



Embodiment and the Boundaries Between Us in Virtual Reality

A critical analysis of inclusivity in social virtual reality environments

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Abstract

Virtual Reality (VR) is considered the next major communication tool and its potential has been described as “a ubiquitous force and as pervasive and transformative as the internet was in the 90s or the smartphone was in the 2000s” (Somasegar, 2016). Social spaces in VR (SocialVR) are at the forefront of developing new possibilities in communication that could offer greater connection and understanding between people around the world.

The aim of my research is to identify the dominant discourses in SocialVR spaces, which also involve solutions for inclusivity, to reveal embedded power-relations that are currently defining bodily boundaries and identity. The research questions I pose are:

- 1. What discourses are currently defining embodiment across different SocialVR spaces?*
- 2. How are these embodied experiences configuring notions of self?*

My research stance, as a woman of colour, was a fundamental feature in this study and I have used my perspective as a basis to gain a wider insight into the phenomena of SocialVR. In obtaining my empirical data, I combined the methodologies of Multimodal Critical Discourse Analysis and Analytic Autoethnography. This enabled me to examine the dominant company discourses of different SocialVR spaces and assess my personally embodied experience in relation to them.

The fusing of human experience with technology is implicit in virtual embodiment. Therefore, a robust theoretical lens is needed to examine the dynamics between identity and technological renderings of embodiment in SocialVR. The theory of agential realism acknowledges the vital role that techno-scientific practices play in the workings of power, and how it informs the constitution of boundaries between people. As an analytical tool, agential realism provides a fitting a framework to address how bodily boundaries and one’s sense of self come to matter in SocialVR.

My findings lead to a surprising insight into the resilience of socio-historic power-relations in spite of strongly opposing intentions, and it points to the importance of understanding the historical constitution of technology and application methods, if change is going to be meaningfully enacted. The success of a SocialVR environment as an inclusive space is based on clearly structured contexts of socialising. By placing certain performance limits on what is possible in a space, the creators are able to focus on constructing meaningful experiences that can be reflected in both the type of avatar embodiment they offer, and the corresponding embodied experience.

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1. Introduction

Virtual Reality (VR) is considered the next major communication tool and its potential has been described as “a ubiquitous force and as pervasive and transformative as the internet was in the 90s or the smartphone was in the 2000s” (Somasegar, 2016). Due to its immersive nature, a great deal has been spoken about VR’s potential to evoke empathy (Milk, 2015). Social spaces in VR (SocialVR) are at the forefront of developing new possibilities in communication that could offer greater connection and understanding between people around the world.

As big technology players including Facebook and Google have become involved in VR development, the majority of industry stakeholders continue to come from existing positions of power in society. In other words, they are white, western and middle to upper class males. The industry has been actively working to diversify its demographic, particularly in regards to gender (Dominguez, 2015). However, due to VR’s close connection to gaming, the social issues that are prevalent in gaming culture are manifesting themselves in VR environments. One of the most infamous stories to surface was the sexual harassment of a woman in VR (Belamire, 2016). After this revelation, SocialVR companies responded by implementing features to protect users.

The aim of my research is to identify the dominant discourses in SocialVR spaces, which involve solutions for inclusivity, not only in regards to gender but also ethnicity and culture. As VR is positioned as a prominent feature in the future of communication, I believe it is important to reveal embedded power-relations that are currently defining bodily boundaries and identity, and to discuss how these practices may or may not be at odds with creating inclusive environments. Therefore, the research questions I pose are:

- 1. What discourses are currently defining embodiment across different SocialVR spaces?*
- 2. How are these embodied experiences configuring notions of self?*

My research stance

I am film professional transitioning into the field of Virtual Reality experience design and creation. I started my VR journey two years ago. As an artist, I found it exciting to work at the beginning of a new medium that is still relatively wild in both its form and communication grammar. However, I am sceptical about the utopian hype surrounding VR.

I identify as western and English is my mother tongue, but my scepticism is symptomatic of my life perspective as a woman of colour. Due to western society’s largely hegemonic depictions in the media, which generally position me as ‘the other’, I have at times been painfully aware of the body I live in. This has led me to always look at situations critically. As such, I come to the topic of embodiment in SocialVR with an ‘oppositional gaze’ (hooks, 2013).

My study

My study is prefaced by my literature review, which discusses current theories related to human phenomenology, the constitution of VR technology and practices of embodiment in VR. Informed by this discussion, I used my research stance to measure inclusivity in SocialVR spaces. In obtaining my empirical data, I combined the methodologies of Multimodal Critical Discourse Analysis and Analytic Autoethnography. This enabled me to examine the dominant company discourses of different SocialVR spaces and assess my personally embodied experience in relation to them.

The fusing of human experience with technology is implicit in virtual embodiment. Therefore, a robust theoretical lens is needed to examine the dynamics between identity and technological renderings of embodiment in SocialVR. The theory of agential realism acknowledges the vital role that techno-scientific practices play in the workings of power, and how it informs the constitution of boundaries between people. As an analytical tool, agential realism provides a fitting a framework to address how bodily boundaries and one's sense of self come to matter in SocialVR.

2. Literature review

The existential potential of VR

My exploration into what virtual reality embodiment means for human experience, started with reading Haraway's 'The Cyborg Manifesto' (2000). In this text, Haraway politically reflects on the convergence of human and machine, arguing that new technologies offer the potential to transform our very understanding of existence. She posits that communication technologies are crucial tools in re-crafting our bodies, because they embody and enforce social relations and meanings (p 161). Haraway states, "Social reality is lived social relations, our most important political construction, a world-changing fiction" (p 149), furthermore, territories of production, reproduction and imagination are the stakes in the continuing border war that defines our social reality (p 150). Haraway argues that if we are to think about new communication technology as a unifying tool, then the notion of identity needs to be rethought. She asserts that, identities are the arduous recognition of their social and historical constitution; they seem contradictory, partial and strategic (p 153). The conscious exclusion through naming race, gender, and class, "cannot be the basis for belief in 'essential' unity" (p 153). Haraway positions the organic world, the machine and the self as parts of a whole that through conscious blending and habitual actions can have the power to change outcomes of existential experience including that of identity. Haraway's viewpoint applied to VR embodiment shows this to be a new battleground between reinforcing and redefining the notion of identity and existence.

Reflecting specifically on existential experience in virtual environments, Gualeni (2016) philosophically tackles the technical and cultural heritage of VR by unpacking its potential as a tool for self-construction and self-discovery (p1). He theorizes that software and hardware components needed to successfully offer an immersive life-like virtual experience could only be designed within conceptual frameworks, which are rooted in our understandings of the real world (p 8). Accordingly, he posits that, in the current age of digital mediation, one of the most evident aspirations guiding the advancement of VR and video game technology is to create a convincing "illusion of a world" (p 3). Virtual worlds can be understood as practices that enable our specific world views, ideas and beliefs to be realised. Therefore, how we design and attribute cultural values to virtual worlds can be considered markings of critical evaluations (p 4).

Using Haraway and Gualeni's writings as a basis for understanding VR as an existential tool, led me to look at the historical and cultural constitution of VR technology itself. Historically VR as a medium steamed from privileging the eyes followed by the hands, while the rest of the body's sensory perception were considered either unnecessary or purely peripheral to the aim of constructing a virtual reality (Murray & Sixsmith, 1999, p 317). Vision in general has been deemed as the finest sense, given that numerous scientific achievements in understanding our world have been attained through optical technology like the microscope and telescope. Therefore VR technology can be seen as a perpetuation of western scientific tradition (p 317). In reference to this tradition, Murray & Sixsmith argue that the body's existential grounding is in culture (p 320). They illustrate this by pointing to that fact that while the western world has divided the body's sensorium into five senses, some societies have the ability to identify as many as seventeen bodily senses (p 321).

Murray & Sixsmith make the point “that if VR had been developed within a different cultural context, different aspects of our sensorial world might have been a more prominent feature of VR experience” (p 321).

Murray and Sixsmith also argue that VR is a gendered space. They state that VR’s potential as an embodied sensory experience is arranged within the confines of a predominantly white, western male sensibility (p 321). As with the cultural issues of embodiment, they state, that if developed outside of the male model, VR would be configured differently. They give the example of Char Davies who brought her feminist understanding of the body into the construction of her ‘Osmose system’. This system is a virtual reality structured around a breathing mechanism to enable movement rather than using handheld controls. Moving in this virtual environment (an ocean-scape) requires the user to adopt an assortment of breathing techniques, therefore enabling a very specific sensory experience that is characterised “through the tactile-kinesthetic body, rather than the purely visual one” (p 321).

