as a user, are suddenly touched by something that you have not perceived as being there at all, and suddenly appears present there with you. Given that users are dually present in a virtual elsewhere while remaining present in the physical, it is not always clear what is present and what is not-present there with you. Rather, the multiplicity of place becomes obscured as the user's emplacement is both in the virtual and physical. Anna told me about one time when she was playing a horror game. Rats were crawling all over the virtual floor. Suddenly, she felt something small and furry stroking her leg. It was not a virtual rat that had materialized, but a kitten that she proceeded to kick to the

⁵¹³ Observation Sanna 2023.

⁵¹⁴ Interview with Linus 2023.

⁵¹⁵ Massey 2004.

⁵¹⁶ Interview with Stefan 2023.

⁵¹⁷ Interview with Joel 2023.

side: “*Poor kitty, but she wasn’t harmed, and they learned to keep away after that.*”⁵¹⁸ However, some pets never learn. Joffe’s dog often seeks her out when she is using her VR HMD. The dog liked to cozy up against her feet if she was standing still or getting down low. When Joffe then moved quickly or jumped, she risked tripping over the dog, hurting herself and her dog. Thus, Joffe’s VR usage included being cautious, constantly aware that the dog might suddenly be there. During my data collection in Joffe’s home, as she demonstrated her VR usage singing *The Phantom of the Opera* for some drunk people at a karaoke after party, “*clearly in a different time zone.*” Simultaneously, she was in her living room with her dog and me, at noon in Sweden. Throughout the observation, Joffe would check in (“*Is he with you?*”) to make sure the dog was not approaching her.⁵¹⁹ When I ask Joffe if the dog perceives her as strange or inattentive to him when she is using the headset, Joffe responds, “*He doesn’t care if I’m busy, that is not really his problem,*”⁵²⁰ referring to the dog not sharing her perception of the situation.

When it comes to keeping out, boundaries as they are established by the user and device are not evident to others in the home. Users can leak out of the boundaries, and other objects and bodies can leak in. Even at times when users give in to the immersive qualities of VR, they can easily be pulled out by the presence or the sensation of presence of others. This can be scary and is especially noticeable in how users try to stay aware of the possibility of someone entering the usage area. This was especially prominent when it came to pets, whom the user could not communicate the situation to. Animals do not perceive that the user is simultaneously present and non-present in two places, and room boundaries do not keep pets out. This is why pet owners notice the possibility of sudden thereness of others to a high degree.

Boundaries appear and work differently for devices, users, and others in the household. For devices, they are essential. For users, boundaries are an expression of the device’s needs that becomes part of the user’s emplacement. We could simply recognize users’ perceptions and navigation of boundaries from more of a Masseyan definition of boundaries, as not defining for how we understand places. Moreover, that the device could be understood through a more Caseyian definition of place: boundaries as essential for understanding place. However, this is a simplification, which can be seen in the

⁵¹⁸ Interview with Anna 2023.

⁵¹⁹ Observation Joffe 2024.

⁵²⁰ Interview with Joffe 2024.

role of transgression of boundaries and the multiplicity of place. Casey's framing of place boundaries as porous, as to allow for a leaving and entering place, fits well with the user's notion that place does not contain them in any manner. While the user is required to notice the device's need for boundaries, they do not think that the boundaries hold anything in. Even for the users for whom the boundary materializes as a visual warning, the boundaries do not contain even their own bodies; they can suddenly find themselves outside their usage area. Others in the household have no visual indicators of where boundaries lie; this appears only for the user and the device. There is constant transgression of room boundaries, and there is nothing to stop others in the household from leaking in. This passing through and pouring into the usage area by others, not knowing or caring where boundaries are, underlines how "*the attempts at drawing boundaries*"⁵²¹ don't serve to define place, but rather the fact that boundaries are "...*persistently transgressed.*"⁵²² While boundaries do not keep in or out, they do condition the home as a socio-spatial environment for devices, users, and others in the home.

5.2.4 *Ektopic Emplacement and Boundaries*

Approaching VR usage as a mode of being in place means turning to how that place is expressed and affected by the users being emplaced through their VR device. In understanding how boundaries work in VR usage, we must recognize that they are experienced differently by users and devices. Given that VR usage is a spatial negotiation between the user's emplacement, the device needs, and the socio-spatial conditions of the home, perceptions of boundaries are fragmented. Boundaries are first established through negotiation between the user, the device, and the home in the drawing phase, and then navigated and crossed over by users (wearing devices) as well as by others in the home. Following Rose's imperative, that to study technology we must not only look to what people are doing with technology but also what the technologies themselves are doing,⁵²³ we find that the VR devices' emplacement affects users' practices. In the case of domestic VR usage, users are aware of the devices' needs and adapt their usage area and usage practice. This does not mean that VR devices' understanding of place directly conditions users' perceptions and sensemaking. Rather, they are entwined in complex manners. Ektopic Emplacement is meant to capture how users' emplacement becomes dual and

⁵²¹ Massey 2004, 130.

⁵²² Ibid.

⁵²³ Rose 2015.

fragmented, and how users have to adapt and bring in the perspectives of the VR devices as part of their own emplacement. Therefore, to understand the user's emplacement in VR, we have to understand the device's emplacement. Even though the device is a vehicle for the user to be emplaced in both the physical and virtual, the device only registers and tends to the physical place. While emerging media technology is discursively imagined to dissolve and blur boundaries, VR devices demand boundaries.

VR technology does not dissolve boundaries: it requires them, which users have to recognize and care about. These place boundaries are not successfully translated into room boundaries, nor are they dissolved or made irrelevant for how users and devices understand their being in place. This is because VR is not a technology for leaving place, but rather works to overlap the virtual place and the physical place. The simultaneous quality of virtual and physical is not as easy as both, nor is it either or. Rather, through shifting multiplicities – different forms of representations and mediations of the self, others, places in VR and out of VR – make for a glitchy, fluid sensation of what is here and with you. Anna's kitten, as a materialization of a virtual rat, is a good example of the strange multiplicities at play. While users recognize being in place as bounded and through the multiplicity of who else is there, the device only recognizes its emplacement through boundaries. Moreover, the device obscures the multiplicities of the dual places of the user's emplacement. The device does not register moving objects or bodies as they move in the usage area. It does not necessarily bother registering the body it is mounted on, but it reacts to the boundary when the device *itself* gets close. Since boundaries are how the device relates to its surroundings, it must be considered an integral part of its emplacement. Users inherit this boundary-defined need for understanding their being in place: having boundaries is essential as well as redundant, not relating to the multiplicity of place at all, yet being hyper aware of it. The device does not care about multiplicity of place in the sense of needing it for its emplacement; instead, users themselves develop strategies or adapt their usage to attend to the obscured multiplicity. In Ektopic emplacement, to interact with the virtual place, the multiplicity of place and its flux of other objects and bodies present in place with you must be attended to and ignored.

These boundaries are important for Ektopic emplacement because they underline the separateness of the virtual place. Ektopic emplacement speaks to the sensation of being present in more than one place, a shifting, fluid, focused sensation since boundaries between the virtual and physical are constantly transgressed and renegotiated. This contradictory state can be understood by analyzing how users and devices understand and navigate

boundaries and multiplicity as conditions of being in place. Place boundaries and multiplicity are, of course, related. Boundaries reveal the fact that places do not go on forever, like space, but have an inside and an outside. Multiplicity tends to this outsideness and insideness through both gathering the various bodies, objects, and spatialities within place, and some outside of place. By underlining differences in the devices' and users' needs, perceptions, and relations to boundaries and multiplicity, I have demonstrated how looking at VR usage as a practice in place explains users' dual emplacement conditioned by the device's sensory conditioning, and the user experience having to adapt to the device's perceptions.

If we do not consider VR a radical other form of being, where we are not in place, we need to care about boundaries: how they are made important by the device, and their simultaneous decoupling and symbiosis with multiplicity as a marking and sorting of presence. This is accentuated by the presence of others entering and leaving the usage area. The device only relates to place through boundaries and does not perceive the multiplicity of who and what is and is not there. However, this is not an option for the user, who notices and is affected by those who cross boundaries and are present. The porous nature of boundaries and the fact that they can be transgressed is what makes place and our being in the world alive. As Heidegger would have it, complete stillness and no movement is death. We can see that movement in and out of place is complicated by VR technology. Devices move only in the physical place, while users move in dual places; both in the physical and the virtual. Though movement of the user and the headset at times overlap (they are both in the physical place), the user is also, through the VR HMD, present elsewhere. The user's Ektopic emplacement depends on keeping the device's conditions for emplacement in mind, as well as the user's ability to navigate one emplacement in two places. Next, we take a closer look at the conflicting movements of VR usage.

5.3 Movement: Conflicting Mobilities and Place Anchors

"It's ruining my life," says Guy. His VR setup has created a mess in his living room. Guy has a PSVR2 that is connected to the PlayStation console with a cable that is only a few meters long. To add to the disarray, the VR game Guy plays is a racing game, so the setup includes a steering wheel and foot pedals for gas and brake. Guy has managed to move a table and place it in the middle of his U-shaped couch, with his home office chair right behind it. Moving the furniture and connecting cables takes time and effort. Guy proclaims that he is

lazy; once it is set up, it stays like that for at least a couple of days. He lives alone, so the mess the VR creates bothers no one else, but it is clear to see that this is a solution that creates more problems: Guy's working desk, which he likes to keep clear, is flooded with things, and the keyboard is hidden under piles of stuff. Guy prefers the racing game due to the form of movement: the world comes at you while you are seated. Though he knows some people do get nauseous, Guy doesn't get dizzy from the simulated movement. Rather, it is walking through a virtual space through the use of a joystick that seems unnatural for Guy: "It felt weird, took me like 15 minutes to even get used to walking with the joystick...You are standing still, but in the game, you feel like you are walking and then like your world doesn't make sense for a few moments." Guy describes an experience of walking through a forest somewhere in Eastern Europe; it's dark and snowing. It's very immersive: the sound is even calibrated so that the falling snow is heard. Dead birds are hanging from the trees. "The scary thing is when you touch one bird. That is when your headphone, like, vibrates, and then you feel like you are touching something. And then the bird goes, you know, like a pendulum. And then when it touches you again, it vibrates again. And then you feel you actually are touching it." The experience was so intense that Guy had to quit the game, and he never returned to that forest.⁵²⁴

Movement in domestic VR usage happens in multiple places and by bodies, devices, and other objects in the home. I have chosen Guy's setup to highlight how VR HMDs moves users and environments in different ways: moving users into virtual places, how the VR device provide different modes for moving: via a joystick or having the world come at you; how spaces and objects move toward you in the virtual, and how the setup for VR HMD usage moves furniture, objects and bodies in the physical setting of the household. Guy moves his body, moves things, and is moved in physical and virtual places through his VR usage. While Guy does not like moving with the joystick and prefers experiences that simulate how the body would be moving in the physical, such as driving, he has his most intense experiences in VR when moving through the virtual place.

In discussing the role of boundaries for being in place in and through VR HMDs, I have described how the user and others in the household constantly brush up against and move over these boundaries. The user moves in more ways than into the virtual; they navigate overlapping virtual places and

⁵²⁴ Interview with Guy 2023; Observation Guy 2023.

physical places, and try to avoid others who move into the usage area. By focusing on the emplacement of devices and users in the physical, I have argued that the spatialities of VR are more complicated than immersion as a process of entering the virtual. I now develop the critique of immersion as following a teleportational logic, through the question of movement. Movement is key for being in place through VR – the device simulates a sensation of instantly taking you elsewhere, as if teleported.⁵²⁵ While Osborn and Jones recognize that VR does not transport you, the embodied usage of VR moves bodies and creates the sensation of having left your immediate geography.⁵²⁶ The environment in VR is designed to stimulate movement and to make the user engage with it.⁵²⁷ Not only does this iteration of VR allow for the body to move differently, but the untethered capabilities of this iteration of VR also create different spatial relations for the VR HMD device.⁵²⁸

While conceptualizing VR through immersion implies that the user moves into the virtual, the moving body is not contained within the virtual. Movement of the body affects one's position in both the virtual environment and the position in the physical place.⁵²⁹ Taking a step forward moves you both in the virtual and the physical place; even though these movements might not correlate, a flicking finger might be a leap in the virtual. If it is not a question of leaving the physical behind and entering the virtual, how does the user's arrival in a virtual place while remaining in the physical place work in their practices? To elaborate on Ektopic emplacement, I now focus on users' embodied practice of moving through and out of VR while staying in place. The user's body handles this movement in dual places through its Ektopic emplacement: it is being in and moving through places with and through the VR device.

To elaborate movement in VR as more than the mobility from one place to another, I start by utilizing Casey's different forms of movement in place. Like boundaries, movement means different things for users and devices. While the tethered or untethered quality of the headset affects the movement of the device and the user, the different forms of movement are at times in conflict with each other. I deploy the phenomenology of Merleau-Ponty and Casettis' phenomenology of the sensuous medium, which informs the analysis of the

⁵²⁵ Zhou et al. 2024.

⁵²⁶ Osborne and Jones 2022.

⁵²⁷ Champion 2021.

⁵²⁸ Saker and Frith 2020.

⁵²⁹ Ibid.; Blackman 2022.

different modes of moving in VR. The VR HMD makes the world come at the user in new ways, and requires the user to move in a way that is simultaneously in the virtual and the physical place. Finally, I explore emplaced usage and how users in the study do not seek to leave the physical place through their VR HMDs, but utilize the physical place and anchor themselves within it. Here, I deploy Merleau-Ponty's phenomenology of objects to look at how devices are inhabited, as well as how other objects, such as furniture and carpets, are used as anchors for the user's Ektopic being in place.

5.3.1 (Un)tethered Headsets: Conflicting Mobilities

A significant factor for this iteration of VR HMDs is the combination of cameras filming the room for the device to emplace itself, and the option to use the VR HMD untethered. Just as the cameras on the headset and the work of a guardian system modify the relationship between the device and the place of usage, the untethered quality of the VR HMD is expected to allow the user to move in new ways. The lack of a cable provides a hope for the sensation of being free from physical constraints, and not being reminded of the physical sensations indicative of not being present in the virtual.⁵³⁰ Perhaps most importantly, the untethered quality is imagined to allow the user's body to move more freely. VR technology is imagined to allow for movement into the virtual, and the quality of the untethered headset as conditioning the body's ability to move freely as part of that immersion. Already, we notice different forms of movement: the leaving and entering of places and the bodily movement within place. While Merleau-Ponty thinks the moving body produces space,⁵³¹ Casey distinguishes between three different forms of movement in relation to place. First, movement happens on the level of the skin; the body is never still, always breathing, twitching, and moving. Second, movement happens within a place; bodies move around and within places without leaving them. Third, movement can involve crossing boundaries; leaving and entering places.⁵³² These forms of movement do not necessarily remain pure or work together. One can intend to move within a place and cross boundaries, and one can intend to cross boundaries and be hindered when trying to leave. This section focuses on how the tethered/untethered quality of the VR HMD leads to conflicts between different forms of movement.

As mentioned earlier, in the households of this study, there were

⁵³⁰ Turner and Turner 2006.

⁵³¹ Merleau-Ponty 1962.