A clear example of Murray and Sixsmith’s arguments can be seen in a study into motion sickness experienced on Oculus Rift VR Headsets. Munafo et al. (2016) came to the conclusion that this technology was sexist, given the clear disparity of motion sickness affecting women compared to men when using the device (p 900). Their research is based on ‘postural instability theory’ that looks at an individual’s postural sway, small and subconscious movements people make to stay balanced. Research found that people more susceptible to motion sickness sway differently and there is a measurable difference in sway between men and women. This difference can be attributed to factors such as height and centre of balance (Manson 2017, p. 4). Another theory of motion sickness in VR has to do with the users ability to perceive 3-D motion. Research has found that women are generally better at perceiving 3-D motion, hence making their sensory cues more sensitive, and this can lead to motion sickness (p. 4). Females however are not the only group to have heightened motion sickness sensitivity, as some research suggests Asians are also more likely to be affected (p. 5). Before one even looks at the specific design practices of different VR applications, it is clear the base technology itself as an embodied experience “is simultaneously and inescapable a social, ethnic, gendered, and cultural one” (Murray & Sixsmith, 1999, p 322).

The corporal body and human experience

The work of Maurice Merleau-Ponty a French phenomenological philosopher has greatly influenced contemporary theorists working with the notion of human embodiment and experience. Merleau-Ponty saw the body and mind as an integrated system. He believed that it was impossible to separate one’s human experience and knowledge from the body, which physically felt the world (1962, p 87). Subsequently Merleau-Ponty contributed to a movement within cultural theory that argues we cannot understand who we are or process our lived experience without reference to our own embodiment (Murray & Sixsmith, 1999, p 320). In terms of VR, this perspective has important implications (p 320).

Metzinger (2006) proposes that there are three distinguishable aspects of embodiment which human’s possess. First-order embodiment applies to all animals, meaning we are a body with definite physical characteristics. Second-order embodiment applies to

all but the simplest animals in that we have integrated sensorium and motor systems that enable our bodies to function without the need of conscious attention. Finally third-order embodiment is limited to a few animals, it is ‘body image’, the mental representation we possess of ourselves (p 2). Research has shown that our perception of what belongs to our body is actually very flexible; a classic example is the blind man’s stick that is incorporated into the body schema to gain sensory information. The ‘technology’ of the stick is essentially part of the body during its use rather than being part of the world surrounding the body (Waterworth & Waterworth 2014, p38).

To gain a clearer understanding of how the brain processes changes to the body and the notion of self, Murray & Sixsmith (1999) researched ‘disrupted bodies’, which included people who were amputees, people born with congenital limb absence and people with paralysis. They found that amputees and people with congenital limb absence both experienced ‘the extended body’ when using prosthetic limbs much like the blind man’s stick. Paralytics experienced ‘the receding body’, where many described their embodiment as “feeling like a balloon floating in space”. In these cases, bodies were seen by their owners as dysfunctional objects that were difficult to identify with (p 332). Murray & Sixsmith note that findings such as these demonstrate the importance of “authorship of action”. If one can exert control over their body, they are more able to identify with it (p 333). In relation to a person’s sense of self Murray & Sixsmith concluded that,

Changes in sensory information that come with amputation, the embodiment of prosthetics and paralysis take time to crystallize into a concise body psyche, where upon a sense of completeness allows a reliable body image once more (p 333).

In relation to VR, these finding mean that the disorientating sensory changes that may come with virtual experiences would also require time before a coherent virtual body is felt (p 333).

Similarly to the notion of ‘the extended body’ Waterworth & Waterworth (2014) reiterate the human brain’s flexibility in redefining the body and propose the concept of ‘expanded embodiment’ (p 33). They state that VR as a technology gives us the perceptual “illusion of non-mediation” and as such, tricks our brain into expanding the mental body beyond the physical one, changing the boundaries “between the self and the non-self” (p 33). Through expanded embodiment a new type of corporality enables us to perceive and interact within a virtual world.

The seemingly contradictory notions of knowledge being fundamentally linked to our bodies, and the brain’s flexibility in reconfiguring bodily boundaries, led me to ask the question: if our sense of corporal self is shifted in VR, then what are the implications for our sense of identity? Ng’s (2010) framework of ‘derived embodiment’ offers a way in which to think about identity in VR. She argues that the “interrogation of post-human identity should be conducted through a more nuanced strategy of slippage between real and virtual worlds” (p 315). Ng states, that the avatar channels sensory perception specifically derived from the user’s body to navigate the unique behavioural possibilities available in the virtual environment. Therefore, “the transmission of information between user and avatar is not only of digital data but a unique enmeshing of physical perception and derived embodiment”

(p 316). The unique behaviour of the avatar also functions within knowledge derived from the user:

Specifically in terms of personal space, social etiquette, spatial awareness and bodily integrity. This secondary information –the derivative –thus drives the identity of the avatar –not a post-human construct of disembodied digital data, but one which carries with it derived bodily information” (p 316-317).

By mixing the user’s sensory perception with virtual embodiment, one’s knowledge and sense of self emerge simultaneously through both the body and the avatar (p 317) in a distinctive configuration framed by the virtual environment. In effect this creates a derivative self, separate from that of the user’s real world self.

Edgar (2016) reaches a similar conclusion in his study of “Personal Identity in Massive Multiplayer Online Worlds”. He argues that the body and world function as a meaningfully integrated system, with the physical capability of the body shaping how objects are meaningfully understood in the world. He continues, that in a virtual world the avatar is a “transcendental condition” enabling “the flesh and blood person” an opportunity of meaningful interactions that are only possible in the virtually constituted environment (p 58).

Edgar uses social interactionism theory to propose an explanation of selfhood that enables a virtual persona to be interpreted as a distinct self (p 58). He states, that to be self-conscious is to reflect on and internalise the critical gaze of the other, which not only orients an individual’s perspective but also draws attention to the social structures that encompass this perspective (p 59).

The avatar thus constitutes a virtual world, and acts in it, through the internalisation and negotiation of the gaze of the other. The self and world are thus reciprocally constituted inter-subjectively and imaginatively (p 60).

The body as a text

The notion of ‘gaze’, its constitution and effect on our bodies, permeates academic theories. Butler (1988) believes that, “As an intentionally organized materiality, the body is always an embodying of possibilities both conditioned and circumscribed by historical convention” (p 521). Accordingly Pontes de Franca & Soares (2015) argue, that in a virtual environment the self appears as a discursive construction made possible by semiotic mediation that influences social norms and regulates actions. Human experience is processed through one’s knowledge of the physical world, including her/his own corporeal experience and in the construction of identity reality pervades the symbolic (p 6446). In VR the body is semiotically modelled and shows itself as part of the process in which, tensions and links unfold as possibilities and where meaning is created (p 6447). Therefore, Pontes de Franca & Soares believe that “semiotic mediation is indispensable when thinking about and supporting our practices in virtual environments” (p 6444).

Studies have shown that the semiotic features of virtual bodies are important to a user’s sense of self in VR. When people are virtually embodied in a body different

from their own, their behaviour becomes connected with the attributes of their virtual body (Banakou et al. 2016, p 2). Yee and Bailenson (2007) refer to this as the ‘Proteus Effect’. For example, when a virtual body possesses a more attractive face, the participant’s actions in VR are friendlier and they stand closer to other avatars than when their virtual face is less attractive. People also tend to become more aggressive in negotiations with others if their avatar is taller (p 285). The ‘Proteus Effect’ can lead to the assumption that being virtually embodied in ‘the other’ can psychologically allow people to become more empathetic towards another’s real world experiences. However, in a study by Groom et al. (2009), they found that when white participants were embodied in black bodies in a virtual job interview scenario, their implicit racial bias after the experience was greater against black people than if they were embodied in a white body during the experience. Groom et al. state that this finding is consistent with ‘stereotype activation theory’ (p 244), which posits:

Because stereotypes are well known, when stereotypes are activated in the presence of a stereotyped other or symbolic representation, implicit measures reveal bias, even in those low in prejudice (p 234).

A study by Banakou et al. (2016) used a similar premise of embodying white participants in black bodies and measuring implicit racial biases before and after the virtual experience. Contrary to Groom et al. they found:

After one exposure for those embodied in the Black virtual body the mean implicit bias against Black decreases compared to those embodied in the White body. Second, the reduction is sustained for at least 1 week (p 9).

The important distinction between these studies was the difference in setting. As opposed to a job interview context, which has an inbuilt power-relation dimension, the latter experience was a Tai Chi class where participants were focused on their own virtually embodied movements (p 9).

The findings presented by these studies reveal important implications linking the salience of race and the context of VR application design to an extended affect on the real world self.

Design boundaries

In a study exploring the concept of self-representation in VR, Pritchard et al. (2016) began with a common strategy to divide the experience of self into three components: ‘embodiment’ which is the experience of inhabiting a body, ‘agency’ which is the experience of causing actions and events to happen, and ‘presence’ which is the experience of actively being situated in an environment (p 1). Their study investigated these three distinct components in relation to the cues of FORM (the shape of embodiment), TOUCH (the participants ability to touch objects in VR) and OFFSET (the visual proximity of a virtual hand in relation to the participants real hand position) (p 4). Their findings included: that a direct visual association of the user’s hand shape (FORM) and the ability for the user’s TOUCH to effect objects are the basis of a compelling self-representation in VR. Relative to those cues, an added proximity difference between where the user’s real hand was placed compared to their virtual one, did not effect their perception of implicit ownership over the virtual hand.

They also found that TOUCH stimuli could be used in different ways: a simple tactile sensation under the user's still virtual hand was enough to produce a feeling of 'agency', and when users were able to actively effect objects, it produced feelings of 'embodiment' and 'presence', (p 12). A person's sense of 'agency' was found to be the most robust component of self-definition echoing Murray and Sixsmith's (1999) discussion of the importance of "Authorship of action" in identifying with one's body (p 333). Pritchard et al. found that combinations of different cues affected different components of self-experience in VR and they concluded, "depending on what self-experience is important for a specific VR implementation or product (e.g., ownership vs. agency), the designer may focus on different cues" (p 12).

Expanding on the findings of Pitchard et al. as well as the notion of semiotic mediation, Corts (2016) argues that consciously designed and programmed systems, which allow users to interact in virtual environments, give the illusion that virtual performance is unlimited. Therefore, we must examine these concealed boundaries to understand who and what shapes identity creation (p 113).

Advancing on Edgar's social interactionism perspective, Corts outlines two dominant theories in sociology surrounding identity creation: reflexivity and habitus. Reflexivity is about self-awareness and it involves identity creation through activities of interaction that force people to reflect on their behaviour (p 114). Habitus is the social processes and unwritten rules that monitor behaviours thorough an invisible system of tastes and expectations (p 114). Corts argues, that the combination of these two theories provide a complete system for identity creation to take place (p 115). Using the example of the virtual world 'Second Life' to illustrate her views, Corts observed that each object in this world was imbued with meaning by the community. She related this directly to Bourdieu's theory of 'objectivated cultural capital', stating, "the avatar body is one such locus of objectivated cultural capital" (p 120). Both human avatars and non-human non-gendered avatars (animals, fantasy characters, and inanimate objects) exist in 'Second Life' but the privileging of human avatars is obvious due to the construction of other objects in the space that avatars interact with. Corts gives the example of chairs. The most common type of chair is one that is perfectly suited to a human avatar body. So if a non-human avatar wants to sit, they have the choice of looking completely awkward (because the animated configuration of their avatar mold becomes broken and they appear to be impaled) or they have to stand (p 121). Making the choice to perform as a non-gendered non-human avatar means actively placing oneself as 'the other' given the clear community preferences (p 121). Corts notes that because human avatars were the first available to residents, the space encouraged habitus of privileging human bodies to grow around that decision (p 123). While this decision may not have been conscious on the part of the programmers of the space, the performance limits they set in enacting this decision has had a lasting impact on resultant digital identities and hence, the establishment of cultural norms within the space (p 123).

Conclusion

Although VR can be understood as a medium that enables boundary-changing practices in human experience, the inherently white, western and male biological perspective of the technology itself is clear. Murry and Sixsmith (1999) argue that:

If this ethnocentric developmental context continues to be imposed, then women and people from other ethnic backgrounds may feel alienated because their culturally constituted bodily experiences are not recognized in VR environments (p 336).

As a researcher who possesses a specifically female and non-European body, my aim is to reveal developmental practices that continue this historically exclusive tradition. Informed by the previous research presented in this review, I believe adopting the phenomenological approach of investigating how physical experience can affect consciousness is important to my study. In tandem with the approach, discursive practices also need to be examined, as their semiotic enactment guide design choices to create specific virtual embodiments and environments. In operation, these discursive practices form the ‘virtual gaze’ we use to understand ourselves and others. Correspondingly, this ‘virtual gaze’ helps to constitute our embodied experiences and therefore affects our sense of self in VR.

3. Theoretical framework

I am using the theoretical framework of agential realism, proposed by Barad (2007). This theory calls for a rethinking in the separation of epistemology from ontology, stating that the separation “is a reverberation of a metaphysics that assumes inherent differences between human and non-human, subject and object, mind and body, matter and discourse” (p 188).

Accordingly, it argues that both human and non-human subjects are active participants in the continuous creation of the world. Bodies are constituted along with the world and should be acknowledged as “being-of-the-world,” not “being-in-world” (p 160). The agential realism framework provides the sense that knowledge cannot be claimed as a purely human practice. It posits that knowing is one part of the world making itself explicate to another part. “We don’t obtain knowledge by standing outside the world; we know because we are of the world” (p 185).

The main elements of this framework are: matter (in both senses of the word), intra-action, phenomena, material-discursive practices and agency.

Agential realism posits that the intra-action of matter produces phenomena and the production of phenomena is a material-discursive practice that matters. Intra-action in contrast to ‘interaction’ does not assume separate entities precede an interaction, rather, it is through specific intra-actions that boundaries and bodies emerge and particular concepts become meaningful (p 139). Matter is not a fixed element, it is a “substance in its intra-active becoming – not a thing but a doing, a congealing of agency” (p 151).

Material-discursive practices are a reconceptualization of discursive practices that take into account their inherently material nature (p 147). “Discursive practices are themselves material (re)configurings of the world through which the determination of boundaries, properties, and meanings is differentially enacted” (p 150).

Agential realism’s account of agency proposes that intra-actions always involve exclusion in the creation of phenomena. However exclusions also enable new possibilities of intra-action to become available as others are omitted (p 177). It also posits that:

Agency never ends; it can never “run out”. The notion of intra-actions reformulates the traditional notions of causality and agency in an ongoing reconfiguration of both the real and the possible (p 177).

Post-humanist Performativity

Agential realism puts forward a post-humanist account of discursive practice furthering the writings of both Foucault (1980) and Butler (1993),

Neither [Foucault nor Butler] addresses the nature of technoscientific practices and their profoundly productive effects on human bodies, as well as the ways in which these practices are deeply implicated in what constitutes the human, and more generally the workings of power (p 145-46).

Agential realism is focused on practices, doings and actions (p 135). It uses the notion of diffraction (like a stone thrown into a pond, which emanates circular waves) as a method to understand thinking, observing and theorizing through techno-scientific and other natural-cultural practices of engagement, that all perform as part of the world together (p 133).

Agential cuts

Agential cuts can be understood as the outcome of intra-action, hence different agential cuts produce different phenomena (p 175) and phenomena continue to intra-act, creating more agential cuts in an on going process. Agential cuts are iterated material-discursive practices that come to define boundaries that make up our reality. However, these boundaries are never fixed and the possibility for change is always open.

The apparatus

The apparatus is not a passive observing instrument, but rather it is produced from and actively produces phenomena (p 142). Apparatus are material-discursive practices in intra-action. They do not merely embody human concepts, but can be understood as conditions of possibility. An apparatus creates a local boundary by enacting an 'agential cut'. This cut defines the cause (the object under examination) and the effect (the measuring instrument), where 'local' is located within the phenomena (p 175). Apparatuses enacting local boundaries can also be understood as producing phenomena.

Objectivity

Given the agential realist account that humans and non-humans are part of the on-going intra-active performativity of the world, the condition of our objectivity cannot take place from an absolutely exterior perspective but rather from a place of "agential separability – exteriority within phenomena" (p 184). The crucial point in this rendering of objectivity is that the measuring apparatus enacts an agential cut. This cut creates the condition for the phenomena's nature of existence to be questioned (p 175).

Ethics

Agential realism proposes a posthumanist ethics, where responsibility (the ability to respond to the other) "cannot be restricted to human-human encounters" (p 392). The nature of materiality itself, both human and non-human, always demand 'the other' (392) and in materiality we retain an enduring "responsiveness to the entanglements of self and other, here and there, now and then" (p 394). Barad uses the example of able-bodied and disabled individuals; both of these types of embodiment depend on the other for their very existence (p 158).

The notion of individualism that underpins traditional approaches to ethics is rejected, as agential realism proposes a different view of causality and agency (p 393). Traditionally causation is thought of as a defining event that sets off a subsequence

chain of other events, however from an agential realist view, causality is thought of in terms of intra-action.

It is through specific intra-actions that causal structures are enacted. Intra-actions effect what's real and what's possible, as some things come to matter and others are excluded, as possibilities are opened up and others are foreclosed (p 393).

We are responsible for the cuts that we help to enact, not because we do the choosing, nor does it mean that we are blindly implicit. Rather, we are responsible, because cuts are agentially enacted by the larger material arrangements of phenomena of which we are a part (178). "Accountability and responsibility must be thought in terms of what matters and what is excluded from mattering" (p 392).

Agential realism and my research

Through an agential realist lens, my stance as a woman of colour can be understood as an agential cut within the phenomena of western tradition. This agential cut is enacted by material-discursive practices that everyone in the western world shares responsibility for iterating. Material-discursive practices that preference white, western males have currently drawn the boundaries of human experience in VR. However, these boundaries, along with those that define women of colour, are always open to change. Agential realism provides a framework for me to diffractively read my stance, through the apparent material-discursive practices of embodiment in SocialVR. This can then be used as a basis to achieve a wider insight into the phenomena of SocialVR.