⁵³² Casey 1996.

both untethered and tethered VR HMDs (i.e., VR HMDs that were connected to either a charging dock, console, or computer by a cable). Some headsets, like the PSVR2, demanded to be wired, due to the computation happening elsewhere. While HMDs, like the Quests, had the possibility to be used untethered, with the computation happening in the headset. Users of the Quest devices framed the ability to use it untethered as being *freer* in terms of movement. Several users note that this sensation of freedom was the reason for getting their specific model of VR HMD.⁵³³ The users describe the cable as a restricting sensation. PärLAN thinks the tethered headsets lower the sense of immersion: “*The cable limits how you can move – it removes the sensation of freedom.*”⁵³⁴ This movement within the physical place conflicts with moving in and out of place, namely which virtual places that were accessible through the untethered HMD. We can see this negotiation in Linus, who holds up the bodily movement as the unique selling point for untethered VR HMDs: “*The games weren’t top-notch, but it was a new way of playing. To be in there in a different way. And that’s what caught me, the feeling of freedom.*”⁵³⁵ In his reasoning, when getting his VR HMD, Linus cared more about movement within place, the body’s sensation of moving freely, than movement into virtual places. In his usage however, Linus often used his VR HMD tethered to his computer. This allowed him to access different stores to buy VR games and experiences. The computer also provided extra computation, which allowed Linus to move into more advanced virtual environments. While Linus promotes the untethered freedom of bodily movement, the movement into virtual places is prioritized over using his headset untethered. Robert also had a VR HMD that could be used untethered, but would always use it with the cable connected to extend battery time.⁵³⁶

The untethered capability of the VR HMD is not only a question of bodily movement in place and movement out of the physical and into the virtual. Joel underlines that the untethered quality of his device allows him to use it anywhere in his home.⁵³⁷ While the untethered VR HMD is understood as providing for less hindered bodily movement for users within place, we find that the untethered quality also exhilarates the movement of the device in and out of

⁵³³ Interview with Joel 2023; Interview with PärLAN 2023; Interview with Robert 2023; Observation Linus 2023.

⁵³⁴ Interview with PärLAN 2023.

⁵³⁵ Interview with Linus 2023.

⁵³⁶ Interview with Robert 2023.

⁵³⁷ Interview with Joel 2023.

place. The device itself gains increased mobility in and out of places when not dependent on a cable. The VR devices in the study are surprisingly well-traveled beyond their homes: the users tell of bringing their headsets to work,⁵³⁸ to the homes of relatives,⁵³⁹ on vacation,⁵⁴⁰ and outside.⁵⁴¹ For Robert, who travels for work, the mobility of his device in and out of physical places is the entire point when it comes to freedom of movement: *“This is the reason I got this [Quest2], and not any of the other VR headsets. Because it is completely mobile, I can bring it on trips, for work, or to hotels.”*⁵⁴² While Robert’s device leaves and enters physical places as he travels, he returns to the same virtual place every day. His VR HMD functions as a portable portal for moving into that virtual place. Cam, on the other hand, is surprised that his practices are exploratory only in the physical. While Cam has explored the devices movement in and out of physical places through different usage areas inside and outside of the home, he himself has been happy to return to a singular virtual place.⁵⁴³

While the VR HMD moves in and out of physical places in a traditional sense, the untethered quality of the device also affects the moving in and out of place that immersion provides: users leaving the physical place and entering a virtual one. An untethered headset restricts which virtual places the user can access, due to limited computational capabilities. It is exactly this restriction that made Stefan get a tethered headset. Stefan felt hindered by the untethered headset both in terms of bodily movement and in where he could go:

*“You want to be able to commit fully to a longer story. These bigger games are more comprehensive. You don’t get that at the Quest [untethered], because it is limited. There was an unspoken promise that the PSVR2 [tethered] would be able to offer these kinds of experiences...Battery time was bad, and it was very uncomfortable, the Quest 2. It sits and pushes on your face. Warm. But above all, I saw a potential in the PSVR hardware being able to provide for full-length games.”*⁵⁴⁴ Here we see a reframing of the effects of the

⁵³⁸ Interview with Mirea and Cam 2023; Interview with Joffe 2024; Interview with Thomas 2023.

⁵³⁹ Interview with Thomas 2023; Interview with Vincent 2024.

⁵⁴⁰ Interview with Pärilan 2023.

⁵⁴¹ Interview with Mirea and Cam 2023; Observation Mirea and Cam 2023; Interview with Pärilan 2023.

⁵⁴² Interview with Robert 2023.

⁵⁴³ Interview with Mirea and Cam 2023; Observation Mirea and Cam 2023.

⁵⁴⁴ Interview with Stefan 2023.

untethered VR HMD on movement. Since the computation happens inside the untethered headset, the device becomes heavy and warm to wear, which affects the embodied movement within place. The location of the computation within the VR HMD also means that the device is only able to provide access to virtual places with lower computation demands. The specifics of the tethered or untethered quality of the VR HMD affect how the device can be transported and used in and out of place, as well as the mobility of the users. In Stefan's VR usage, the VR HMD is restricted to his home through the cables that tether it to his gaming console, but he had a lighter sensation regarding his embodied movement within place, the ability to move into more virtual places and to dwell there longer. This does not mean that the cable is not annoying and hindering Stefan's movement: he describes plans for fastening a hook in the ceiling to hold the cable up, which would make it removed and not touch him as he is moving around.

We find the same contradictions between movement within place and in and out of place in Joffe's usage. Her reasons for using her VR HMD are free movement and the ability to use one's whole body: moving through the VR HMD is the difference between using your entire body to engage with the virtual place, not only your fingertips.⁵⁴⁵ This embodied being in the virtual versus being through your fingers translates through avatar movements for Joffe, who argues that one can see who is using a VR HMD and is using VR through a desktop: *"Even if it's big gestures, there is a responsiveness to meeting in VR. I feel like I can tell who is really in there by how they move and how they interact."* Joffe enjoys bodily movement that is untethered and says she would rather take breaks than connect herself by cable. Even though Joffe enjoys the freedom her untethered headset provides for moving within place, she wants a computer that is PCVR compatible. Her untethered Quest 3 means there are restrictions on where she can go in the virtual. Joffe tells me about rooms in VR Chat that are for PCVR only, and when showing me her usage she is blocked from entering one of her virtual dance studios. To her annoyance, Joffe finds that access has been changed to only allowing for PCVR-connected HMDs.⁵⁴⁶ This conflict in movement – between untethered devices' ability to leave and enter physical places and be used anywhere, which goes against the user's possibility to go 'anywhere' in the virtual space – speaks to the different places at play in user emplacement.

⁵⁴⁵ Interview with Joffe 2024.

⁵⁴⁶ Observation Joffe 2024.

The freedom of bodily movement offered up by the untethered device is assessed against the access to complex virtual places to dwell in. However, the untethered VR HMD also becomes heavier and warmer to wear, which some users feel reduces the sense of free movement within place. Moving within the physical place and in and out of the physical and virtual places are forms of movement that work in different ways for users and devices. Untethered devices increase movement in and out of place, but at the expense of the user's movement in and out of virtual place. This section which has focused on with Casey's three forms of movement related to place has described how the movement of users and devices in and out of place, as well as within place creates complex dynamics. As users move from the physical place into the virtual place, they simultaneously remain and move around their usage area and home environment. Thus, we now turn to how the movement within places is navigated by users.

5.3.2 Users' Movement in Dual Places: Correlations and Literacy

Linus is holding a mammoth up in the air with one hand, shaking it around. It looks absolutely ridiculous. "This feels imbalanced," I say, laughing. With the flick of his wrist, Linus throws the mammoth. Unlike the lion he just threw, which kept going over the horizon, the mammoth flies a short distance before hitting the ground. Linus is demoing his usage for me in his home office, taking me through the landscape of Elder Scrolls in VR. Linus has played Elder Scrolls on other consoles, so he was really excited to try it out in VR. He keeps goofing around; after throwing animals and swords around on the plains, Linus walks back into the village to do some shoplifting. Linus tells me that he won't get noticed stealing if he covers the shopkeeper's head with a barrel. Though he has mastered a slow shuffle with his feet so as not to move around the physical room when in VR, the controllers are a bit clumsy for picking up and placing a virtual barrel over the shopkeeper's head, and Linus had to try a couple of times before getting it right.⁵⁴⁷

For Merleau-Ponty, our body assumes space by moving through it.⁵⁴⁸ It is through movement that we know spatial conditions, where we are, and what is possible here. In the above example, Linus moves in diverse ways simultaneously; in the physical, he uses small movements, delicate flicks, which do not correspond with his virtual feats of throwing huge mammals and apex predators around. Performing the same movement can mean different things.

⁵⁴⁷ Interview with Linus 2023; Observation Linus 2023.

⁵⁴⁸ Merleau-Ponty 1962.

Merleau-Ponty provides the example of the salute, which can be deadly serious, but can also be done as theater, play, or satire.⁵⁴⁹ In VR usage, the social context differs and changes through moments following each other, and the same movement is simultaneously played out in two different places. The singular movement plays out differently in the physical and the virtual space. Linus's flicking wrist in the physical would not hurt a fly, but it is a forceful and deadly throw in the virtual. Moreover, motion does not stay in the virtual: if the user takes a step forward with their legs in the virtual, they do it in the physical place as well.⁵⁵⁰

The user's movement in virtual space has a curious relationship to their movement in the physical: although their movement in the virtual does not remain there, and their body also moves in the physical, the movements do not necessarily correlate. Therefore, learning to move in VR through VR HMDs involves navigating how moving in the virtual and physical sometimes does and does not overlap. Some users strive for their movement in the physical and virtual to overlap as much as possible to feel that they are in place properly. Others feel the need to become literate in moving in ways that the VR conditions allow you to, foremost through the joystick. Movement in the virtual through the VR HMD is achieved either by turning and moving your body, which moves your virtual body as well, or by using the joystick to move your virtual body; turning the environment or moving your virtual body forward. Some VR games and experiences also deploy a teleport movement; the user points the controller and clicks at a point within the virtual place to make their outlook suddenly appear as if seen from that spot. Going forward, I focus on full bodily movement and the use of the joystick as modes of movement since they were most prominent for the users in this study.

Several users expressed a desire for their body to move through the virtual place in the same manner as it moves through the physical place, that is, the running body would run through a virtual place just as it would through a physical one. Rather than moving their entire body through the flick of the thumb on the joystick or click of the index to teleport, they feel that for VR to reach its true potential, the body's movement in the physical should translate into movement in the virtual. As Merleau-Ponty would have it, they do not feel like they are assuming the virtual space they are moving through if the embodied experience does not correlate with movement in an embodied way they

⁵⁴⁹ *Ibid.*

⁵⁵⁰ Saker and Frith 2020.

recognize.⁵⁵¹ This is a question about the body's spatial relations – how it inhabits place through movement. Therefore, to move through the virtual in a way that directly corresponds with the physical movement, one needs either a technical solution for remaining unmoved while moving, or a larger place. Users who were dreaming of the exact correlation between movement in the physical and virtual imagined the omnidirectional treadmill as a solution: Stefan mentions that a treadmill would solve the problem of movement, given that his home is too small to accommodate full embodied movement in VR.⁵⁵² Although users like Stefan, Cam, Guy, and Linus mention treadmills as something to enhance their VR setup, no user in this study owned a running bowl due to it being expensive and/or the technology being inaccessible. Linus also jests that running might sound fun, but it would be hard work to actually keep up the running in the physical place to move around within the virtual environments.⁵⁵³

The more at-hand strategy to translate bodily movement into the virtual was to find a bigger space, which could then provide a larger usage area. This correlated movement is imagined as key to reaching the full potential of being in virtual place. Therefore, users sought usage areas big enough to allow them to move just as in non-virtual places. This meant leaving the home; some users could access large empty rooms through their workplace or extended family, while others went outside to maximize the size of their usage area. Thomas describes how his tennis game scaled up the size of the virtual tennis court when he got to try it out in a big usage area: “*Before, it was taking a step out to hit the ball, standing still a lot. But suddenly, with this big area, I was running like some damn Björn Borg just to keep up! It was a completely different experience.*”⁵⁵⁴ For Thomas, the size of his usage area really matters for the experience of being able to move in the virtual and physical. Cam also dreamt of a huge space to accommodate a usage area where he could move around: “*at least ten by ten meters, so you could run freely*”.⁵⁵⁵ Having to correct your movement to the conditions of the medium is framed against the freedom of movement that VR *could* provide. The potential of VR has seemingly not been reached for these users until the body can move in the virtual world in the same manner as in the physical world. Hence, the full potential of VR HMDs would

⁵⁵¹ Merleau-Ponty 1962.

⁵⁵² Interview with Stefan 2023.

⁵⁵³ Interview with Linus 2023.

⁵⁵⁴ Interview with Thomas 2023.

⁵⁵⁵ Interview with Mirea and Cam 2023; Observation Mirea and Cam 2023.

apparently be unlocked by embodied movement.

The other approach to movement in VR usage is understanding that it involves resignation to the conditions of the VR device. Andreas describes that when he first got his VR HMD, he felt like the programmers had not figured out how one is supposed to move in VR: *“It’s a pretty smart solution to move around with the joystick once you get used to it. But it would have been better to walk around.”*⁵⁵⁶ This is an example of what Casetti describes as the medium conditioning the user’s very outlook, that is, the spatial and embodied way that reality appears to users.⁵⁵⁷ The users adopting this perspective recognize that moving in VR is different from moving in the physical; it is a mode of moving that must be learned. In the case of VR HMDs, these users express that literacy of moving in VR is partly learning to handle a perception of movement that does not correlate with their body’s movement. Wilke describes the discrepancy between embodied moving and having the sensation of moving that being in VR can provide: *“the movement was done with the joystick. So, when you move forward, backward, left, right, the camera moves, but you are just standing. It’s not matching. My eyes were not matching my movement; if your eyes move and the rest of the body doesn’t. The body tries to adapt, but you need a minute to get used to it. You are sitting, and you are moving. You move, but you don’t move. That is really a problem.”*⁵⁵⁸

The problem of walking with the joystick is the disconnection between your moving body and the perception of the world as coming at you as if you were moving. Guy describes this disconnect as passing: *“You walk in the game, but you don’t walk here...you feel like you are walking, and the world doesn’t make sense for a few moments.”*⁵⁵⁹ These simulated movements that do not correlate to bodily movement are not only a cause for confusion, but also nausea among VR users. To add to the complexity, the virtual places in VR are not always still. Some games and experiences that recognize the limitations of user movements instead deploy a logic of movement in the virtual space. Games such as Beat Saber place the user and make objects come towards them, while other games and experiences, like rally games and pistol whip *feed* the environment to the user. This movement can also be nauseating: Joel describes his nausea at watching VR videos on YouTube about a virtual walk in Japan.

⁵⁵⁶ Interview with Andreas 2023.

⁵⁵⁷ Casetti 2015.

⁵⁵⁸ Interview with Wilke 2024.

⁵⁵⁹ Interview with Guy 2023.

Even though the video was slow, the fact that he felt like he was walking while remaining still made Joel dizzy.⁵⁶⁰ Jing and Andreas describe how they get dizzy from games where the space is moving on its own.⁵⁶¹

Even if you learn to move with the joystick, the body's impulse to move in the virtual in the same manner as the physical can take over. Linus says you really have to remember that you do not have to move your body to move around.⁵⁶² Mirea says she is a user who moves around a lot when in VR, she "*...is no good at staying in place. I can't help it. The body responds.*"⁵⁶³ This staying in place refers to keeping your position in the physical place while you move around the virtual place. This is also expressed by Matteo, who speaks on mastering the joystick. Matteo usually plays games that come at him, like Beat Saber, initially found himself moving around too much: "*Before I got it, I would be completely lost when I took off the headset. I could believe I was somewhere in the room, but I had moved way over there. It almost scared you. In the beginning, I would move myself around too much, instead of using the joystick. You could get really lost.*"⁵⁶⁴ Because movement does not remain within the virtual, learning to use the joystick is not learning to move in the virtual place. Instead, it involves learning to move in the virtual space in a way that makes you understand how that movement correlates to your position in the physical place.