4. Sample

At the time of commencing my research, I identified six SocialVR spaces available to the public that I could access with my equipment (An Oculus Rift headset and Touch controllers). Given the word limit on this thesis it was not possible to analyse all six spaces. In order to cull this sample, I set these criteria:

- Avatars are not linked to an existing social media identity.
- The space is intended for socializing and not directly aimed at functional work purposes.
- There are readily available texts written by creators.

In my opinion, the spaces that followed these criteria have the most potential to offer an impression of social reconfiguring.

My sample was culled down to three spaces: 'AltspaceVR', 'vTime' and 'Rec Room'. In order to get an overview of each company and identify any possible links relating company values, economic strategies and the way embodiment is rendered, I examined at three types of text:

1. Texts that represented the company (company website 'about' section)
2. Texts that represented/introduced the social space (website page describing the space to prospective users)
3. Texts that dealt directly with issues of embodiment and identity within the spaces (taken from the company blogs)

These texts also included still images and video/animation content.

After analysing the texts, I then had embodied experiences in each space.

5. Methodologies

I designed my study using two methods: Multimodal Critical Discourse Analysis for my text analysis and Analytic Autoethnography for my embodied experience analysis.

5.1 Multimodal Critical Discourse Analysis (MCDA)

Critical Discourse Analysis (CDA) sees discourse as a social practice. Discourse is thought of as both socially constitutive and socially conditioned. It organises objects of knowledge, social identities and relationships between groups of people. Discourse can help to sustain and reproduce status quo, but it can also transform status quo. Because discourse is socially consequential, it needs to be thought of in relation to power. Power relations between social classes, ethnic/cultural majorities and minorities, and women and men are examples of how discourse positions people in social spheres. Hence, discursive practices are capable of major ideological effects that contribute to the structuring of societies (Wodak, 2011 p 186). The main aim of CDA is to ‘demystify’ discourses by revealing ideologies through methodical exploration of semiotic data, including written, spoken and visual (p 186), with the term ‘critical’ referring to “making visible the inter-connectedness of things” (p 187).

Multimodal Critical Discourse Analysis is a stream of CDA. Unlike the linguistic-oriented streams, MCDA takes a social semiotic approach to language. This approach, rather than looking at language as a system, looks at language as a set of resources. It is less interested in trying to describe a system of grammatical rules that constitute communication, but is instead focused on the ways in which the communicator uses semiotic resources in language and/or in imagery “to realise their interest” (Machin & Mayr, 2012 p 17). Semiotic choices in language not only refer to the meaning of words themselves, but also to how specific constructions of sentences can have implicit connotations. Likewise, semiotic choices of visuals are not only concerned with the obvious representations, but also with connotations evoked from a combination of different facets in an image construction. These connotations in both language and imagery can play a part in legitimising certain kinds of social practices, therefore helping to shape and maintain ideologies (p 19). In looking at language and imagery used together through a social semiotic lens, one may be able to ascertain “broader discourses, values, ideas and sequences of activity that are not openly stated” (p 82). It is these implicitly connoted meanings that MCDA seeks to detect and make explicit (p 82).

MCDA process

One of the key principles in carrying out any type of Critical Discourse Analysis is that “methodologies are also adapted to the data under investigation” (Wodak, 2011 p 187). Using Machin & Mayr’s (2012) toolbox in the creation of my coding tables, I identified these points as the basis to uncover inherent discourses and tensions in my sample:

- How readers/participants are addressed and classified.
- The types of metaphors evoked and their relation to ideologies.
- The construction of sentences and images to foreground and background particular notions.

- Assumptions of common sense/knowledge.
- The stating of ideologies that may be at odds with visual content.
- The absence of, or glossing over of certain themes.

Table 1. My semiotic coding of written text:

Genre of communication	Formal, informal or mixed
Classification of Social actors	We, you, I, the community, the user etc.
Evocative language	Metaphors/hyperbole/personification
Clear Statements	Including presuppositions that assume meaning as fact or common sense
Clear expressions of ideology or positioning	“We believe everyone should be...”
Repeated statements or words	What effect does this repetition have?
Clearly absent words given the subject matter of text	A text about identity that doesn’t mention gender.
Representation of action	Who has agency, what actions take place, what are the circumstances?
Grammatical positioning of action	This may play up or play down features of the action e.g. “ The people want change” or “ Change is what the people want”.

Table 2. My semiotic coding table of visuals:

How the text is arranged	- Text font - Colour palette - Word alignment - Heading placement - Bolding and italics
Who and/or what is depicted	What ideas and values are potentially communicated through this depiction?
What is the setting of the image?	Does the backdrop connote any meaning?
Visual Salience	- Potent cultural symbols - Size - Colour - Tone - Focus - Foregrounding - Overlapping
Poses of people	- To what extent does the person take up space or not? - Do they perform for the viewer or are they self-contained? - Is there an emphasis on relaxation or intensity?

	- Does the pose suggest openness? - If there is more than one person, to what extent do they mirror each other or strike different postures? - To what extent are they depicted as being intimate, in close proximity, or is there some indication of distance?
Positioning the viewer in relation to people inside the image	- Distance - Angle
Visual modality	- How is colour used? - How is light used? - How is texture used? - How is focus used? - How is depth used?

Inspired by Foucault (1980), I also formulated a set of questions, which I considered after coding the texts, to further reveal boundary making practices and signifiers of performance limitations:

What are the central claims or purpose of the text/visuals?

Who is attributed to exercising power?

What kinds of subject positions are on offer that people can adopt for themselves and assign to others?

Is there an ideal subject position?

Are in-groups and out-groups constructed in the text?

How is meaning assigned to objects/symbols?

How is the body divided, classified and produced in the social space?

What performance attributes of the body are described?

Do certain bodies appear to be preferred over others?

What dominant 'truths' (social etiquette) of social interaction are expressed?

How does cultural capital appear to be gained?

What performance boundaries are constructed in gaining cultural capital?

Are potential economic strategies emerging that are linked to cultural capital gains?

Validity of CDA

Critics of CDA maintain that it is not a method of analysis, but rather an exercise in interpretation and that it largely ignores how ordinary people understand texts (Machin & Mayr, 2012 p 209). However, Chouliaraki and Fairclough (1999) address such criticisms by advising that CDA should be combined with an ethnographic study entailing “the systematic presence of the researcher in the context of the practice under study” (p 62 -62). Wodak (2011) concurs, “This approach makes it possible to avoid ‘fitting the data to illustrate a theory’. Rather, we deal with bottom-up and top-down approaches at the same time” (p 187). Fortuitously, my resolution to combine these methods, which was informed by my research questions and literature review, is also aligned in validating my findings.

5.2 Analytic Autoethnography

Autoethnography seeks to systematically evaluate personal experience in order to gain an understanding of broader cultural experience. This approach treats research as a political, socially conscious undertaking. The tenets of autobiography and ethnography are used in writing an autoethnography, therefore making this method both a process and a product (Ellis et al. 2011). The Analytic Autoethnography approach proposed by Anderson (2006) offers an alternative to evocative autoethnography that is more in line “with qualitative inquiry rooted in traditional symbolic interactionism” (p 374).

According to Snow (2001, p 7696) the four basic orienting principles of symbolic interactionism are:

- 1. Interactive determination**

Which posit that the duality of self and other, individual and society do not ontologically exist prior to their relation and hence can only be understood in terms of their interaction.

- 2. Symbolization**

Which focuses on processes that inscribe events and conditions, artefacts, edifices, people and aggregations, allowing them to take on meanings. Hence becoming meaningful objects of orientation, which elicit specific behaviour.

- 3. Emergence**

Which focuses on the dynamic non-habituated side of social life that offers the potential of change in meaning-making processes.

- 4. Human agency**

Which highlights human actors as active and goal-seeking participants in an environment.

An overview of these principles suggest that objects of analysis “cannot be fully understood apart from the interactive web or context in which they are situated and the interpretive work of the actors involved” (p 7696). These principles bare a clear resemblance to an agential realism perspective. The main differences are agential realism’s added dimension of recognising both human and non-human entities in the

creation of our lived experience, which also informs its notion of agency. I believe that using the theory of agential realism will not conflict with my Analytic Autoethnography approach. Rather, it brings with it added dimensions necessary when considering the fusing of human experience with technology.

In Anderson's (2006) description of Analytic Autoethnography, he posits that there are five key features that define this approach:

1. Complete member researcher (CMR) status.

This means that the researcher is deeply involved with the specific group/community under ethnographic analysis, which transcends their academic research.

2. Analytical reflexivity

Which expresses awareness of one's essential connection to the research condition therefore acknowledging their effect upon it

3. Visible and Active Researcher in the Text

Which posits that researchers must be a highly visible social actor, expressing their own feelings and experiences within the text.