Movement is an opportunity to understand how the body inhabits space,⁵⁶⁵ but when moving in VR, you are inhabiting two places with a single moving body. Moving *with* the VR HMDs as technological objects is not only a form of sensemaking of being in the world, as Merleau-Ponty would have it – we perceive our being in the world in relation to objects in place. This is further complicated by users also moving *through* their VR HMDs, letting the medium condition their way of perceiving their being in the world, as Casetti would have it, but affecting users' very being in the world so that it becomes strange and shifting. The movement of the user's body in dual places with and through the VR HMD can correlate or not correlate. Movement in the physical does not have to mean movement in the virtual and vice versa. This is conditioned by the medium: some ways of moving in VR do not depend on the movement being

⁵⁶⁰ Interview with Joel 2023.

⁵⁶¹ Interview with Andreas 2023; Interview with Jing 2023.

⁵⁶² Interview with Linus 2023.

⁵⁶³ Interview with Mirea and Cam 2023.

⁵⁶⁴ Interview with Matteo 2023.

⁵⁶⁵ Merleau-Ponty 1962.

mirrored in the physical, such as running via the joystick. As you are moving in both a virtual and physical place simultaneously, there are different notions and preferences for if and how this movement should make the places overlap. For some, the full potential of VR is the embodied movement in the virtual place, following the same logic as moving in the physical – a fully embodied experience.

The VR HMD invites bodily movement; even among those users who dedicate themselves to moving by joystick, the body intuitively turns and moves. The technological literacy of embodied movement in VR is not enough to navigate the simultaneous movement in the virtual and the physical. Movement is not enveloped by a liminal or separate space, nor is there distance between the physical and the virtual, mediated places; rather, the moving body is emplaced in two places simultaneously. Therefore, we now turn to place anchors: ways of keeping in touch with the physical place, to facilitate the movement in these dual places.

5.3.3 Place Anchors

Since movement does not necessarily correlate in the physical and virtual place in VR usage, there are levels of disorientation in the overlap of moving in ways that make sense in and of both these environments. A clear example is the sensation of removing your VR HMD and finding yourself in a different part of the room than where you thought you were positioned. This is a common experience shared by most users in this study. They express feeling surprised when they realize that they have moved unknowingly and are now positioned elsewhere than they thought. Linus describes it as taking off the headset and recognizing “*oh, I’m here, I thought I was over there.*”⁵⁶⁶ While some users report having felt a slight bodily disorientation with this movement, the world feeling unstable for a few moments,⁵⁶⁷ for most, it is a question of calmly noticing that you have moved without knowing it, appearing at a new position.

In his phenomenology of perception, Merleau-Ponty notes that our basis for perceiving our very being in the world is our body in place. We understand our position through our body’s position in space in relation to objects present with us. Merleau-Ponty goes on to describe how being through objects can make them part of our perception; we inhabit objects to sense and be through them.⁵⁶⁸ If we understand VR HMDs as an inhabitable object, an

⁵⁶⁶ Interview with Linus 2023.

⁵⁶⁷ Interview with Vincent 2024; Interview with Wilke 2024.

⁵⁶⁸ Merleau-Ponty 1962.

object we can move with and feel through, this is further complicated by the fact that VR HMDs are also devices that condition our outlooks and mode of seeing in a way that obscures our position in a physical place. This would not matter if we had truly arrived in the virtual, and our presence was only in there. However, the users of VR HMDs have an Ektopic emplacement, present in both the virtual and physical place. And the body moving with and through VR HMDs moves both in the virtual and physical.

Finding yourself moved elsewhere within a place, positioned not where you thought you were positioned might sound innocent enough, but it can be disorienting, surprising, uncomfortable, and even scary for some users. Andreas describes the sensation of feeling lost as a result of movement in VR also happening in the physical: *“If you move around, you have no clue where you are.”*⁵⁶⁹ This *where* is not the virtual place, but rather your location in the physical. Users continuously find themselves back in the physical place when taking off their headset. When Joffe speaks on how effective the VR HMD is to make you forget about the physical place, it sounds almost as if the user is absorbed into the virtual: *“It’s like a tiny reset when you go into VR and feel like ‘this is another world.’ You get surprised every time you take the headset off: ‘oh now it’s this world, and these are the walls surrounding me.’ One forgets the room quickly.”* The illusion is broken when you take the headset off, and the perception of your physical location comes flooding in, filling your senses with a richness VR cannot yet provide.⁵⁷⁰ Rather, it is as Casetti describes: the medium conditions how you can perceive the world, your mode of seeing.⁵⁷¹ This readjustment, when taking the VR HMD off, to being only in the physical place is not only an ontological discomfort, realizing that you temporarily lost your bearings. It underlines the strange mode of being in place for which the VR HMD allows: while it does not remove the physical place, it partly veils the user’s perception of it.

Inhabiting VR HMDs as objects changes our mode of being to form of emplacement that is shifting; from giving into immersion in the virtual to handling the physical as it reappears to you, either when taking your headset off or bumping into it while still in the virtual place. This is not without consequences; immersing yourself in the virtual place in a way that does not guard against losing yourself in the physical place increases the risk of accidents,

⁵⁶⁹ Interview with Andreas 2023.

⁵⁷⁰ Lanier 2010.

⁵⁷¹ Casetti 2015.

such as bumping into the physical place. Taking your headset off and realizing that you are standing with your face only centimeters from a wall is a shocking sensation.⁵⁷² The probability of reencountering the physical place in a way that is accidental and dangerous makes Mikael and Beata stress the importance of remembering the physical conditions: “*There is still a physical room, so you need to be a bit careful.*”⁵⁷³

In contrast to the idea of immersion in VR as a lack of physical stimuli from the physical,⁵⁷⁴ the physical needs to be felt in a way that allows for the user to keep in touch with their position in the physical place, and not move in unperceived ways, floating around the room. There are two main ways of handling this floating around through manipulating the physical environment. First, users reinforce boundaries to make the physical place noticeable at the right time, when brushing up against the limits of place. Second, they use objects such as furniture and carpets to constantly remain in touch with the physical place, so these objects have an anchoring effect. The examples of using household objects to reinforce boundaries indicate that this as an experimental practice. Linus used to lay out towels to mark the border of his usage area.⁵⁷⁵ One of Mirea’s usage areas was in a hallway on top of the stairs on the second floor, and she used a baby gate to block her from entering the stairs when in VR.⁵⁷⁶ These reinforcements were set up for each usage. In some homes, however, reinforced boundaries were made a permanent part of the usage area. Thomas and Matilda had both laid out gym mats in a way that made the mats’ boundaries correlate with and thereby reinforce the usage areas’ boundaries. For Matilda, whose usage area was in her home gym, the gym mats were part of the aesthetics. The structure of the mats was specific and allowed her to know by her feet if she was leaving her usage area.⁵⁷⁷ For Thomas, whose usage area was in the living room, the gym mats were hidden underneath the living room carpet, providing a sense of softness that marked the usage area.⁵⁷⁸

Kunru often had the sensation that she was moving backwards when

⁵⁷² Interview with Mirea and Cam 2023.

⁵⁷³ Interview with Mikael 2023.

⁵⁷⁴ Turner and Turner 2006; Baker, Nam, and Dutt 2023.

⁵⁷⁵ Observation Linus 2023.

⁵⁷⁶ Observation Mirea and Cam 2023.

⁵⁷⁷ Observation Matilda 2023.

⁵⁷⁸ Observation Thomas 2023.

moving in VR. She used pillows to mark the back border of her usage area.⁵⁷⁹ When she reflected on her current usage area in the interview, an open space in her living room, she stated that it is too big. The sensation that she was moving around the usage area unknowingly was uncomfortable. Kunru compares this to her old usage area, a cramped space in a student apartment. Even though the old apartment was smaller and she would risk knocking into things, she would know exactly how to move. She could throw out her arms forcefully, centimeters to spare, never hitting herself.⁵⁸⁰ As we talked about this, Kunru remembered the carpet that she used in her old place. It was round, and she would be standing right on the edge of it. Feeling the curvature of the edge of the carpet with her feet would let Kunru know where she was positioned. For Merleau-Ponty, the here of the body is determined by laying down these first co-ordinates: the spatiality of the body and the object together in place, about to perform a task.⁵⁸¹ While the VR HMD works for users as an object to inhabit, to feel and be through, it does not anchor them in place. Rather, users utilize objects such as carpets and furniture for anchoring, performing the task of remaining in place to inhabit the VR HMD. Being with and through the VR HMD is coupled with anchoring the body in place through objects such as the carpet. Inhabiting the VR HMD provides a phenomenological outlook untethered to place; rather, it relies on the tactics and objects users employ to tether themselves, anchoring themselves within place. The task of the connection between the user's body and the anchoring object is then to provide the user with a way to remain in the physical place, as to be present in the virtual. Kunru's carpet in her old home would allow her to feel anchored in the physical place and enabled her sense of immersion, allowing her to give in to moving in the virtual place without feeling cautious about the physical place.

While Merleau-Ponty describes how our body image becomes focused through the task at hand as well as how our body connects with the object that is anchoring us in space, I argue that the anchoring in place, through connections with the physicality of place, is just as important for VR users. Just as we do not notice the tension in our back, core, and arms when we support ourselves on our hands, we do not notice how keeping in touch with the ground becomes important to anchor us in place when using VR HMDs, the task at hand being immersion in the virtual place. Anchoring practices would not mean

⁵⁷⁹ Observation Kunru and Yu 2024.

⁵⁸⁰ Interview with Kunru and Yu 2024; Observation Kunru and Yu 2024.

⁵⁸¹ Merleau-Ponty 1962.

constantly reflecting on the body's connection to place, but rather subconsciously keeping in touch by keeping one's calves against a bed or a couch,⁵⁸² or most commonly, one's feet on a carpet. Kunru's contact with her carpet became so integrated with her embodied use of VR that she did not even think about bringing the carpet when she was moving. It was being without it that induced a sensation of feeling lost in place, untethered to her place of usage.

Immersion in the virtual place is not achieved through a complete lack of input from the physical place. Rather, there is a need for many users to keep in touch with their physical place. This is done through place anchors, keeping in touch with the non-virtual. Robert describes his use of a variety of these anchors: *"My friends have pretty big spaces, and they have managed to run around, knocking over TVs and whatnot. But since I always have the cable attached for battery, I have learned not to move so much. Right now, I put my calves against the couch, but I'm selling that furniture over there *points*. And then I'll get one of those round carpets."*⁵⁸³ A round carpet is considered a VR hack and were common in the homes visited this study. The rounded edge of the carpet lets you know at what angle you are standing and if you have moved. Cam describes the difference between using a bed or a carpet for an anchor: *"I try to keep my thighs against the bed as all times, but then you notice: 'Okay, now I'm at a corner and I don't know where I should go'. I feel it better when I'm on a carpet. It's like 'the carpet is under my feet, I'm safe' or 'there is no carpet under my feet, I'm in trouble.'"*⁵⁸⁴

For Merleau-Ponty, the here of the body is determined by laying down these first co-ordinates: the spatiality of the body and the object together in place, about to perform a task. Merleau-Ponty calls this bodily anchoring in an object.⁵⁸⁵ In the case of VR HMDs, tasked with immersing the user into another, virtual place, anchoring oneself in the object is not enough, since the VR HMD provides an overlapping yet different spatiality than the physical place. The VR HMD is an inhabited object, but we are not in the world in relation to only objects, but also to places. To inhabit the VR HMD as a phenomenological object of outlook, other objects are utilized as place anchors. This underlines how users being in place with and through VR technology is dependent on

⁵⁸² Observation Mirea and Cam 2023; Observation Robert 2023; Observation Vincent 2024.

⁵⁸³ Interview with Robert 2023.

⁵⁸⁴ Observation Mirea and Cam 2023.

⁵⁸⁵ Merleau-Ponty 1962.

embodied mastery of moving in ways that simultaneously leave and remain in place.

5.3.4 Movement and Ektopic Emplacement

The role of movement in relation to VR usage plays out in contradictory ways. There are multiple mobilities associated with VR usage; happening on a scale from the body as ever moving, to the sensation of leaving place by transitioning into the virtual. This mobility is not only conditioned by the technical specifications of the VR HMD, such as being tethered, untethered, heavy, and mobile. Its connection to the body, as well as the sensation of being free to move around the physical and the virtual, also affects the user's movement. As part of domestic VR usage, movement happens at different places and levels simultaneously. For example, the user's hand goes up to correct the headset's fit against the head, while they are turning around in both the virtual and physical place, and moving their entire virtual body forward with the help of their joystick, allowing the physical body to move minimally. Mobility into a virtual place also depends on the physical place, both in how it is organized to allow for comfortable immersion and the user's ongoing bodily connection to it. Phenomenologically, VR HMDs have the capacity to make us feel as if we are removed. If we understand VR HMDs as what Merleau-Ponty deems an inhabitable object, an object of outlook for us, which is also a media technology object capable of seemingly removing us from the physical place we previously occupied. While users have specific wants on how that object of outlook is felt and moved through, they do not wish to feel displaced. However, being and sensing through the VR HMD, becoming present in a virtual place, depends on feeling safe enough in the physical place to do so. In contrast to the logics of immersion, Ektopic emplacement of the VR user depends on anchoring the user's body in place, keeping contact with the physical place through anchoring objects. For a user to feel free to interact and explore the virtual environment, there is a need to feel phenomenologically emplaced in the physical place as well.

The alternative, to float around the physical room and risk accidents, underlines the separateness of these two places. The use of place anchors and keeping in touch with the physical place goes against the notion that immersion is achieved through a feeling of presence in the virtual place, which departs from the physical. The need to remain connected to the physical place that VR users express shows that their Ektopic emplacement cuts to the level of ontological safety. Users feel the need to take measures to not lose themselves at the level of the here, feeling as if they lost the sense of where they are.

Movement in VR underlines the paradoxical nature of Ektopic emplacement: how users imagine VR a new way of being in the virtual, fully

embodied and moving freely, and why the untethered VR HMD brings hopes for free movement. Yet in their practices, they feel the need to anchor themselves to the physical place, depending on objects such as furniture and carpets to tether them to the physical. It is the moving body that highlights how separate and parallel the virtual and physical places really are in domestic VR usage. This is why Ektopic emplacement entails navigating places with and through media technologies. It requires learning to move in ways that do not necessarily correlate with the body's movement, just as the overlapping virtual place does not necessarily fit into or over the physical place. Movement is different in the virtual and the physical, but the user has to negotiate these differences through their single body, which moves through and in both places simultaneously. The moving body speaks to the relation between the user and places with and through the device, a phenomenon that is made possible through inhabiting the VR HMD as a technological object. Next, I look closer at this process of inhabitation: how bodies and devices adapt and merge to allow users to be with and through their VR HMDs.

5.4 Sensuousness: Being with and through Devices

In the previous sections, I have described the need for devices and users to recognize their emplacement and how boundaries work and do not work to understand being in place through VR HMDs. This is accentuated by the movements of users navigating a simultaneous leaving and remaining in place. In this chapter, I draw closer to the body and engage with phenomenology on the surface of the skin and senses: the very connections and frictions between users and devices. The body is the interface for connecting with VR.⁵⁸⁶ From the Sword of Damocles of the 1960s,⁵⁸⁷ to the cyberboom of the 1990s and 2000s, the immersed body is the point of connection for entering into virtual spaces.⁵⁸⁸ While Jones and Osborn raise the embodied aspect of VR technology,⁵⁸⁹ it is experimental embodiment that has been at the heart of VR development.⁵⁹⁰ The body is considered necessary for immersion. Yet, the embodied experiences of VR have been understood in terms of a transferred consciousness to a virtual

⁵⁸⁶ Champion 2021.

⁵⁸⁷ Evans 2018.

⁵⁸⁸ Kitchin 1998.

⁵⁸⁹ Osborne and Jones 2022.

⁵⁹⁰ Lanier 2010; Bailenson 2018.

body,⁵⁹¹ which is then perceived by the user as corresponding to the actions of their physical body,⁵⁹² and where sensory input from the physical place breaks immersion.⁵⁹³ As we have already seen with the place anchors that users deploy, the sensing body's relationship to being in VR as a being in place is more complex. Exploring how connections and frictions of the body, device, and place relations are embodied through usage helps develop our understanding of VR usage as being with and through devices. Human geographers engaging with VR have noted the sensuous connection between bodies and devices; the weight and enclosing properties of the headset,⁵⁹⁴ and the need for familiarization with the technology.⁵⁹⁵ The sensuous can provide an entry to critique immersion.⁵⁹⁶ Embodiment in VR is sensuous, and the body is where the dual being in place is noted by users.⁵⁹⁷

In this section, I lean more heavily toward phenomenological theory and aim to establish Ektopic embodiment as a sensuous being with and through devices. Focusing on the frictions and connections between the device and body, these relations form the basis for Ektopic embodiment – being with and through immersive media devices in a way that both tends to the emplacement of the device and the body, and how this phenomenology affects user embodiment and usage practices. Drawing on Merleau-Ponty and Casetti, I start by looking at how the user familiarizes themselves with their headset, applying the phenomenology of being with and through objects. The adaptation between the body and the headset is not only a question of the sensation of wearing the VR HMD, but also how users learn to be in place through the device. While I have emphasized the experience of simultaneously being situated in physical and dual places with and through VR HMDs, there is also a virtual place that users enter. Users being with and through their VR HMD not only creates new connections with the user's body, but in merging with devices as technological objects, users' sensuousness starts to include devices' perspectives. I end with a section on the enclosing properties of VR HMDs. The same function that provides for a sensation of being in the virtual through VR HMDs, making the

⁵⁹¹ Lanier 2010; Dalton 2014.

⁵⁹² Slater et al. 2022.

⁵⁹³ Turner and Turner 2006; Baker, Nam, and Dutt 2023.

⁵⁹⁴ McLean 2021; Roelfsen and Carter-White 2022.

⁵⁹⁵ Hagge 2021; Bos, Miller, and Bull 2022.

⁵⁹⁶ Kukshinov 2024.

⁵⁹⁷ Blackman 2022.

physical feel less present, can also produce a claustrophobic sensation of feeling engulfed. I deploy Casetti's phenomenology of the medium to analyze how users work to shut the physical out as well as peak out from the virtual place in their sensuous navigation of the physical and virtual.

5.4.1 Adaptation: Connecting Devices and Bodies

*"The first strap you had to wear really tight, it was pressing on my face so hard that it gave me these rashes. Wait, I have pictures. This is after the first day." Matteo scrolls through his phone. He turns it toward me, showing me a picture of his face. A thick red ring of rashes circles his forehead and cheekbones. It looks like a sickly concentrated sunburn, in the shape of where the device has been connected to his skin. "My god!" I exclaim, and he laughs. "Yeah, I changed the strap; this new one is great."*⁵⁹⁸

In this iteration of VR, users wear an HMD that they place over their face and use a strap on the back of their head to tighten until fastened. Shaped like a bulky, heavy cyclops, the HMD leaves the bottom half of the face uncovered. To complete the device, there are also two handheld controllers. Of the HMD and the controllers, the users manipulate the headset and its connection to the body the most. The rash that Matteo mentions is a known occurrence by the users in this study, even for those who have not experienced it themselves.⁵⁹⁹ Matilda and her husband developed rashes when they first got their headset. They mostly laughed about it and felt a bit cute. Matilda says she does not know why the rashes have not come back; *"I guess it got impregnated with fats from our skin or something."*⁶⁰⁰ Rather than seamlessly melding with the device through their usage, the users more commonly make conscious changes to their devices to better connect them to their bodies. The face pad is a connection acutely felt because it presses over the user's face. Beata and Joel switched their face pads so that their devices fit their faces more comfortably.⁶⁰¹ The most common modification of the VR HMD was to change the strap that fixed the headset to the user's head. Several users took the advice of friends and online reviews, which indicated that the original HMD strap was uncomfortable or flimsy, and ordered a better one as they were buying the device.⁶⁰² Therefore,

⁵⁹⁸ Interview with Matteo 2023.

⁵⁹⁹ Interview with Pärilan 2023.

⁶⁰⁰ Interview with Matilda 2023.

⁶⁰¹ Interview with Beata 2023; Interview with Joel 2023.

⁶⁰² Interview with Beata 2023; Interview with Joel 2023; Interview with Linus 2023; Interview with Matteo 2023; Interview with Vincent 2024.

for some users, the adaptation of the VR HMD to the body would began before the device even arrived in the home. Other users found out the hard way: Mirea got neck pains from her poorly strapped VR HMD, and Matilda and her family got headaches from wearing the heavy headset without it being properly attached.⁶⁰³

Merleau-Ponty uses the example of a blind man's cane to describe how merging with objects allows perceiving the environment through them.⁶⁰⁴ In our relationship with objects, we both reshape them and allow them to reshape us.⁶⁰⁵ While users are both shaped by and shape their VR HMDs, to merge with them in the Merleau-Pontian sense, users try to make them feel as seamlessly attached as possible to their bodies, to be able to feel through devices rather than feel the friction of the device against the body. However, this melding process was sometimes hindered by the fact that the VR HMD was a device used by multiple people in the household, which made some users stop short of adapting their headset completely to their bodily preferences. In households where headsets are shared between users, the wish to modify the VR device so that it perfectly works for the single user's body clashed against the hopes of sharing the device. Matilda and Joel would both like to have prescription lenses in their headsets, but that would then make the device more accessible to them and less so for others in the family using it.⁶⁰⁶ Thomas, who has bought prescription lenses, was still hesitant to use them in the headset. Because they were a bit tricky to take out, this meant that the at-handness of the device would be reduced for his wife, with whom he shared the headset. A headset that is adapted too much to one user's body can be hard to share. Adaptation of VR HMDs in these households speaks to the relationship between the user's body and the device, as well as sharing the possibility to inhabit the device with other bodies.

The headset is not the only modifiable part of the device; the handheld controllers can be sleeved,⁶⁰⁷ receive new straps,⁶⁰⁸ and put into rigs.⁶⁰⁹ The controllers can be modified to make them more comfortable to

⁶⁰³ Interview with Matilda 2023; Interview with Mirea and Cam 2023.

⁶⁰⁴ Merleau-Ponty 1962.

⁶⁰⁵ Ahmed 2006.

⁶⁰⁶ Interview with Joel 2023; Interview with Matilda 2023.

⁶⁰⁷ Interview with Jing 2023; Observation Robert 2023.

⁶⁰⁸ Observation Mirea and Cam 2023.

⁶⁰⁹ Observation Chiv 2023.

handle or to better match the sensation of the action in the virtual world. Kunru, for example, ponders how she could create weighted controllers to intensify the feeling of handling them.⁶¹⁰ Thomas's add-ons are a good example of heightening the sensation of using one's VR device. He had a table tennis paddle to which he could attach his controller. The shape and handling of the paddle have affected Thomas's relationship to non-virtual paddles: he reports that the extensive practice of table tennis in Virtual Reality with the VR paddle has made him proficient enough to beat everyone at work in non-virtual table tennis: "*I don't know why it works. It was like Wow, this simulation is damn good. I could even do backspins and loops. Stuff I didn't dare try otherwise. But suddenly I was beating everyone at work.*"⁶¹¹ Considering being through the VR HMD as an object in the Merleau-Pontian sense, Thomas has acquired experience that translates into physical table tennis played with a non-VR paddle. The sensuous experience of the paddle is no different in VR than in non-VR; the embodied practice translates between the virtual and physical. When Thomas shows me his VR usage, playing a game of VR table tennis against a cute cat, he keeps missing the balls coming at him. Thomas tells me that since he wants to be able to communicate with me, he is playing with only one headphone in: "*I never realized the sound cues were so important.*"⁶¹²

According to Casetti the medium affects our way of perceiving and activates and conditions our senses, practice, and reactions.⁶¹³ For Thomas, this goes beyond the sensuous experiences he registers; he is surprised at how important his hearing is for his accuracy. As VR HMDs are an immersive media technology, users do not inhabit their devices to perform single actions or practices; they inhabit them to be in virtual places. Consider Merleau-Ponty's notion that we inhabit objects to understand the conditions of our own locatedness: how we perceive objects as being in the world, relating to us as well as other objects, affects our understanding of and conditions for being in the world.⁶¹⁴ Hence, Casetti's phenomenology of the medium as a way of seeing takes on an extra dimension of spatiality; the immersive medium conditions our way of being in place. This shift in the very being in place is exemplified by the user's acquisition of VR legs. The expression VR legs is a play on words that

⁶¹⁰ Interview with Kunru and Yu 2024.

⁶¹¹ Interview with Thomas 2023.

⁶¹² Observation Thomas 2023.

⁶¹³ Casetti 2015.

⁶¹⁴ Merleau-Ponty 1962.

refers to sea legs, an illusion of self-motion when you are in fact not moving, induced by spending time in another element. Joel compares learning to be in VR to going to sea and managing to be in this new element without feeling sick: *“It doesn’t come for free, it’s something that I had to learn. It got better after a week, and then after another month, I was good.”*⁶¹⁵ Among users, nausea was a symptom of not being used to being in the virtual environment. The users who had not been affected by nausea or VR sickness felt lucky; Vincent told me he never got nauseous or dizzy because of his really good VR legs.⁶¹⁶

Matilda, on the other hand, had significant problems with nausea. Her body could not handle being in VR through the HMD: *“I got so VR sick, it was like a kick in the head. I just sat on the floor and felt uuuuuuuuuuh.”*⁶¹⁷ Matilda had to condition her body to be in VR with a temporal and spatial regimen: she would use the VR device slightly longer each day to get used to the sensation of being in VR through her device. She also deployed embodied strategies such as playing barefoot to keep in touch with the ground and using a fan to create a slight breeze that would help her register the front of the room. Linus also mentions using a fan for spatial orientation: *“If you are standing with the headset, you don’t really know where you are in the room. But if you have a fan blowing at you, then you know where the air hits you. You know your direction, because you got something to relate to.”*⁶¹⁸ Disorientation induced by VR HMD usage not only regards the sensation of being in the virtual as a different element, but it also involves the body working on the double to make sense of its location in a physical place. Just like sea sickness is nausea happening when losing the reference of being on land, for Matilda, VR sickness is the result of a disconnection, losing reference to being in physical reality and physical place. There is a difference: at sea, you have left the land, whereas in VR, you have not left your physical location. Learning to be in place through your VR HMD is learning a mode of embodiment, a way of being in place that requires adapting your body and device. It is a sensuous experience beyond vision; it draws on the user’s sense of place and being in the world. Users not only expect friction, but discomfort in learning this mode of being with and through their devices.

⁶¹⁵ Interview with Joel 2023.

⁶¹⁶ Interview with Vincent 2024.

⁶¹⁷ Interview with Matilda 2023.

⁶¹⁸ Interview with Linus 2023.

5.4.2 Frictions: Weight, Heat, and Light

*While showing her usage, Jing navigates some form of menu in the virtual, looking through her VR experiences and games. I notice she keeps correcting her headset, even though she got herself a new, better strap. Jing tells me her old HMD strap was no good: it pressed too hard on her face and felt loose, even when tightened. Yet, over and over, she performs a slight wiggling to nudge the HMD into a good position over her face. Like an itch, it's an instinctual movement, trying to get the fit just right.*⁶¹⁹

Although most users in this study had adapted their HMDs to their bodies and adapted their bodies to their HMDs, throughout observations in the study, users were constantly adjusting and correcting the fit of their headsets. There was a general fidgeting with the HMD in most usage. The sensuous inhabitation of devices, merging with them as objects of outlook, is never perfect. Focusing on the sensory frictions between devices and bodies, this section explores Casetti's phenomenology of the medium. By inhabiting their devices, users in the study discovered and navigated sensuous frictions between bodies and devices, such as weight and heat. Through seriously considering their devices' needs and emplacement, users would adopt sensitivities and take on devices' perspectives as part of their own sensibility.

When asked if they had any discomfort in how the headset would connect to their body, the users would mention that their HMDs are heavy to wear. Users with PSVR2 headsets, such as Guy and Stefan, mention the lightness of their headsets as a reason for why they like them,⁶²⁰ whereas Meta Quest 2 and Quest 3 users recognize the heaviness of their headsets as a necessary evil for being able to use them untethered. The weight of the VR HMD could cause headaches⁶²¹ and neck pain.⁶²² In addition to the headset feeling heavy, users were especially bothered by the fact that the weight was distributed to the front of the device,⁶²³ causing the headset to press on their face.⁶²⁴ A secondary problem caused by the weight of the headset is the need to strap the device

⁶¹⁹ Observation Jing 2023.

⁶²⁰ Interview with Stefan 2023; Observation Guy 2023.

⁶²¹ Interview with Matilda 2023.

⁶²² Interview with Mirea and Cam 2023.

⁶²³ Interview with Andreas 2023; Interview with Thomas 2023; Interview with Kunru and Yu 2024.

⁶²⁴ Interview with Jing 2023; Interview with Pärland 2023.

tightly, potentially causing pain and chafing.⁶²⁵ Therefore, some of the users switched their strap to one with a battery pack at the back of the headset to redistribute some of the weight.⁶²⁶

Several users also mention heat as a form of discomfort. Given the proximity between the face and the processing happening in the headset, users' faces and bodies would get uncomfortably hot. This discomfort was related to how the device was connected to the face and head,⁶²⁷ and how wearing the VR HMD would stimulate users to move.⁶²⁸ While Andreas wonders how anyone could use their VR HMD to work out, due to the intense heat generated by simply wearing the headset,⁶²⁹ several users do use their VR HMD as a domestic workout device.⁶³⁰ This would cause heating beyond the usual sweatiness described as a feature of normal usage.⁶³¹ The intense heat would be uncomfortable for users and cause condensation in the headset, making it hard to see what was depicted on the screen.⁶³² Thomas sometimes wore a cloth mask between the headset and skin and a fan made for the VR HMD.⁶³³ Beata told me she sometimes sported a backpack for runners to keep hydrated as part of her VR setup.⁶³⁴ However, the most common strategy for reducing heat was to simply adapt one's clothing.⁶³⁵ This is because, as Matilda stated, "*the heat does not stay on the face*".⁶³⁶ She also tells me about finding her husband using the VR HMD in various stages of undress, clothes scattered around him as he got overheated by the VR device.

⁶²⁵ Interview with Jing 2023; Interview with Wilke 2024.

⁶²⁶ Interview with Beata 2023; Observation Linus 2023; Observation Mirea and Cam 2023.

⁶²⁷ Interview with Guy 2023; Interview with Linus 2023; Interview with Matteo 2023; Interview with Stefan 2023.

⁶²⁸ Interview with Mikael 2023; Interview with PärLAN 2023.

⁶²⁹ Interview with Andreas 2023.

⁶³⁰ Interview with Matilda 2023; Interview with Sanna 2023; Interview with Thomas 2023; Interview with Kunru and Yu 2024.

⁶³¹ Interview with Matteo 2023; Interview with Stefan 2023.

⁶³² Interview with Matteo 2023; Interview with Stefan 2023; Interview with Kunru and Yu 2024.

⁶³³ Interview with Thomas 2023.

⁶³⁴ Interview with Beata 2023.