4. Dialogue with informants beyond the self

Which calls for research to be done in relation to 'data' or 'others'

5. Commitment to an analytic agenda

That posits the data-transcending goal of analytical social science is using empirical data to achieve a wider insight into social phenomena. "Not only truthfully rendering the social world under investigation but also transcending that world through broader generalization" (p 388).

Due to the autoethnographer's duality in occupying roles as both a member in the social world being analysed, as well as a researcher of that world, Anderson believes that this method is also "warranted by the quest for self-understanding" (p 390). He refers to self-understanding in the sense that autoethnography occupies a position at the intersection of biography and society. This position enables self-knowledge, which comes from understanding that the constitution of one's self and one's identity also helps to constitute the sociocultural context in which we live (p 390).

Analytic Autoethnographic process

I wrote field notes of my time spent in the spaces, which included detailing my processes in creating personal avatars and my physical embodied experiences. I also devised questions informed by my literature review, which I considered in each space:

Can I easily identify with my avatar as an extension of myself? (What are my feelings of 'self experience' related to agency, presence and embodiment?)

What types of actions are encouraged in the space? (Are they enacted by a menu interface or do they involve a different kind of physicality?)

Combining my findings

I used an agential realist approach to combine the two components of my study, by diffractively reading the findings from my MCDA data through my embodied experiences. This also enabled me to moderate any bold conclusions I had drawn from my MDCA findings with an actual experience of each SocialVR space in action. This process was indispensable, as while some of my findings seemed obvious in the texts, they were far less salient in action. From this merged material-discursive perspective I then created an account of each SocialVR space that detailed relevant findings. Through these findings, I identified the main points that appeared to govern practices of embodiment, which I then used to carry out my theoretical analysis.

Ethical considerations

The process of interacting with other people in SocialVR spaces comes with ethical responsibility and I conducted my interactions and documentation with this awareness. Although my findings do include anecdotal interactions with others, my conversions only took place within the context of being a complete stranger. I did not develop any close personal relationships and I have not included any clearly distinguishing details of others, besides apparent genders and countries of origin.

Limitations

By carrying out an Analytic Autoethnography, the findings are limited to my perspective. I am using my personal experience to make a broader generalization about the state of inclusivity in SocialVR, but mine is just one of many perspectives that need to be taken into consideration if SocialVR is going to develop responsibly.

My experiential findings are based on a small number of visits to each SocialVR space and this limits my understanding of the long-term potential of embodiment in these spaces. Murray and Sixsmith (1999) state that changes in sensory information require time before a coherent body is felt (p 333). Hence, one's long-term embodied experience may feel completely different to their initial encounters. This difference may therefore have a significant impact one's sense of self.

Validity of my study

The legitimacy of my study is based on the unambiguousness of my oppositional gaze and the systematic workflow I have devised for my methodologies that also serve as a substantiating process. As I am a "complete member" (Anderson, 2006. p 338) of the VR industry, I have carried out this study based on my specifically female and non-European body, in the interests of advancing the medium's potential to overcome boundaries between people.

6. Findings and Analysis

6.1 AltspaceVR findings

Company positioning

AltspaceVR is portrayed as a place where people are friendly and diverse. Its mission “is to bring people together and foster real connections in VR” and phrases like “Be there together” and “don’t VR alone!” are used. The space is also presented as a female friendly leader of the VR industry.



Figure 1. AltspaceVR website front page

AltspaceVR has multiple spaces and that offer activities like games, meditation and various live events including talks, screenings, music and comedy acts. Descriptions like, getting “up close and personal with celebrities” and YouTube personalities, denote a cross over with current internet celebrity culture and this signifies emerging forms of cultural capital in AltspaceVR.

Overall the main focus of the website is on “you” and what “you” can do in AltspaceVR. It seems to be a fun extension of real life but interestingly there is no mention of how you can be as an individual. The backgrounding of personal identity in favour of participation indicates that AltspaceVR is a place to fit in rather than a place to express ones self.

Embodiment

AltspaceVR offers both robot and human avatars; the robots were the first avatars in the space with the human avatars introduced later. In presenting human avatars the company states:

We wanted to add variety to improve how people felt they were represented. Each human avatar launched with five hairstyles, three skin tones, and three shirt styles, totalling 90 human variants. This is a huge step for avatar diversity in AltspaceVR, and it's just the beginning.

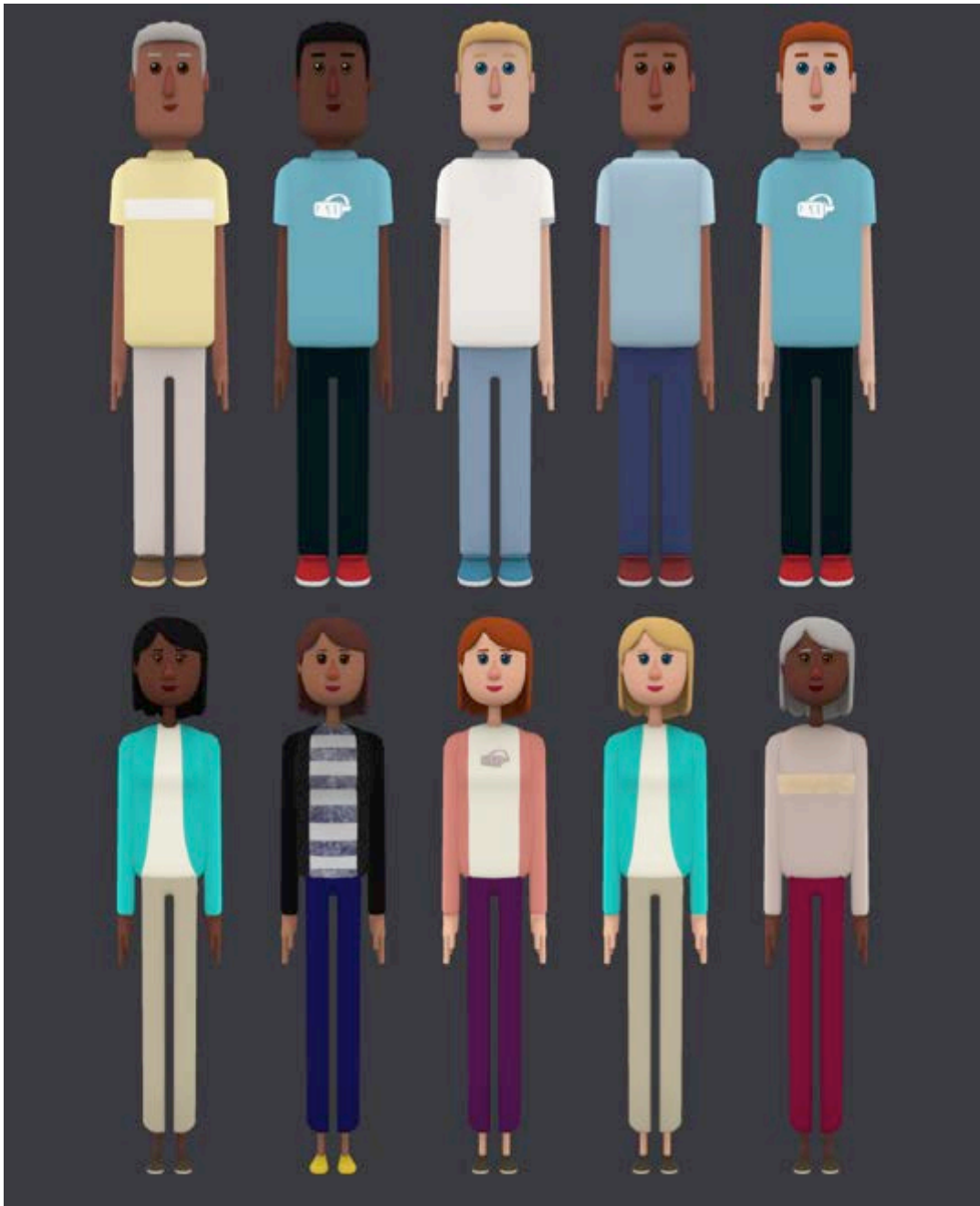


Figure 2. Human Avatar line up.

I have three points of contention looking at Figure 1. Firstly, the text states “five hair styles” although it is apparent that this actually means hair-colour. Given AltspaceVR’s positioning as a diverse-minded company, this misleading statement suggests an attempt to gloss over obvious identity issues. While the male avatar hair is ambiguous ethnicity-wise, the female avatar hair adheres to the western social norms. Secondly, I found the body shapes of human avatars to also adhere to social norms. Both are slim and females have long and skinny legs. The avatars are designed to fit the ‘whimsical’ style of AltspaceVR, but the cute and petite appearance of the females sends an uncomfortable ‘child-like’ message about women. I understand that technical reasons currently limit user choices however, choosing certain features to be standard, reveal preferences for certain types of humans. Any decision made for representing a standard human creates exclusions, but AltspaceVR’s decisions appear influenced by the dominant discourses of the western world. This leads to my final point, which is the positioning of human avatars in relation to each other. In both the male and female line-up the central figures are light-skinned. While this may seem innocent, a clear and repetitive decision was made. It is also interesting to note that the grey-haired avatars in both line-ups are placed on the outer.