⁶³⁵ Ibid.; Interview with Chiv 2023; Interview with Matilda 2023; Interview with Matteo 2023; Interview with Stefan 2023; Observation Kunru and Yu 2024.

⁶³⁶ Interview with Matilda 2023.

Our relationships to objects are sensuous.⁶³⁷ Inhabiting devices is therefore a sensuous experience; to feel through an object as an extension of one's own sensuousness.⁶³⁸ New points of connection between the object and the body are formed: the strain of carrying the object's weight, the heat from the device, as well as proximity to one's face. These points of connection are noticed mainly through the friction between the device and the body. However, users did not only consider these sensibilities in terms of their own bodily discomforts, but they would also note the effect of the connections between the device and bodies on the device. Andreas tells me that overheating induced by wearing his HMD cannot be good for the device.⁶³⁹ In the same way, the weight of the headset was not only understood as a strain for users, but also for the device itself, whose straps would break or loosen over time. The most apparent concern for the device's needs and preferences that users would consider is the sensitivity to light. Several users mention this topic as a friction between the body and the device, and between the device and the physical place. While heat and weight function as conditions of the medium that shape the user's outlook through the VR HMD as a means of experiencing virtual places, the user's attentiveness to light, adopted from the device, is less about these material constraints and more about taking on the device's outlook as a phenomenological object, along with its particular sensuousness.

There are different meanings of light for users and devices. For the device, a certain amount of correct lighting was needed for it to work, so users sometimes had additional light in their usage area.⁶⁴⁰ Robert taped the lightbulbs in his home to provide the cameras on the headset with the right kind of lighting.⁶⁴¹ While there was also a general knowledge among users that too much of the wrong light could damage the cameras on the outside of the headset or the lenses inside the headset, there was no consensus on how light actually damaged the device. For example, Thomas did not use his headset outside due to his fear of the impact of direct sunlight on the VR HMD.⁶⁴² Beata and Anna took even greater precautions: they did not keep their headset on display, but

⁶³⁷ Ahmed 2006.

⁶³⁸ Merleau-Ponty 1962.

⁶³⁹ Interview with Andreas 2023.

⁶⁴⁰ Interview with Matilda 2023; Observation Chiv 2023.

⁶⁴¹ Interview with Robert 2023.

⁶⁴² Interview with Thomas 2023.

when not using it, the VR HMD was tucked away in a casing.⁶⁴³ Some users say the headsets can even be damaged by sunlight that is reflected off other surfaces in the home, even though it was unclear how they would avoid this in their usage practice.⁶⁴⁴

It was not only devices that were sensitive to light; some users felt strongly about light leaking into the headset through the gap between their nose and the VR HMD, which I refer to as the nose gap. While some users recognize that it is hard to get a good fit of the headset against the face and that, to some extent, light will always leak in,⁶⁴⁵ others felt that light leaking in ruined the experience. Some users address this issue by switching face pads to eliminate the nose gap.⁶⁴⁶ Moreover, some users adapted their environment to reduce the amount of light that could leak into the headset. The most prominent example is Stefan: one of his usage areas in a guestroom was outfitted with blackout curtains and an IR lamp.⁶⁴⁷ This lamp sent out light waves that the human eye could not perceive, solving the light leakage problem but still providing enough light for the device to function. For the user, the room appeared pitch black, but looking through the device, one could see the shadows caused by the user's body blocking the light waves from the IR lamp from hitting the wall behind them.

The strange sensitivity that users have to light as they inhabit their device speaks to how their perspective is affected by seeing through the medium, and how users let the device's needs and outlook inform their own sensuousness. For Merleau-Ponty, learning to see in new ways is an embodied perceiving. He writes: "*Sometimes a new cluster of meanings is formed our former movements are integrated into a fresh motor entity, the first visual data into a fresh sensory entity, our natural powers suddenly come together in a richer meaning, which hitherto has been merely foreshadowed in our experience by no more than a certain lack, and which by its coming suddenly reshuffles the elements of our equilibrium.*"⁶⁴⁸ Inhabiting the device and using it as a point of outlook requires considering the device's perspectives, as well as our sensuous perception of the world as affected by the device. This process of VR HMD conditioning affects the user's sensuousness and movement, and also pushes the

⁶⁴³ Interview with Anna 2023; Interview with Beata 2023.

⁶⁴⁴ Interview with Mirea and Cam 2023; Interview with Robert 2023.

⁶⁴⁵ Interview with Thomas 2023; Interview with Max 2024; Interview with Vincent 2024.

⁶⁴⁶ Interview with Jing 2023; Interview with Wilke 2024.

⁶⁴⁷ Observation Stefan 2023.

⁶⁴⁸ Merleau-Ponty 1962, 153.

user to manipulate their usage areas to better suit the device's needs. Moreover, the VR HMD affects the user's sensuousness and their sense of being in place. Thus, I now look to the engulfing properties of the VR HMDs and how the users regulate the enclosed sensation that it can cause.

5.4.3 Enclosed: Regulating Immersion

*"The good thing about VR is that it encapsulates you, making you unaware of your surroundings."*⁶⁴⁹ Here, Andreas describes the immersive properties of his VR HMD and how the device works to shut out perceptions of the physical place. This speaks to the engulfing properties of the VR HMD, which many users mention. Wilke formulates it as *"going into the VR,"*⁶⁵⁰ and Anna describes the separateness of someone being in VR as *"in there,"* stating, *"you disappear totally into that world."*⁶⁵¹ While the headset might aim to shut out stimuli from the physical place, users may also feel closed off from the physical. The virtual tends to swallow you. Joffe phrased it as *"Being in VR is a total experience."*⁶⁵²

The users recognize using their VR HMDs as entering an elsewhere and that the experience of being in a virtual place was an experience of another space, separated from the home. This feeling is not necessarily framed as positive; some users described feeling removed, isolated, and like their perception is shut off when wearing their VR HMDs. Yu does not like VR due to feeling confined through the device: *"I didn't like feeling, to be completely isolated from reality, while you can still move freely. I felt quite unsafe."*⁶⁵³ Casetti describes the way an immersive medium can condition our being in place as if we are in a bubble. This bubble creates a *"sensation of inhabiting a protected space."*⁶⁵⁴ When it comes to VR, the immersive properties of the device do not make users feel protected in a bodily sense. While exhilarated and immersed in the virtual place, users simultaneously describe feeling uncomfortably enclosed. As a solution to this enclosed sensation, several users speak of wanting less of a separation between the virtual and physical. We could interpret this as wanting more porous boundaries (according to Casey) between the virtual place and the physical place. Jing describes the wish for better overlap: *"more connection between the virtual and the real world. When I put*

⁶⁴⁹ Interview with Andreas 2023.

⁶⁵⁰ Interview with Wilke 2024.

⁶⁵¹ Interview with Anna 2023.

⁶⁵² Interview with Joffe 2024.

⁶⁵³ Interview with Kunru and Yu 2024.

⁶⁵⁴ Casetti 2015, 73.

on the headset, I'm totally in the virtual."⁶⁵⁵ The users' sensations of feeling enclosed when wearing the headset speak to the fact that their emplacement in the physical place has not disappeared when entering the virtual place. The desire to keep in touch with the physical place and grasp one's position in the room creates discomfort when immersed.

Several of the users also use other devices so that they can be reached when using their VR HMDs. Max turns the volume on his phone to the highest setting,⁶⁵⁶ and Matteo has his smart watch notify him if someone wants to reach him.⁶⁵⁷ Anna has a breathing alarm monitoring her children when they are sleeping, and she is using her VR HMD to get notifications to her phone if they stir in their sleep.⁶⁵⁸ Some users also employ more analog methods to erode the boundary between the virtual and physical place; Linus does not like to use headphones because he wants to hear if his family calls for him.⁶⁵⁹

The VR HMD also provides a way to shift between the virtual and the physical place, through the pass-through camera. It relays a live video feed of what the device sees, that is, the physical room where the users and the device are emplaced.⁶⁶⁰ While this is a grainy black-and-white representation of what the headset *sees* through its cameras, it creates a sensation of looking out through the headset. Rather than opening a window to the physical place, this strategy works to erode the boundary between the virtual and physical place that the immersive bubble creates, making the boundaries porous enough that it seems transparent. Vincent describes how trying out the pass-through camera was the most futuristic part of the experience when trying out his new VR HMD.⁶⁶¹ The instantaneous shift between the virtual and the physical, observing his surroundings through the headset, felt as if he had arrived in the future. The possibility of using the pass-through camera correlates directly with the room boundaries set by the users and devices. Thomas explains why this is, to him, idiotic: *"If I want to leave and let's say get a towel in the bedroom, the headset stops the pass-through when I go outside the boundary. But this is when I need*

⁶⁵⁵ Interview with Jing 2023.

⁶⁵⁶ Interview with Max 2024.

⁶⁵⁷ Interview with Matteo 2023.

⁶⁵⁸ Interview with Anna 2023.

⁶⁵⁹ Interview with Linus 2023.

⁶⁶⁰ Interview with PärLAN 2023.

⁶⁶¹ Interview with Vincent 2024.

to be able to see through!”⁶⁶² Cam, who has turned off the red grid function in his headset, does not have the pass-through function. The possibility of using the device’s own solution for helping the user navigate their emplacement in dual places is related to the device’s perception of boundaries, constructing the immersive bubble, and the sensation of inhabiting an encapsulated space.

According to the users, a common way to momentarily peek out at the physical place is simply to look through the nose gap. While some users remove as much light as possible, arguing that they do not want the outside to leak into the virtual, other users maintain the possibility of looking out of the VR HMD. Thomas calls the nose gap “*a window to the real world.*”⁶⁶³ For Cam, the nose gap is a security measure against wandering off in the physical room while moving around in the virtual.⁶⁶⁴ Use of the pass-through mode and the nose gap to look out from the virtual underline how the virtual and the physical places are perceived by users as two distinct places. Eroding the boundary or keeping windows between them is part of domestic VR usage and is related to the home as a spatial context. Users want to be able to look out and find their bearings, as well as a social context: being able to recognize what is going on in the home if needed. As Mikael describes it: “*especially when I played a lot, that was something I felt was quite uncanny, that you were so shut off, shut out. You don’t know what others in the home are doing.*”⁶⁶⁵

While the nose gap might speak to the embodied practices of being in VR, for users who want to be able to look out, the discomfort of feeling as if one is in an immersive bubble is about the body being shut off from the physical place, as well as its socio-spatial context: i.e., others who might be there. Matilda tells me about sensing the presence of others while playing and confirming with her husband afterwards that he went into the room to get something when she was in VR.⁶⁶⁶ Others in the household might need to pass you by or share your space, but it can feel unsettling when you cannot perceive others who are with you in the same place. This speaks to how the multiplicity of place is obscured when in VR; the user’s shifting emplacement in the virtual and physical place makes it difficult to perceive who is present with them in place. Having the presence of others confused and veiled can be socially uncomfortable, as well as

⁶⁶² Interview with Thomas 2023.

⁶⁶³ Ibid.

⁶⁶⁴ Interview with Mirea and Cam 2023.

⁶⁶⁵ Interview with Mikael 2023.

⁶⁶⁶ Interview with Matilda 2023.

unsettling on a level of phenomenological safety. This is exemplified most clearly by Robert and Anna. Robert does not use headphones since he wants to be able to hear calls while in the virtual. Although he lives alone, Robert tells me that the scenario of having headphones on while using his HMD and someone tapping him on the shoulder would be deeply disturbing: *“They would get punched.”*⁶⁶⁷ For Robert, the need not to feel shut off operates on a level of embodied safety; even if no one is there to tap his shoulder, he is not comfortable being engulfed by the VR HMD in such a way that he would fail to sense the presence of others. Anna tells me about such an experience when she was using her headset at night: *“I was standing here in the living room, and I realized the door was unlocked. Suddenly, I felt that someone was watching me, and I took the headset off and asked if there was anyone there. I live in a ghost house, so it was just some ghost, probably. But I felt like anyone could come in here and I wouldn’t hear. I don’t even use headphones or anything, but even then, it’s so enclosing, you don’t hear. After that, I always lock the doors because it would be so scary if someone tapped me on the shoulder when I’m in another world.”* The enclosing properties of the VR HMD made Anna feel as if her body had been left out in the conditions of the physical place without her being able to know what was happening there. Her sensuous experience of being in place shifts from feeling enclosed in the virtual place to being hyperaware of the physical place, underlining her emplacement in these dual places.

5.4.4 Ektopic Embodiment and Sensuousness

Being with and through VR HMDs is both a sensuous and a phenomenological experience. Therefore, inquiring about the embodied emplacement of users inhabiting these devices shows that merging and being with and through the device range from the frictions between devices and bodies at the level of the skin to users’ sense of emplacement in the world. Not only is the device modified, but the user body adapts. The device is a technological object and a phenomenological object for an emplaced outlook, even though that outlook shifts between the virtual and physical place. Just like movement through the VR HMDs had to be learned, the ability to perceive being in place through VR HMDs requires the user to navigate a shifting emplacement. This relates to how the virtual place is distinct from the physical place and how that is the grounds for Ektopic emplacement – being in places. Users describe being in the virtual as being in another element. On the sensuous, embodied level it is a shifting of planes felt through the body; it can be sickening, nauseating, disturbing, and

⁶⁶⁷ Interview with Robert 2023.

disorienting. This sensation even reaches users sense of ontological security due to the phenomenological uncertainty of what being in place means when emplaced both in the physical and the virtual.

While considering the device's perceptions can sometimes read as techno-determinism, meaning that technologies cause outcomes, I have instead focused on users being together, with and through their devices, and the embodiment that users of VR HMDs experience as they adapt to, merge with, and perceive through their devices. That technology affects how we perceive our very being in the world is inseparable from the human condition.⁶⁶⁸ But it can range from changing societal patterns on a macro scale⁶⁶⁹ to the phenomenological level of conditioning our very outlooks.⁶⁷⁰ In their embodied Ektopic emplacement, the user's outlooks are influenced by their device's needs and sensuousness. This can be direct, such as the devices giving instructions on lighting or removal of objects, or a vaguer knowledge of the device's sensibilities to their environment. Users care for the device's needs creates what Ash and Simpson call an alongside-ness between humans and their devices.⁶⁷¹ This alongside-ness means sharing sensibilities with the device, but also users accepting discomforts and frictions. Ektopic embodiment might strive towards discovering new ways of being in the world, but this is not a being in place marked by comfort or ease. Understanding the body as both engaged with the virtual while still experiencing socio-spatial sensations of the physical place when wearing the headset – overheating, heaviness, and enclosure – reveals the multiple, layered embodiment in VR usage. However, these sensations cannot be reduced to what devices do: they become important for users and incorporated in their embodiment and perceptions. By focusing on the sensuousness of frictions and connections between bodies and devices and their emplacement, I have found that being in place through the VR HMDs produces new sensuousness by users looking through devices and taking on the device's outlooks. We should therefore care when the users are made to care about their device understandings and perceptions.

While Merleau-Ponty frames emplacement as the being together with and being oriented by an object task, the task of inhabiting the VR HMD (object) to be immersed in a virtual place (task) is not enough to understand the

⁶⁶⁸ Heidegger 1974.

⁶⁶⁹ Marvin 1988.

⁶⁷⁰ Casetti 2015.

⁶⁷¹ Ash and Simpson 2016.

user's spatial practices. The VR HMDs accentuate sensuous experiences and situations that make sense in relation to VR as a specific medium. It forms its own emerging spatial and social practices through users' understandings of what is going on. By focusing on the sensory, it is clear that the users struggle against the enclosing sensations of VR technology and incorporate it into their practice to regulate immersion. Hence, Ektopic emplacement tends to both the physical and the virtual. The need for windows to the physical place and regulation of immersion emphasizes the separateness of the virtual and physical places that being, through the VR device, creates. With that said, the user's practices to lessen the sensation of feeling closed off and regulating immersion should not be conflated. While the first relates to the ontological phenomenology of being in the world and the sensations of one's position, the latter concerns bodily safety as well as social responsibilities in the home. Thus, I now turn to user practices of remaining in the home environment, in place, together with others.

5.5 Remaining: Embodied Navigation of Dual Emplacement

While exploring VR users' sensuous outlooks from within the VR headset foregrounds the user's perspective as shaped by the device. Exploring the practice of remaining and the remaining body requires zooming out, back into place. In domestic VR usage, the user's body is emplaced within a setting that is complex and at times contradictory: it is mundane and intimate, allows for freedom and is filled with restrictions, a place for relaxing and a place of responsibilities toward those with whom the user shares their home. While I began the analysis by looking at how being with and through VR devices in place relates to boundaries, this section focuses on the multiplicity of place – the amalgam of Casey's place as *gathering* and Massey's place as *thrown-together*.

Through Ektopic emplacement, the user's body is present in the virtual place while remaining in the physical place. This is a curious addition to the multiplicity of the home. It is a social conundrum in its direct presence and fleeting un-thereness, but it is also sensory cut off and vulnerable. This was apparent in my study design: would VR users feel comfortable showing me how they use VR? The fact that the research participants would be somewhat sensorily cut off from me while I, a stranger, observe them after putting on a technologically advanced blindfold, caused some users to feel cautious about being observed. The sit-down interviews managed to negate some of the discomfort of users being observed while not really present. To negate the unclear togetherness in the situation, many users started their demo in

conversation with me, talking about what they were seeing in their VR HMDs, what they were doing as they interacted with the virtual setting that they were in. This conversation would often die out as their concentration moved more into the virtual place: something elsewhere claimed their attention. Nevertheless, the users very much remained in place with me through their remaining body.

An obvious aspect of VR usage, to anyone who has used VR or considered it in other than theoretical terms, is that you do not actually leave the physical place through VR HMDs. Although you might feel as if you are present elsewhere, through what Osborn and Jones eloquently formulate as “*the illusion of having left your immediate geography*”⁶⁷² or as Zhou et al. call “*teleporting in and out of a digital landscape*,”⁶⁷³ your body is still remaining in place. Blackman’s respondent describes how it is a sort of being in two places: the virtual and the physical.⁶⁷⁴ Moreover, Parker and Saker note how the user being immersed in VR while elsewhere affects the social setting of the physical place through their removed presence.⁶⁷⁵ Being in VR is a mode of being in place that draws on being removed as well as remaining in place. The remaining body of the VR user both neglects and contributes to the multiplicity of the home place. Remaining is a trait of the user’s body, making it a bit ridiculous in its appearance since it can appear to move quite purposefully, but from the eye of the beholder, just waving in the air. However, there is also an element of fragility to a body that is active while at times unaware of its vicinity, and an element of danger to both the user and others in the home. Remaining is also a way the user handles the spatiality of being in dual places.

This section focuses on how the user’s remaining body becomes part of the multiplicity of the home, and how the practice of remaining is navigated by users. First, I look at accidents caused by VR usage, which show how the distance between places, and the objects and bodies present in those places, breaks down through how VR HMDs as media device disrupts distance. Second, the remaining body becomes part of the multiplicity of the home and is caught up in domestic practices and relations. Third, utilizing Heidegger’s view on distance, I analyze how the practice of remaining spans between the social

⁶⁷² Osborne and Jones 2022.

⁶⁷³ Zhou et al. 2024.

⁶⁷⁴ Blackman 2022.

⁶⁷⁵ Parker and Saker 2020.

obligations of the home to a level of phenomenological security: how being unthere through VR HMDs is navigated by users.

5.5.1 Accidents: Bumping into Place, Objects, and Bodies

All but a few users share the experience of having accidents caused by not knowing their position or the position of others in the usage area. The few who had not personally hurt themselves know that accidents while using VR HMDs are common enough that they expect to hurt themselves at some point when using their devices. Most accidents are near accidents or minor hits that relate to the user's hitting their hands on something. Because the hands hold the controllers, they become the body part with the biggest range of movement. As the user interacts with the virtual environment, their hands go out to grab, shoot, and glide in the virtual environment. For someone passing by, the user's hands move purposely but also erratically. They interact with something that is clearly not accessible to the onlooker.

Hitting or scratching your hand against a table, desk, or shelf is expected as a part of learning how to use the VR HMD, and some users refer to these minor hand-smashing accidents as something that occur as part of the learning curve. Some users even treat more significant accidents leading to injury, rather nonchalantly. For example, Matteo tells me that he is pretty sure he fractured his hand at one time. He could not use it properly for a while, but he says that it has healed fine.⁶⁷⁶ He has a thin wall at the edge of his usage area, which he cannot remove due to being a tenant and not a homeowner. Robert shares another example. One time, he felt that his controllers were sticky from something. He had not perceived hurting his hand as anything more than a common scratch while he was still in-game, but when he took off his headset, he noticed that he was, in fact, bleeding, and that blood had splattered on the walls. Since there was no serious damage to his hand, just a mess, Robert tells me in a comedic tone that he simply had to get to cleaning.⁶⁷⁷ These examples illustrate that bodily harm to oneself is treated as something that can happen and is considered a part of the usage practices. This might make VR usage sound quite extreme, but I want to underline that there is no culture of pain worship shared by VR users. Rather, this speaks to their recognition that even in home environments, where users can adapt the environment to work for VR usage, it is hard to create an accident-proof space. Recognizing that it is hard to navigate being in virtual and physical place simultaneously, most users do not fuss over

⁶⁷⁶ Interview with Matteo 2023.

⁶⁷⁷ Interview with Robert 2023.

colliding with the physical environment.

When asked about accidents such as punching into something, the users consider that their own bodies as well as their devices require protection. Some users opt to buy protection for their controllers because they frequently scratch or smash them into surrounding surfaces, or recurring hitting their controllers together. Some consider the fact that *'the controller did not break'* to indicate an accident was not serious. This suggests that some users consider the VR device as more fragile than their bodies and thus in need of protection against bumps and hits. However, the users' continued use of their devices does not depend on accidents remaining close calls; things do go flying. Wilke told me of that one time when he grabbed a virtual arrow behind his back, he suddenly saw the red grid flashing, indicating that he was crossing the boundary of the usage area. He heard a loud crashing sound as his monitor somersaulted from his desk to the floor. This was not his only accident, but he does consider it his most remarkable one.⁶⁷⁸

Some accidents are, in hindsight, cherished as stories. Beata is a social VR player; from time to time, she has dedicated weekends to introducing friends to VR technology. On one such occasion, Beata was in the home of her friends, Malena and Rita.

*"The thing is that Rita is a bit held together, I expected she didn't want to give in to the immersion of VR", Beata says. "I tell her not to forget that there is an actual room, and she is like, 'Sure, I won't forget.' Then the first thing that happens is that Rita hits a lamp hanging from the ceiling." They go on trying games, taking turns in the headset. As they switch, Rita is in the kitchen, making Irish coffees. Beata is watching Malena try out Beat Saber for the first time. Rita comes out of the kitchen with the drinks on a tray, the very second that Malena realizes a new movement in the game. Malena's arms go out, fast and with full force. The timing is perfect. Malena smashes into the tray, making the coffee drinks go flying, splashing all over the walls, ceiling, and, as if that was not enough, Rita. "And she was wearing all white," Beata says with a gasping voice, "I thought 'I've ruined their home, I've ruined everything,' but then we all burst into laughter."*⁶⁷⁹ What looked as if it could have ruined the evening ended up as a funny story. When Beata left Malena and Rita's place, she received pictures from them showing that they stayed up all night and continued to play with the VR HMD. Rita having an accident and getting completely

⁶⁷⁸ Interview with Wilke 2024.

⁶⁷⁹ Interview with Beata 2023.

splashed the first time she used VR contrasts the notion that accidents are a small nuisance, something that the seasoned user goes through as part of the learning curve, or to which they become accustomed.

Although hurting yourself, making a mess, or damaging things in the home is not part of the everyday VR HMD usage, the users do consider it common enough to be part of VR usage. With that said, one kind of accident is treated with more consideration and severity: those involving others in the home. Some users who do not live alone have accidentally hit other members of the household when they were walking by or approaching the user when in VR. The users frame this situation as scary, and they are uncomfortable talking about it in the interviews. Mirea and Cam, a couple who each own a headset, and therefore can be considered proficient in knowing how awkward and erratic someone can move when using the device, have had accidents, with the one in the VR HMD managing to hit the one walking by. Mirea told me that accidents are commonly overheard through in-game voice chat when playing with others: *“When we game with people, we sometimes hear on their end, SMACK and then ‘sorry sorry!’ when a guy manages to hit his girlfriend walking by a bit too close. It’s horrible!”*⁶⁸⁰

Accidents speak to the obscured multiplicity of place that users experience when in VR. While the encapsulating properties of the immersive medium work to create an experience that feels separated,⁶⁸¹ the presence of other bodies and objects in the physical place can come rushing into the present for users when they make contact. The multiplicity of place shifts between being obscured and hyper-charged through how emplacement in both the virtual and physical place is navigated. This multiplicity that is Masseyan in its temporality, defined by what is present at the given moment.⁶⁸² However, it also underlines the spatial oddity of Ektopic emplacement; even though the virtual and physical places are separate, and therefore their multiplicity also entails recognizing that what is not present in place is confused. While others in the household are not present in the virtual, which becomes a defining quality of the virtual places’ multiplicity, they are present in the physical and therefore together in place with the user. This creates a multiplicity that is suddenly shifting and no longer works to help users understand place through what is present and non-present. Moreover, there is a need for distance between places that VR technology

⁶⁸⁰ Interview with Mirea and Cam 2023.

⁶⁸¹ Casetti 2015.

⁶⁸² Massey 2004.

disrupts. Distance is how we phenomenologically make sense of our being in the world.⁶⁸³ The user is emplaced in a shifting and confusing way in both the virtual and physical place, which shows that it is not only the virtual place that is mediated through the VR HMD, but providing for a mode of being in place where the user is emplaced both here and there, present in both places at the same time.

In summary, accidents take on different meanings for the users: part of usage, a funny story, or as actual scary moments. The possibility of pain or hurt is not a reason to stop using VR. This is not to say that VR users are careless and do not register or care about injuring themselves, breaking things, or potentially hurting someone in their household. Their continued usage of their VR HMDs is not based on destructive or cynical carelessness, but rather their recognition that, as part of being through the VR HMD, inhabiting them as objects and letting them allow for new spatial experiences and perceptions, the fuzziness of the here and the there is ingrained into the usage. The strange presence of being kind of not there, while the body remains in place; active, solid, and moving, is the condition of being through VR HMDs.

5.5.2 Keeping Out of the Way: Care of Self and Others

As we have seen with the accidents, the stakes for using VR in the home can be quite high. Therefore, a part of VR practices is to make usage safe for others in the home. Matilda, who lives with her children and her husband, got a VR HMD as a Christmas present for the entire family when they were stuck at home during the COVID-19 pandemic. Getting the device for the family was in itself an act of care; she considered it a pick-me-up and something exciting to do at home. Because Matilda's household had a small usage area through which other family members would walk, the person passing by would yell "*PASSING THROUGH*" anytime they were close to the person using the device.⁶⁸⁴ The users describe that care for the remaining body in relation to VR usage is expressed as ways of working together to avoid accidents. VR usage was also incorporated into expressions of care already existing in relationships in the household. Beata describes how during the intense toddler years, she and her husband would use their VR HMD to give each other opportunities to sneak off and take some time for themselves.⁶⁸⁵ Using VR devices' ability to make the user sensory removed without leaving the home represented a gesture of care for each other.

⁶⁸³ Heidegger 2012.

⁶⁸⁴ Interview with Matilda 2023.

⁶⁸⁵ Interview with Beata 2023.

VR as a technology can also create new practices of care in the household. For Kunru and Yu, a girlfriend and boyfriend living together, Kunru's remaining body created opportunities for Yu to express care in different ways, tying into different dynamics of care in their home and relationship:

“Do you keep them in fixed positions?” I’m asking Kunru about the pillows that she uses as a physical boundary when she is using her VR HMD. She has told me that she feels disoriented if the usage area is too big. Kunru and Yu live in an apartment that they have kept minimally furnished, with a lot of open space and multifunctional furniture. Yet Kunru says she can feel quite unsafe when in VR. The space allows for floating around the room. The pillows become an extra layer, a physical reminder, and a boundary for the usage area. Yu is the one who answers me: “Normally, I put the pillows; she doesn’t really know what the exact procedure is.” Kunru and I laugh; she pretends to be annoyed by his statement. She turns her head moodily but is still smiling. Later in the interview, Kunru explains the sense of feeling removed that VR can provide in a way that a video game doesn’t, making it more likely for her to use the VR HMD when Yu is at home. She apologizes to Yu if that seems rude, but Yu doesn’t seem to mind. They both consider VR as a good de-stressor for Kunru, taking her mind off work and getting her to move. Yu doesn’t like the sensation of using the VR HMD, but he takes part in the VR usage of the home: he cares for Kunru’s remaining body and observes her usage needs. As Kunru is preparing to show me her epic Beat Saber skills, there is a tenderness and caring in the way Yu prepares the area with the pillows. Kunru’s screen is cast to the TV so that Yu and I can see the intense speed of her gameplay. Kunru says this way of looking requires her to focus her brain; there is no room for any thought, only the registering of the blocks coming at her. It is meditative. “How does she compare to others in your study? Isn’t she the best?” Yu asks me proudly as I’m laughing at the ridiculousness of the speed, in awe of her block hitting.”⁶⁸⁶

Yu tends to Kunru's remaining body as an act of care: he makes sure she does not hurt herself when using the device. This care also extends to encouraging her to use the device as part of her well-being. There is also pride in Kunru's abilities. Yu has also helped with some technological issues of recording Kunru's gameplay, so she can upload videos of her VR skills online. Even though Kunru enjoys that the VR HMD provides a sensation of being away from the home and not together with Yu, the VR usage provides for different

⁶⁸⁶ Interview with Kunru and Yu 2024; Observation Kunru and Yu 2024.

forms of care in Kunru and Yu's household. This can be contrasted with Sanna, who does not use her VR HMD when her wife is home due to it feeling rude.⁶⁸⁷ Sanna and Kunru both express that they are unsure whether it is antisocial to use VR when others are at home. It speaks to the strange emplacement of the user when using their VR HMD; obviously here, but not really there.

Casetti calls the way the usage of an immersive medium encapsulates us an existential bubble. The existential bubble is the "*sensation of inhabiting a protected space*"⁶⁸⁸ in the usage of a medium. The existential bubble can vary in construction and should not be understood as a shelter but as a temporary refuge of experience.⁶⁸⁹ It is this refuge we can see in how VR HMDs are used in the contexts of care in relationships, an opportunity to be removed from the home. Casetti also states that the walls of the existential bubble do not necessarily obscure you from view or hearing; this bubble is also marked by a sense of the absence and presence of others. This is especially noticeable when the VR user's remaining body is especially noticeable. Chiv shows another form of care when handling a remaining body that takes up a lot of space. Due to his animated playing; kneeling, dodging, throwing, as well as talking, calling, and shouting, his remaining body is more than something to walk by. It is the very situation of what is going on in the room, even if his interactions are unfolding in a virtual place, a spatial context hidden from those in the physical place. Chiv tells me that his wife has stated it is impossible to do something else in the same room when he is playing, which is why he uses his VR HMD in a separate building in the garden called *the shed*.⁶⁹⁰ He does this out of consideration for his wife, recognizing the intense presence the remaining body can have.