It’s a (hu)man’s world – blog post



Figure 3. Blog post banner image

One of the most infamous stories to surface in the VR industry was the sexual harassment of avatars belonging to women. This harassment entailed male users chasing women around VR environments and upon getting close, groping space corresponding to the avatar’s breasts, butt and crouch, even if avatars possessed no such attributes. In SocialVR, one generally uses their voice to communicate as headsets have inbuilt microphones, so as soon as a woman vocalises herself she becomes a target to some. As VR experiences are immersive, events like these have a traumatic emotional impact. In reaction to this AltspaceVR focused on developing tools to combat such behaviour and also wrote an article about their work.

The introduction of the article describes the potential of VR as,

Untethered by the limitations of the physical world, virtual reality spans geographies, unites people across genders, cultures, and occupations, and doesn’t have to abide by the laws of physics.

The tone however changes in a further description,

In the [physical] world, we have tools to express levels of discomfort, like facial expressions and body language, but in VR you're physically limited [...] In VR you might not be able to push someone back, but we can build tools that give you a different set of options to control your space.

Even though the article began by celebrating the potential of VR, a clear perspective is expressed that embodiment in VR is limiting. There is no discussion of how an avatar's gender signified construction could enable harassment in the first place, instead it is a given that real world problems will flow into VR and AltspaceVR can provide the tools for you to "control" your space.

The text is explicit that women and LGBTQ rights are a company priority. It continues, "Determined to provide safe environments that encourage richer communication, a team comprised primarily of women developed AltspaceVR's 'Space Bubble', which renders avatars invisible if they reach a certain proximity to any other user. Other tools also involve being able to block other users by muting them or making them invisible.

AltspaceVR describes itself as a space for "richer communication and radical inclusion" however the actual concepts infused in the anti-harassment tools offer passive solutions for people to exclude each other. Using the phrase "radical inclusion" seems contradictory. The texts also talk about "recalibrating the 'real world' and the notion of "protecting humanity" as well as stating "we're trying to solve a problem that society has not yet figured out how to solve".

In my opinion the specific configuration of these anti-harassment solutions is based on the avatar designs, which intrinsically reveal real world traits of the user's voice and evoke stereotyped gender norms. Through these affordances, real world social tensions are adopted into the virtual space and the anti-harassment tools developed consequently have the potential to alienate and divide.

My embodiment

Upon entering AltspaceVR I was embodied a standard "guest user" robot avatar, which had a genderless appearance. Next to the avatar menu a mirror reflected my hand movements and vocal cues as an avatar. My hand controllers corresponded to floating hands that matched each avatar. There were six types of robot avatars to choose from. One model was specifically gender coded and had a skirt shape on the female version and broad shoulders on the male version. I could choose one main colour for each robot and then select a highlight colour. The highlight colour flashed in the robot's head whenever I spoke to signify speech. As a human avatar when I spoke it activated the mouth to move in generic motions and the eyes blinked intermittently. I noticed that the default setting for both the female and male avatar models was the lightest skin tone and blond hair with other options following from lightest to darkest (with the exception of grey hair colour being at the very end). The default logic of setting light before dark in my opinion implies the penetration of socio-historical norms, into a space that is trying to promote diversity.

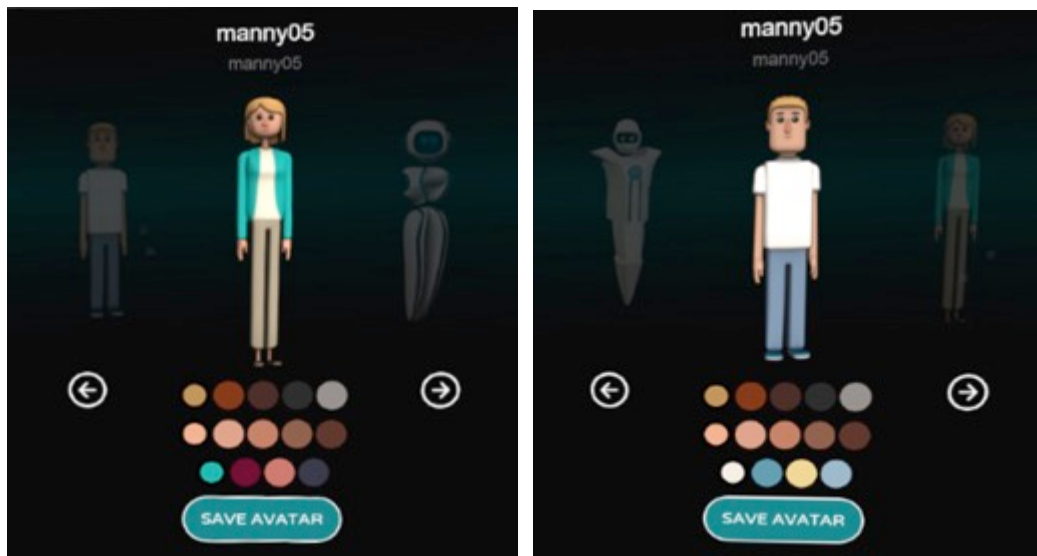


Figure 4. Default female and male avatars

For my first time in AltSpaceVR I decided on a genderless robot avatar and I made my username 'Manny05' which could give the impression that I was a man, unless I spoke. I felt comfortable in this ambiguous representation. Upon entering the 'campfire' space and there were other avatars around talking. I could only hear male voices.

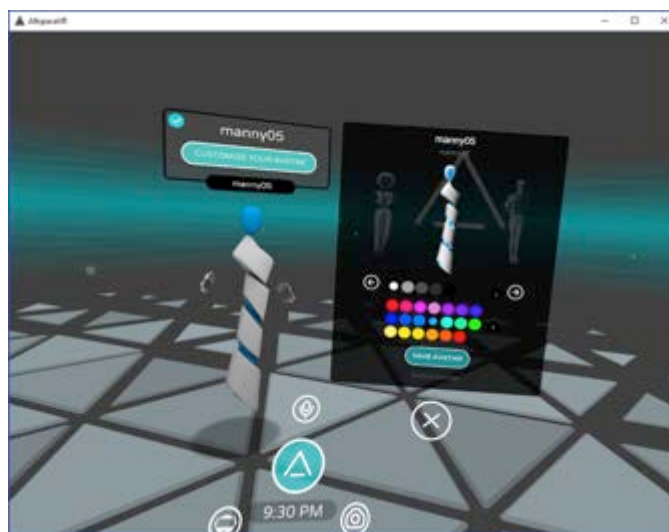


Figure 5. My genderless robot avatar

In order to move around the space I could either teleport by pointing to a spot ahead or move through the space with a mini joystick on my left hand controller. I felt motion sickness when using the joystick so I opted for teleporting. Teleporting meant that my vision would fade to black and then fade back once I'd reached my target destination. Teleporting was quick and it only took about a second to move long distances. My right hand controller had a laser beam emanating from it at all times; this allowed me through the act of pointing, to teleport, while clicking the teleport button on the right controller. This laser beam also functioned as a selection tool that worked in conjunction with the action button on my right controller. The right controller also had a joystick that allowed me to rotate my position; it rotated me about 20° either left or right with every toggle, which caused the image to 'jump-cut' in front of me. There was the option to press the joystick in and then toggle, which

created a smooth visual movement but I found enacting this control difficult. The left controller also had a teleport button, that when pressed emanated a laser beam. Wherever the beam was pointing when I let go of the button, was where I teleported to. My permanent right laser beam also allowed me to point at other avatars to bring up their details, for which I could choose to befriend, mute or block them. If I chose to befriend them, they would receive a request in their user menu. If they accepted then we would both be able to see when the other was online and where in AltspaceVR they were.

The controller functionality displays a clear favouring of the right-handed people; as I am left-handed I found this added to my difficulties. While I was battling with my controller functionality, a couple of avatars moved straight through me instead of around me. Once they reached the proximity of my 'Space Bubble' (which was on by default), they disappeared and then emerged on the other side of me continuing on their way. I found this very disconcerting and rude.