The remaining body of the VR user is not just something for the user to handle as part of their emplacement; it also becomes a question for others in the household. The strange presence of the VR user is caught up in the existing relationships in the household, providing for new articulations of showing and receiving care. The remaining body is part of the multiplicity of the home place, and just as the presence of others in the household can be obscured for the VR user, the presence of the VR user is at times unclear to others in the household. The home, as a context of multifaceted relationships, also entails responsibilities

⁶⁸⁷ Interview with Sanna 2023.

⁶⁸⁸ Casetti 2015, 73.

⁶⁸⁹ Casetti 2015.

⁶⁹⁰ Interview with Chiv 2023.

toward others. This is most prominent in parental roles, and I turn to VR usage and parenting in the next section.

5.5.3 Negotiating Being Un(t)here: VR Usage and Parenting Responsibilities

Place and being in place are not just defined by what is present there; place is shaped by what is outside. For Casey, place is shaped by landscape,⁶⁹¹ while Massey understands these outside forces in terms of place having both local and global relations, micro and macro processes that affect what happens in place.⁶⁹² Many users in this study got their VR just before or during the global COVID-19 pandemic. While there were no lockdowns in Sweden, there were restrictions on public life, and the government asked for people to work from home as much as possible. As the home became a workplace as well as a site of leisure, VR technology, as a way to leave place was well timed. For Kunru and Matilda, the pandemic created the need to leave homes in which they felt stuck. VR provided a way to be not at home while at home.⁶⁹³ Other users expressed this appeal of VR for other reasons, such as Anna, who, for a period, was the sole caretaker of her children, so she had few possibilities to leave the home.⁶⁹⁴ VR provided temporary refuge, a leaving without leaving. Sanna told me she got her VR device to start working out while feeling depressed; it provided a way of leaving and remaining at the same time.⁶⁹⁵ The users are not only motivated by the pull of the virtual place. Rather, VR technology provides the possibility for being in place and out of place at the same time, here and not here, and becomes an escape in different ways. The Ektopic emplacement they experience through VR was, in the pandemic context, not a problem; it would provide a way of leaving while also keeping the body safe and sane at home.

In the previous sections, I have discussed the remaining body as a body object, but in this section, I refer more to the phenomenological sensation of being here while not here, as well as the practice of remaining. As we have seen, users remain in place while using the VR HMD. However, while the user is not disappeared, they are not really present. Using the VR HMD becomes a form of being away from the home. This being in VR is negotiated against other duties and responsibilities in the home. Among the users, the negotiation

⁶⁹¹ Casey 1996.

⁶⁹² Massey 2004.

⁶⁹³ Interview with Matilda 2023; Interview with Kunru and Yu 2024.

⁶⁹⁴ Interview with Anna 2023.

⁶⁹⁵ Interview with Sanna 2023.

between being both present and gone through VR technology becomes most apparent in relation to parenting responsibilities. Linus, who recently became a father, states that although he and his girlfriend both have time allotted for their hobbies, he never uses the VR in a way that makes him unavailable for his family or housekeeping duties.⁶⁹⁶ Matilda, who is a mother of older children, describes how she is the kind of person who gets swallowed up by immersive games, analogue, digital, or virtual. She has gotten scolded by her kids for losing track of time when the family calls her to the dinner table.⁶⁹⁷ There is an un-thereness in VR that can be startling. Mikael, who is a father of older children, describes the un-thereness that VR usage creates: *“That happened one or two times; that you were inside your VR and one of the kids came and said 'DAD' and you got scared shitless because something was happening in the real world and you were like, in the game.”*⁶⁹⁸ The users with younger kids are even stricter about when they use their VR HMDs, and most of the rules and strategies for their usage are based on their parental responsibilities. This was especially noticeable for users who were separated and co-parented, since they had periods of being the sole caregiver for their kids. As a single parent of two kids, Matteo states that it is simply too dangerous to play if his youngest kid is present. He only used his headset at night when his kids were sleeping.⁶⁹⁹ Beata, a single parent of two kids who split their time between her home and their fathers, does not use her VR at all during the weeks her kids stay with her: *“I don’t think I could relax in the way that I’d use VR when they are here at home, fallen asleep. Because you get so into it. Maybe I wouldn’t hear if they came up and such.”*⁷⁰⁰

Some parents implemented physical barriers even if they used their VR HMDs during the night: they set up gates so that their children did not accidentally bump into them when in VR. While users treat accidents that include only users or users and other adults in the household with a mix of horror and laughter, they are mortified by accidents involving children. When relating VR usage to parenting, the remaining body becomes both a danger to children, potentially being hurt by the VR-using parent, and an empty shell of a parent body, not there with the child. The un-thereness of the VR user is accentuated by the parental responsibility to be present in the home when caring

⁶⁹⁶ Interview with Linus 2023.

⁶⁹⁷ Interview with Matilda 2023.

⁶⁹⁸ Interview with Mikael 2023.

⁶⁹⁹ Interview with Matteo 2023.

⁷⁰⁰ Interview with Beata 2023.

for children.

The users condition their VR practices around the needs of their children. This shows how they do not consider themselves really or fully present in the home while using their VR HMDs, at least not sufficiently to notice and tend to if something were to happen to their children. For Anna, a mother of two young kids, solutions like breathing alarms connected to her phone provide an extra insurance that everything is fine with the children, who were sleeping in the next room. (For readers who are not familiar with Swedish parenting discourse, the use of breathing alarms is not a common practice, but it is becoming more usual, being marketed as a technology that sensible parents use to care for their children.) Although Anna does not use headphones, she says that even the sound from the headset is enough to engulf you, and that she simply would not hear if the kids were to call for her or in any kind of trouble: *“You totally disappear into that world. I needed to know that they were alive and weren’t moving about or so.”*⁷⁰¹ Anna got her VR for her oldest daughter, but ended up trying it out herself. Coincidentally, this was followed by a period when Anna was the sole caretaker of her children, and using the VR HMD during evenings and nights when the kids were sleeping provided a way for her to stay sane when she could not leave the house. Anna could draw on her emplacement in both the virtual place and the physical home to fulfil her parenting responsibilities and handle the pressure of her situation.

Although the disruption of distance between places that VR HMDs can be problematic, it also provides possibilities. The user navigates their emplacement in dual places through their VR HMD as a simultaneous being here and being not here. The body brings together the here and the there,⁷⁰² which makes the body itself a medium for recognizing distance. Recognizing distance is our way of being in the world, noticing our position as here, relative to the over there. When considering VR usage in regard to parental responsibilities, we see the disruption of distances between places play out in strange ways: how a parent far away can still punch their children, and how a parent who is present, fully awake, and with their senses, can be gone. The fact that VR HMDs allow users to be in virtual places does not mean they are not in the physical place; they have not transcended their embodiment, and have not even really left the home. Rather, the user and others in the home must navigate new sensuous situations and practices. Strategies are developed for handling the

⁷⁰¹ Interview with Anna 2023.

⁷⁰² Casey 1997, 215.

remaining body become important to navigate for the user. These sensations are not only made relevant for the VR user in the HMD, but in their confrontation with the home as a socio-spatial environment shared with others. The in-between emplacement of the VR user, being with and through the VR device, disrupts distance on phenomenological and socio-spatial levels. It ties into the user's understanding of being in place as well as the specific multiplicity of the domestic context. The near and the far, and the here and the not here, constitute each other.⁷⁰³ Therefore, the disruption of distance between places is confusing for users to embody as well as grasp in terms of ontological safety. It grabs at the very base of our understanding of what it means to be in the world: what is the here of my body? It is a navigation and negotiation of here-ness that happens on the ontological level of being in the world as well as the socio-spatial situation of the household.

5.5.4 Remaining as Ektopic Navigation

The practice of remaining highlights that using VR as a mode of being in place is not just a question about the user's perceptual experience; it is also an embodied effort to manage their shifting emplacement. The remaining body is an expression of the user's phenomenological experience, and it becomes part of and affects the multiplicity of place. This multiplicity is affected by how others appear present, or not present to the user, as well as the shifting presence of the user. While I chose the home for my fieldwork partly due to the VR user's ability to manipulate the physical environment and adapt it for VR usage, I also assumed that the private setting of the home would allow for an exploratory approach to VR technology through the comforts of being in the user's *own* place. The materials show that VR usage claims space in the home and introduces new ways of being together and not together with others in a domestic setting. While accidents might be the most spectacular articulation of how Ektopic emplacement of the VR user adds a new element to the home, domestic VR usage is also caught up in the relations of the home, such as expressions of care. It is also through these socio-spatial relations – partnerships and parenting – that we can start to recognize the ontological implications of the VR HMD as an emplacing and displacing technology. While presence in the virtual can be playfully fluid in other situations, when contrasted with parenting, there is no nonchalance, play, or humor, but first and foremost concerns about safety and presence. Many parents in this study refuse the un-thereness of VR in different ways, even if it means not using the device at all if

⁷⁰³ Heidegger 2012.

they cannot feel present enough, or safely un-present with children in the home.

Casetti argues that the medium activates our senses in specific ways, which then becomes “...a mode of seeing, feeling, reflecting and reacting...”⁷⁰⁴ through the medium. As a device, the VR HMD provides an organization of the sensuous, which allows the user to remain in place while seemingly being removed; a being in place that is both here and not here. For VR to work as a medium, users interact with the virtual environment as if they were removed from their place of being. That emplacement is both sensuous beyond the visual and even the sensory; it engages the user’s sense of being in place. Casey formulates our being in the world as the body engaging in the process of emplacement: “*At the very least, we can agree that the living-moving body is essential to the process of emplacement: lived bodies belong to places and help constitute them. Even if such bodies may be displaced in certain respect, they are never placeless.*”⁷⁰⁵ Remaining as a practice of navigating one’s Ektopic emplacement through immersive media such as the VR HMD is a question of the phenomenology of distance as our way of ordering and making sense of the world. Ektopic emplacement disrupts the distance between places. This being in places must be handled by the embodiment of the user, who navigate the fluctuating multiplicity of place.

⁷⁰⁴ Casetti 2015, 5.

⁷⁰⁵ Casey 1996, 24.

6. Final Discussions

There is a geographical notion that we are in one place at one time. Trigg formulates it as “*we are situated in the world, inasmuch as we occupy a particular place.*”⁷⁰⁶ Trigg also says, rather jokingly, that we are seldom in more than one place. However, by considering the phenomenology of being in place through immersive media technologies such as VR HMDs; objects that we can inhabit, that reshape and distort the spatiality of our being in place, and that affect our embodiment and how we encounter our socio-spatial context, we find that our emplacement is all the more complex and speaks to a being that is in more than one place. This analysis of Ektopic emplacement diffracts domestic VR usage, holding it up as a prism to reveal the multiple ways that being in place is remade through the exploratory usage of VR HMDs as an emergent medium. To understand how these emerging spatial relations are formed, negotiated, and navigated, I began by establishing being through VR HMDs as a being in place; attending to boundaries and multiplicity as affecting the user’s sense of place. This emplacement is marked by taking in the spatial perceptions of the VR device and the user’s embodied movement that adapts to a shifting leaving while remaining, moving while staying. The relationship between the user, device, and place is examined through the new sensuous experiences and frictions that emerge from user bodies connecting with the VR HMD, and how the domestic setting of the home provides a specific context that highlights the multiplicity of place through relationships of intimacy, care, and responsibility.

In this final chapter, I discuss the contributions made by this thesis through three main points. First, I examine the empirical results on domestic VR HMD usage and consider how they challenge immersion as the main conceptualization for the spatial relations of VR. Second, I describe how the concept of Ektopic emplacement enhances our understanding of our being in the world with and through technological objects. Finally, how these contributions provide new lines of inquiry into place and how emplacement is affected by digital technologies for digital geographies by reframing the being in digital and virtual places.

⁷⁰⁶ Trigg 2012, 6.

6.1 Empirical Contributions

I began my inquiry into VR HMD usage with an observation of something that is blatantly obvious: while immersed in a virtual reality through their VR HMD, the user does not leave their physical place as they enter a virtual one. Rather, the user is seemingly in a strange state through their VR device, elsewhere while remaining, present while being not present, away yet here. This strange emplacement forms the basis for challenging immersion as the main spatiality of VR technology and the starting point for this thesis; I sought to understand how presence in the virtual is facilitated and achieved through the process of immersion, and how immersion in the virtual place depends on the simultaneous navigation of the physical place of usage and an ongoing negotiation of boundaries between the virtual and physical places. Being in place through VR technology means being in dual places. While previous studies on VR technology and VR HMDs have emphasized themes such as embodiment and movement in virtual spaces, I have gone beyond what VR does to place through a phenomenological inquiry of what VR HMD usage does to our sense of being in place. My thesis has three empirical contributions. First, the empirical materials on user practices establish a human geography-based critique on immersion. Second, it shows that the physical context of VR usage impacts VR usage, which is why these novel empirical results on the domestic context provide insights into VR usage relevant beyond human and digital geography. Finally, the empirical results show that VR is a mode of being in place navigated by users, highlighting the need for spatial thought in inquiries into connections between devices, bodies, and places.

First, this thesis focuses on VR technology usage as a spatial practice beyond immersion. Previous studies of VR, which conceptualize being in VR through immersion rests on ontological assumptions of virtual spaces and places as other and separate, distinct from our usual reality. The empirical results and analysis in this thesis show that immersion is simply not enough to explain the complex processes involved in emplacement and embodiment in VR usage. Rather, “...*presence in VR becomes a question of a multisensory enfolding of different spatialities and embodiments that are always emerging in the moment.*”⁷⁰⁷ Here, it is necessary to include the physical place of usage and spatial context of VR usage, which has not received sufficient empirical attention in VR research. VR technology has been understood as a technology for leaving physical places and going into virtual places. The empirical material

⁷⁰⁷ Osborne and Jones 2022.

of this thesis shows that movement and mobility in VR are complex, multiple, and conflicting simultaneously in virtual and physical places. Moreover, users of domestic VR do not necessarily want full immersion into a virtual reality. Rather, they constantly seek to regulate the level of immersion they experience. This involves various strategies: anchoring oneself in place through other objects, breaking with immersion based on the affordances of the device, such as the nose gap, and utilizing other devices to break through immersion. The empirical results show that rather than perfecting immersion into a virtual space, users' experiences of VR HMDs entailed a constant navigation and negotiation of the immersive properties of VR technology as it came up against their emplacement within their physical environment. The boundary work between the virtual and the physical place related to the presence and non-presence of others, which was confused by the immersive properties of the VR HMD. The home introduced its own multiplicity, different from using VR HMDs in a public place.

Second, by choosing the home as the site of fieldwork, this thesis explored domestic usage as a genre of VR HMD experience beyond industry, work settings, and classrooms. The home is an operationalization of place, somewhere where VR users can manipulate the environment to fit into their desired VR HMD practice. The spatial relations of the home provide a distinct multiplicity, a combination of elements, bodies, and relations exclusive to the home, such as home décor, domestic partnerships, pets, and parental relations that VR users navigate in relation to their emplaced VR usage. The VR devices tie into the existing multiplicity of the home; they connect to other devices and tie into relations of the home. However, they also change the multiplicity of the home by introducing the ektopically emplaced user: a moving body both there and not there, a presence that, while anchored in the spatialities of the home, is blinded to other bodies and objects moving about that place. Being with and through immersive media can allow for detachment, while remaining, and this is especially noticeable through the context of the home.

Third, the attempt to capture the multiplicity of the home as a place for VR usage provides a relational approach to understanding the home as a place, as well as the relations between user bodies, VR devices, and places. The analysis extends the discussion on user bodies entering virtual places through VR HMD by considering the user's emplacement in the physical place of the usage area and the socio-spatial context of the home. The ethnographic approach focusing on the sensuous emplacement of the user body reveals connections, frictions, and couplings between bodies, devices, and places, providing for new forms of being in place, embodiment, sensuousness, and

distant presence. Emplacement with and through devices conditions the sensuous experience of users on the level of the body as well as users' sense of place on a level of phenomenological safety and spatial awareness; the need to recognize where one is so as not to feel lost, displaced, and confused. This is not to say users in this study were not disoriented at times, given that VR can be understood as a voluntary, brief disorientation. However, the analysis shows that VR users want to feel they are in contact with place, safe from harm, and anchored. Studies of immersion in VR have used different ways measure immersion in VR as a result of feeling presence in the virtual place. Presence in VR in a domestic setting is inseparable from the surrounding home environment, that is, the physical place of usage. While immersion is still a result of feeling present elsewhere, it is complicated by the sensuous experiences and wants of the users (such as feeling overwhelmed, shut in, or engulfed) and having to keep one's own body as well as others safe. Rather than total immersion, users strive to navigate being both in the virtual and the physical: an Ektopic emplacement.

To summarize, the empirical contribution of this thesis lies in expanding the understanding of the complexity of being in place through immersive media such as VR HMDs. To explore how this affects VR user experiences of being in place, sensuous ethnography and a diffractory approach were deployed to explore user experiences of VR technology in the home environment, and bodily connections to places and devices. Through abductive analysis, I have allowed for not only theory to steer this understanding, but also that which is made important through user practices to surface. These diverse frictions and connections evolved into the phenomenology of the Ektopic, answering to the need to conceptualize being with and through immersive media devices and the shifting emplacement of the user navigating and negotiating the being in dual places.

6.2 The Phenomenology of the Ektopic

The primary theoretical contribution of this thesis is the introduction of the concept of Ektopic emplacement as a mode of being in place through immersive media technologies. Ektopic emplacement is paradoxical as it refers to displaced emplacement: someone who is ektopically emplaced is not here, while here, they are out of place, and also in place. Theorizing the VR user's emplacement as Ektopic, captures the experience and sensuous practice of being in place and out of place simultaneously with and through devices. The Ektopic is deployed to examine the multiple dimensions, processes, sensations, and doings of the people in this study. By the themes of boundaries, movement, sensuousness,

and remaining, the Ektopic is introduced as a processual, phenomenological approach to the spatiality of being with and through immersive media. Ektopic being in place is not about comfortably dwelling, but rather accepting risk to the body, opening up for harm. The user is actively negotiating and navigating a strange position in two places simultaneously. It is demanding and requires continually negotiating exposure, vulnerability, and spatial awareness. The Ektopic is about leaving behind something, while remaining, anchoring oneself to go.

Two main tensions characterize the Ektopic: first, the experience of being emplaced in dual places through immersive media devices. Second, the user body's inhabiting of objects, which allows for merging with technological objects to affect the user's own embodied being in place. Core for these processes is emplacement and embodiment. While these cannot be fully separated, the body is always emplaced, and emplacement always entails embodiment; they give each other in different ways as they encounter places and objects. These brethren concepts cannot be explained solely through directions; emplacement cannot be reduced to recognizing forces of the outside positioning someone, and embodiment is not just how the body responds to and relates to the world. As a geographer and phenomenologist contemplating whether emplacement and embodiment should be privileged, whether place or body comes first, it is a chicken-and-egg situation. We encounter place (through embodied experience), and answer it with our bodies (which are always emplaced).

By emphasizing emplacement as a condition of Ektopic being in place, I aim to show users inherent spatiality: they are never without place, even when aspects of place, such as boundaries and multiplicity, become supercharged, blurred, or veiled through technology. While the body is always emplaced, it is in place and relates to that place; the specific place and context matter. The emplaced body encounters places sensuously; the home, work, away, captured, and free are all embodied through what those places implicate for the specific body. Ektopic emplacement is about how the frictions and pleasures between body and place are affected by emplaced displacement through immersive media technology. Ektopic embodiment is about how the body meets, knows, reacts, handles, and moves within and between dual places simultaneously. With that said, Ektopic emplacement is not being everywhere all at once; it is a singular embodied emplacement that is simultaneous and shifting between two places.

In VR specifically, the places navigated and negotiated are a virtual place and a physical place. These places differ in their material expressions and the socio-spatial conditions. The distance between these two places is not a set

measurement, but in a state of flux. The user can spend quite some time to enhance their immersion into the virtual; setting up their usage area, familiarizing themselves with their device to achieve a sensation of being teleported into a virtual place. However, the distance between the virtual and physical place can suddenly disappear, and the physical comes crashing back through either social or spatial conditions, making itself present.

Ektopic navigation requires constant negotiation with the body as the *metaxu* – the in-between. Since the one living, sensing body is emplaced in a way that makes it present in two places with and through the immersive media device. The embodied practice of Ektopic emplacement does not create a separate, liminal space or place, but rather a practice of *being-in-between*. Media is the disruption and renegotiation of distance. The Ektopic concerns how the user's emplacement is affected by place mediation. Hence, there are further possibilities for inquiry into technologies that provide for presence in more than one place through immersive media. What other Ektopic media and practices can be found in today's digital landscape? One of the most consequential examples is technologies of war, such as drones flown through VR technology, providing for an *Ender's Game* like dystopia. In this sense, Ektopic media functions as a tool for displacement; it invites disruptions and unsettles the ontological security of understanding and relating to one's position. While Ektopic technologies can generate an initial exhilaration by producing a sense of being elsewhere, there is an eerie property to places appearing to close, to suddenly. If distance is central to how we perceive the world as lively, then disruptions of that distance, as it relates to our being in place, demand careful examination.

Ultimately, Ektopic emplacement emerges from being with and through technological objects that affect spatial perceptions and relations. In being with and through devices, users are affected by as well as take on the emplacements and perceptions of the devices and incorporate them into their own emplacement and embodiment. The analysis demonstrates how devices' emplacement, perceptions, and sensibilities shape the user's sensuous navigation of socio-spatial relations. By focusing on the phenomenological being in place the concept of the Ektopic pushes conceptualizations of VR spatiality beyond the reiteration of what kind of place VR technology produces: virtual, real, immaterial, or other. Instead, it advances engagement with virtual and digital places, devices, and bodies, relations to them, and practices within them, without them becoming trapped in ontological taxonomies of the virtual, the digital, and the real.

6.3 Moving Digital Geographies Forward

We are increasingly in the world with and through devices. This affects our embodied sense of being in place and our geographical imagining of reach and spatial relations among places. In the 1990s and 2000s, when geographers approached these spaces and places seemingly emerging through technologies such as computers, the internet, and VR technology, they got caught up in discussions of the qualities of these places. While the field of virtual geographies tried to conceptualize virtual spaces and places as inherently different from the physical, material, and real, the successor field of digital geographies has focused more on the articulations and ongoings of the digital. One could argue that while studying the spatial implications of how the virtual/digital dissolve and reconfigure distances between places into spaces, there has been less attention paid to what it means to be in place with and through immersive technologies. VR is suggested as a possibility to approach and encounter the material within digital geographies.⁷⁰⁸ While immersive media technologies change how places appear to and before us in a phenomenological sense, I have made a point not to talk about what places become within themselves as they are affected by technology. Instead of creating taxonomies of places as virtual, digital, material, real, physical, liminal, separate, I have proposed emplacement as a productive way to approach these places, through how being in them is a spatial experience. This approach also reaches beyond the human body: users as well as devices such as VR HMDs are emplaced and have needs and preferences for their orientation. Though the phenomenology of inhabiting objects, being with and through them, I have explored an alongside-ness with technological objects and devices in place that do not claim to understand their experience (if they have any), but how the emplacement of these objects and devices affects the user's sense of being in place.

Emplacement offers a way forward for digital geographies grappling with how to conceptualize the spatialities of digital and virtual places, grounded in the recognition that everything that is in the world is emplaced. Humans and non-humans, bodies and objects, animals and technological devices all share a fundamentally spatial relation to the world. Emplacement is always affected by the boundaries of place as well as the multiplicity of places as they assemble, gather, and form complex configurations. This is not to say that there is a phenomenological imperative; such inquiries need not necessarily attend to the experiences of these emplacements. Rather, the central concern is how our

⁷⁰⁸ Turnbull et al. 2023.

emplacement is increasingly altered through being in place with and through technological objects that disrupt distance – either by gathering, throwing together, imagining, sensing, confusing, or blurring what is present, what is ongoing here, and how it relates to elsewhere. It is a return to basic ontological geographical inquiries, such as *where am I? where is here? what does my being here mean?* as they are affected by technological development. It is a question about distance in the Heideggerian sense. Traversing distance keeps the world alive, and boundaries provide for a certain type of friction as they mark the transition from here to there, from there to here. Being with and through objects that affect that basic ontological sensation – the feeling of here, therefore calls for careful intervention.

This thesis introduced Ektopic emplacement as a sensuous, embodied being in places through VR HMDs. Ektopic emplacement and embodiment are not confined to the context of VR, but relates more broadly to how we experience, practice, and understand simultaneous being in digital, virtual places, while remaining in the physical place. It speaks to the sensation of dislocation that immersive media devices bring about; that the separation between digital, virtual spaces and physical places is not total, but rather continuously navigated and negotiated. This shifting reach, that we are here while not-here at the same time, also challenges the foundations of phenomenological understanding. It signals an ontological shift that is felt through user practices and sensibilities and is evident in how these digital and virtual spaces and places are conceptualized. The Ektopic thus offers an opportunity for geographers concerned with the digital an opportunity to recognize being in place in the digital age as fluctuating, contradicting, and shifting: a transgressive mode of being in place.

Taking seriously our being in place through immersive media, while recognizing we never leave our physical emplacement, also requires acknowledging place as meaningful for digital geographies. While discourse on the digital and media often privileges space, place grounds our experience of being in the world: place has limits. Even though place is thrown-together, and has gathering powers and gravity, place does not take anything thrown at it. It cannot be reduced to everything. The multiplicity as a way of understanding place highlights that place is not just defined by what is present, but by what is not present. The point of attending to boundaries is not to establish order, but to acknowledge that being in place is always recognizing that there is an *in* and

an *out* of that place. What Bachelard calls the “*unfortunate adverbs of place.*”⁷⁰⁹ I argue that multiplicity and boundaries are essential to conceptualizing places, whether digital or physical. Even though I agree with Massey that boundaries are malleable, they need to be taken seriously and as a condition of our being in place. Boundaries produce difference by marking an inside and an outside. Boundaries are powerful; they can contain, refuse, and kill both the human and nonhuman. Haraway warns us that science should not be a game of rhetoric.⁷¹⁰ And writing boundaries out when they are at work would be such a thing. Concluding that boundaries mark the end of place is not to say that we need boundaries to be upheld and defended. But if we do not recognize boundaries, we cannot recognize ourselves, things, and processes as being *in or out* of place, or understand how transgressions occur. This perspective also opens up new avenues for further research into domestic VR. This thesis has not touched upon the global ties of domestic VR practice by production chains, how the Ektopically emplaced users can, through VR technology, reinforce and visit geographical imaginations, and how the VR HMD has cameras filming the inside of domestic spaces in a time of technopolitical authoritarianism. There is, of course, a global power geometry to VR technology, for whom is it leisure, and for whom is it encountered in the shape of drones and other technologies of war? The emerging intersection between immersive media, gaming, and war technologies could provide an entry point for examining how boundaries not only play out in a phenomenological way but also at the scale of geopolitics. Approaching VR HMD usage as a mode of being in place, both empirically and theoretically, underscores the inescapable materiality and complexity of being in place: attending to dislocation, distance, presences, non-presences, and boundaries to understand place and emplacement in the digital.

⁷⁰⁹ Poetics of Space, 212 in Casey 1997, 293.

⁷¹⁰ Haraway 1988.

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Materials

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Observation Vincent. 2024. Material - Vincent.
Observation Wilke. 2024. Material - Wilke.

Appendix 1 – Interview Guide

Interview guide VR in the home

User

Name, age, gender/pronoun, Alias in study

Household:

Others living in the household? (partners, pets, kids)? How long have you been living there?

When did you get VR? What made you consider getting it? Do you remember the first time you tried VR? (this kind of VR?) Any special occasion? How has your VR usage changed over time? Frequency of playing, what type of usage? (games, movies, travel, ect)

Social

Shared Household: Who uses VR in the household? Do you play together with anyone? What do you do one someone else plays? Kids relation to VR? Pets relation to VR?

Shared Household+Single Household: Do you use your VR together with anyone? Have you ever invited someone over to try the VR? Do you play or use your VR with others online?

Site of audiencing

Where is your playing area? Which room? What made you decide on your usage area? Do you move around or are you always in same place? Does it matter what you are playing, if standing or sitting? Did you try different places?

What was the space used for before? Do you use it for other things now? What is good about it? Does it have any cons? Do you need to prepare it in any way for usage?

Limitations? Is there a time in the day that doesn't work for using the VR? (environmental reasons? social reasons? or people needing the space for something else?) Are you more or less likely to use the VR when others are at home?

Tech/Body/Place

Why did you buy this particular model of VR? Did you change any parts/modify it in any way? It there anything in the design that you don't like?

or that is uncomfortable? Do you have something you would like to change or switch? If there weren't restrictions on money or space, is there something you would like to get for your VR HMD or VR usage?

Do you have any extra gear?

Have you had any technical difficulties? Something that stopped working?

How did you fix it? Did you need any support? (if yes, where did you turn)

Have you had any accidents while playing? Did you ever hurt yourself?

Anyone else?

Bodily sensations when using the VR? such as feeling disoriented? (getting dizzy, overheated, dry eyes?) work out pains? Rashes?

Do you have any occasion of using the VR that you especially remember? Have you ever gotten scared while using the VR HMD?

How often do you need to redo your setup?

What do you wear to use the VR? Are there clothes that do not work for playing in? What do you do with your phone when you play? Connectivity with other media, like tv, computer, wifi?

What does your avatar look like?

Site of image/where do you go

What do you like to do in VR? Where would you go when you put on the VR right now? Could you describe that place? What is your favorite place in VR?

What kind of activities have you tried in VR gaming, Art, travel, sports, workout, and watch movies?

Site of circulation/in-between digital spaces

Where do you find new games/things to do in VR? Do you follow any VR news or channels connected to software or hardware? Youtube, discord, reddit, twitch, etc? Have you ever worked with VR in any capacity?

Imaginings/futures

Where do you see VR going in the future? (the role of VR) What do you think should happen with VR?



Ektopic

Our everyday geographies are increasingly entangled with digital spaces, technological devices, and spatial media. One such device is the Virtual Reality Head Mounted Display (VR HMD), which in recent years has become accessible for casual users.

Through ethnographic methods, this thesis explores VR users' everyday practices and experiences. Applying a theoretical framework of place theory and phenomenology, spatialities of VR usage are analyzed as emplaced and embodied practices of navigating, not a transition from a physical place into a virtual one, but a being in dual places.

The results show that presence in digital place through immersive media should not be reduced to sensations of being removed, nor illusions of being virtually elsewhere. Rather, the physical environment and the sensuous connection with devices are instrumental for users' sense of being in place.

This thesis introduces Ektopic emplacement as a phenomenological theorization of being in place through immersive media. The Ektopic is explored as a mode of being in places with and through technological objects. The Ektopic is developed in response to the fractured sense of place brought on by immersive media and to consider the devices we use in our everyday life and enjoy to condition our being in the world.

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