On another visit to AltspaceVR I decided to go to an official social event, which was a live screening of a Space X rocket launch. Instead of my ambiguous robot body, I donned a brown female avatar. While waiting for the event to begin, I entered the campfire environment. It was the fullest I'd seen it with many avatars moving around, talking, playing music and setting off virtual fireworks. It was a lively atmosphere and it was nice to hear a mixture of both male and female voices compared to the other times I was in the space. There were a lot of people that seemed to know each other and it felt like it was a very sociable environment. Interestingly, despite the female voices, I was the only one embodied in a human female avatar. The other women all used robot avatars and were embodied in a mixture of gendered female robots and non-gendered robots. The male voices came from a mixture of robot and light skin-toned male human avatars. Generally though, there were more robots than humans. As the only female avatar, I felt out of place and self-conscious. Once I entered the event space there was an AltspaceVR administration person who introduced herself and intermittently made announcements. She was embodied in a female gendered black robot avatar with purple highlights. In her announcements, as well as instructing newcomers how to move around the space she reiterated the 'safety' features of avatars, which included muting people and/or making them invisible if they were annoying. Ironically in addition to telling us how to actively ignore people, she encouraged everyone to talk to each other, declaring this to be a friendly environment. At one point she began talking to a man in a human avatar body that was standing near me. They had a friendly conversation, which ended with him telling the administrator she had "a nice voice". The administrator laughed, perhaps a little uncomfortably, said thank you and then continued to work the room. I'm sure he thought he was being nice but in my opinion this was a form of objectification based on a gendered signifier and given the context, completely unnecessary.

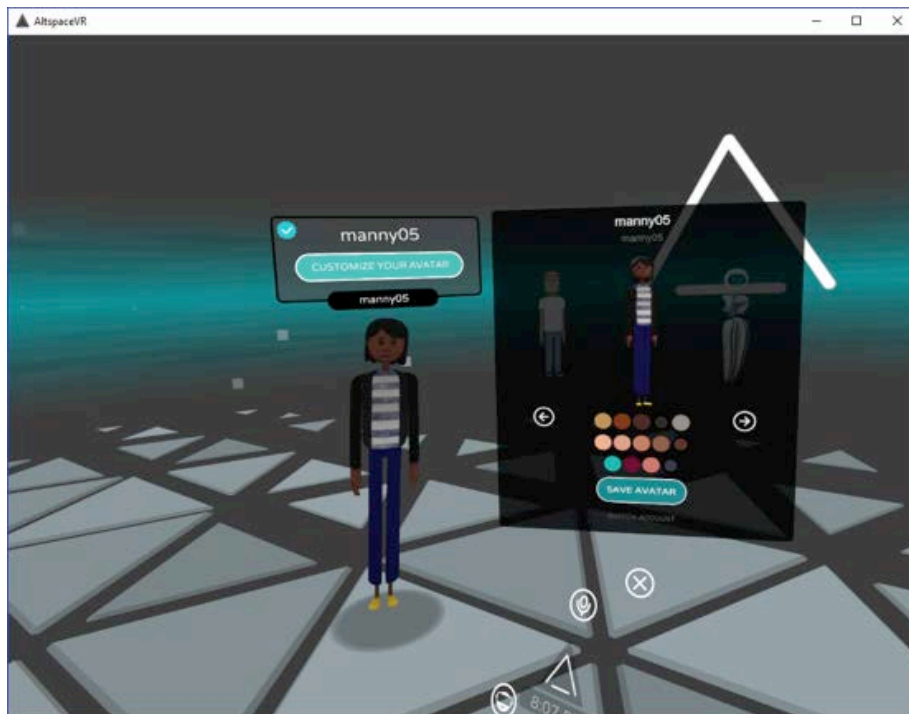


Figure 6. My human avatar



Figure 7. An example of an AltSpaceVR event

Once the rocket took off, people used the handclapping emoji to applaud and I did the same, I opened my emoji menu, which included love hearts, a smiley face, a hand (which works as a raised hand) and clapping hands. By selecting one of these, they would emote out of my avatar's head. I noticed that both the hand and handclapping options only showed hands with a light skin-tone. When I looked around the room all the handclapping emojis were light skinned, regardless if they were coming from robots or my lone brown human avatar. While these hand emojis seem innocent, the fact that they are portrayed as standard 'white' hands also illustrates another socio-historical norm of western society that slipped by the diverse-minded creators of the space.



Figure 8. The different 'skin colour' of emojis compared to my avatar

My overall embodied experience was coloured by the hand controller's video-game functionality. This created a sense of detachment for me, which did not resonate in my full corporal being. The only things that felt intrinsically organic were waving my hands and pointing. Other than that I felt like I was controlling a machine rather than having a symbiotic experience. I found movement to be frustrating, and it was only when I was standing still that I felt truly immersed. I did however feel ownership over the avatar. The human and robot avatar functionality were the same in terms of my physically embodied experience, but I felt more at ease embodied in a genderless robot. I felt less judgement by others and was far less likely to be singled out by a creepy weirdo that wanted "to go some place quiet to talk" which was also an experience I had embodied as a female avatar.

6.1.1 Theoretical Analysis

AltspaceVR's rendering of embodiment incorporates:

- AltspaceVR as an extension of real life
- The promise of VR to offer a new kind of human experience
- The notion that embodiment in VR is limiting
- A 'whimsical' aesthetic
- An ideology of diversity that preferences women's and LGBTQ issues
- Emojis that ignore ethnic diversity
- Controls that offer options of continuous movement or teleporting
- Right-handed preference
- Anti-Harassment tools that create a safety bubble, and filter people
- A cultural capital connection to social media celebrity culture
- A gaming logic of control

What discourses are currently defining embodiment?

As AltspaceVR wants to be considered an extension of real life, the implementation of human avatars is a matter of importance. However, a clear compromise is made in

order for human avatars to be technically manageable and fit within the AltspaceVR aesthetic. The complexities of gender, ethnicity, age and body shape are therefore glossed over and presented in a simplified manner. These technical and design limitations coupled with a preferred 'type' of human intra-act, creating a material-discursive practice iterating new virtual stereotypes. Signifiers of real world identity, such as ethnicity, possess a political dimension, which in this case is amplified by their simplification. Ironically, gender, AltspaceVR's most vocal point of contention, is given the same simplistic treatment, by semiotically inscribing female avatars as fragile figures. Regardless of a woman's physicality and presence in real life, she will be rendered with a virtual gaze that sees her as an easy target of the very victimization which AltspaceVR is actively trying to prevent.

The notion of robot bodies offers a more progressive take on the potential of a virtual self. In this guise, ethnicity and gender are invisible, however, AltspaceVR's intention to perform as an extension of real life gives reason to maintain the accurate vocal signification of users. These vocal cues carry with them socio-historical baggage which creates possibilities for victimization. 'Real life' also drives notions of cultural capital related to social media, therefore necessitating boundaries of the real world to enable potential for financial gain.

The technical limitations, which also play a vital agential role in the constructions of avatars, exist because of ideologically valued developmental practices. If it were considered vital that avatars have the option of various hair textures, or vocal pitch shifting, then this technology would be made functional in some form. Economic imperatives may also be a factor, meaning it would be cheaper to repurpose technology, rather than developing brand new solutions. Repurposing knowledge brings other ideological agendas into the mix and demonstrates how agency remains independent from human intentions. The use of emojis provides a clear example of this, with an unintended euro-centric agenda fused into the experience of embodiment.

The decision to reiterate VR's historical link to gaming impacts how avatars are controlled and hence how embodiment is experienced. While the motion controls seemingly offer a choice in the way users can move, it sets up an inherent difference in the way people with motion sickness experience the space compared to those that don't have motion sickness. The right-handed favouring also continues to impose a socio-historic norm on user's bodies.

How are embodied experiences configuring notions of self?

The construction of AltspaceVR's embodiment is trying to facilitate real-life identity, while experimenting with new possibilities of self. It also aims to create complete inclusivity in free-roaming virtual environments, through tools that enable passive separation and exclusion. These factors, along with the execution of physical controls, create tensions that result in re-inscribing notions of embodiment, which are based on inherent divisions between people; hence, reiterating traditional power dynamics that preference white, western males. For others, this outcome leads one to feel like a discreet version of their real world self, which is underscored by experiences that are not meaningfully felt in the physical body.

6.2 vTime findings

Company positioning

vTime's use of traditionally gendered colours can be understood as a message of diversity. In a reiteration of this message, the banner video on the website front page shows ethnically diverse groups of avatars in different 'vTime destinations' with the majority of them being female.



Figure 9. A still from the banner video

Despite the bright banner portraying diversity, the dominant image on this page is a sensual photograph of a real woman wearing a VR headset. From the little we can see of her appearance, her slim build, straight blond hair and her lingerie style clothing, position her as a western female archetype of beauty. Through the combination of using a real person of her specific physical appearance and lighting, the notion of western sensuality emanates and functions to attract the gaze and instil a social norm for women to aspire to.

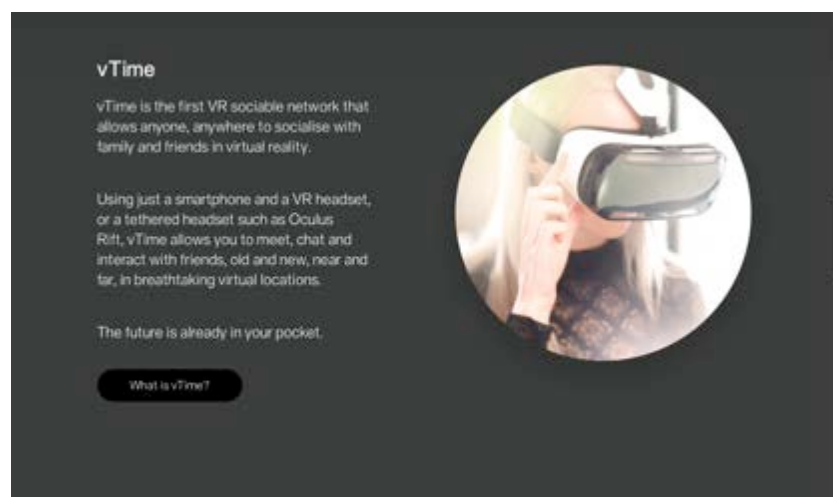


Figure 10. The western female archetype

The text on the website includes statements like: “vTime is the first VR sociable network that allows anyone, anywhere to socialise with family and friends in virtual reality”. Descriptions of vTime as a “VR sociable network” also draw parallels to Facebook. The use of the word ‘sociable’ instead of ‘social’ highlights vTime’s unique difference.

There is also an emphasis on the “incredible virtual environments” vTime offers. Phrases such as “a passport to the outer edges”, and “Be a vTime pioneer”, position users of vTime as explorers in the new territory of VR.

vTime’s company description states,

vTime builds upon its core team’s remarkable pedigree in new and unexpected ways and is on a mission to deliver the absolute best way for people to engage and communicate in virtual reality.

Made up of a team of co-founders of games industry veterans, business executives and marketing professionals, the principles of vTime have a proven and verifiable track record of delivering critically and commercially successful products and results over a period of over 30 years.

Following the general tone of the website this text is not interested in any notions of VR’s creative potential, rather, it continues to focus on the actions of vTime as a company and places VR as an existing terrain that is being handled by those with experience.

Embodiment

The use of the phrase “Make it personal” when describing the avatar creation process along with the word ‘craft’, indicates that people should invest time into creating a meaningful representation of themselves. Describing avatars as a “bespoke virtual you”, along with the phrase “share your world with ours” affirms vTime’s aspiration of being the VR tool that helps to manage real world social connections.

The text is accompanied by the image is of a slim Caucasian male avatar. This choice of avatar reiterates a western normative message in spite of the complete customization notion being communicated.

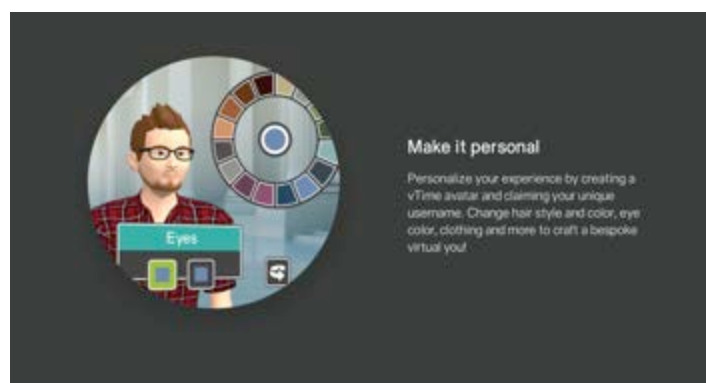


Figure 11. The slim caucasian male avatar

vTime encourages users to record and broadcast their conversations in VR. This recording and on-demand viewing functionality can be seen as a form of cultural capital. This also has potential as an economic model, whereby users would pay to watch certain broadcasts. This idea reiterates the importance vTime is placing on avatars as meaningful self-representations that can exhibit one's personality.

The implementation of the 'shield' accompanies vTime's introduction of hand controller support, which allows users to make physical contact with vTime friends. The notion of harassment is never directly addressed, however the text states, "The shield ensures that all our users can feel comfortable with the added levels of social presence that Touch controller support brings to the network." The shield is described as "an invisible force field". When the shield is off, its icon in the user menu is red, when the shield is off for friends, the icon is yellow, and when the shield is on for all users, the icon is orange.



Figure 12. a depiction of 'The Shield'

How we design for diversity #IWD2017

This blog post was written in tribute to International Women's Day 2017. The introduction states,

In late 2016, we redesigned our avatar creation system to reflect the uniqueness of each of our users, breaking down gender stereotypes in the process.



Figure 13. The banner image of blog post

Despite the premise of International Women’s Day, the banner image portrays more male avatars than female, and a background of a rainbow-like colour gradient that can be associated with the LGBTQ community. As the article continues it becomes apparent that “Breaking down gender stereotypes” actually means making the question of gender irrelevant when users create avatars.

We designed 36 archetypes to choose from as the first step in creating your new virtual self, as well as 24 different body shapes. This allowed for avatars with smaller and larger builds, in addition to subtleties in shoulder, waist, and hip measurements. With these changes we could remove the question of gender and create a more nuanced system, which represented a wider spectrum of people than ever before.

The text further states,

In vTime your avatar represents you in the virtual world. The vTime community is diverse, interesting, and unique. Therefore, the avatars that it is possible to create should be too.

This statement reiterates that notion that your virtual self should resemble your real world self, with vTimes ultimate goal being “somewhere you can feel proud to be yourself.” The text never mentions the LGBTQ community specifically but its focus on non-gendered embodiment does position vTime as an advocate. vTime stress the importance it has placed on avatar diversity stating, “at times this has been a development challenge, but one we feel is important to dedicate the time to”. However, while vTime enables gender ambiguity, it is only in relation to how you exist in the real world. The obvious limitation of being truly gender ambiguous in VR is the vocal signification of one’s real world voice that is carried into vTime experiences.

The text goes on to state,

In the future we'll be looking to add more body shapes with varying levels of muscle mass, tattoos and body modifications, make-up, complexion options, accessories and much more.

However, it provides no clear mention of culture or religion, therefore glossing over its potential importance to a user's identity.

The text is accompanied by a video that shows the process of creating an avatar. The cover image of the video shows a male avatar of ambiguous ethnicity. However, when the video begins we see a Caucasian brown-haired male avatar and then a blonde-haired female avatar. The video demonstrates how the male avatar's body shape can be changed, but it is ultimately made slim. The video cuts to another male avatar of a more ethnic appearance with a beard. The accompanying voice-over at this point states, "If you've chosen incorrectly you can select back at any point". We are then taken back to the Caucasian male and are shown the skin tone and aging options. The video cuts to the blond-haired female avatar and customization options of facial hair, eyes and eyebrows are demonstrated, the video continues with the blond-haired female avatar fine tuning her features. The voice-over states, "with millions of bespoke combinations to choose from you can make your avatar look more like you than ever before". The video shows different wardrobe options and in the end we are presented with a clearly gender-coded avatar of the western female norm. This is ironic considering that diversity is trying to be conveyed.



Figure 14. The male avatar.



Figure 15. "If you've chosen incorrectly".



Figure 16. The female avatar with facial hair



Figure 17. The female avatar in progress



Figure 18. The final image

My embodiment

Upon entering vTime, I was prompted to set up an account and create a personalised avatar. These prompts worked in conjunction with my gaze, so if I looked at an option, a small circle would appear that would begin to ‘fill up’; once it was filled (in 2 seconds) my selection would be made. I found this simple act to be a visceral bodily experience. It felt like my gaze had a tactile connection with objects in the space.

I was given the choice of pre-made avatar options, to use as a base in crafting my appearance. The options were diverse in ethnicity, gender and age. I was then taken to a space with a menu (again all through gaze interaction) that enabled me to change various facets, including, body shape, skin tone, hair colour, hair style and texture, eye shape and colour, eyebrow shape and colour, brow shape, nose, lips and ear shape, as well as the length of my face and the fullness of my cheeks. There was also an age setting that made the avatar’s face sag according to four different settings. There were more menus for clothing, head-ware and shoes. (A noticeable absence was religious head-ware). I spent about 30 minutes playing around with all the options and I managed an approximation of myself; it still didn’t look like me but it was good enough. I could have spent more time refining it but I got frustrated with the gaze selection functionality. With every selection, I had to wait two seconds for the circle to fill up and I eventually became impatient.



Figure 19. My avatar

After creating my avatar I decided to check out all the available ‘destinations’. vTime works on the premise of having group conversations of up to four people, in various environments. Before I actually spoke to anyone I just wanted to experience these spaces. To access my personal menu, all I had to do was look straight ahead and tilt my head up, then I would see a tiny grey sphere that would get bigger the longer I looked at it; after two seconds the sphere would open into a menu. Within the menu, I could choose to show my status and I could also choose to visit the different destinations available. On this first visit I set myself as offline so that I wouldn’t be disturbed.



Figure 20. The 'menu' sphere



Figure 21. My open menu and my gaze circle in the process of 'filling up' to select the avatar option.

The various environments were beautiful and full of interesting details. Each environment had four seats and I could change seats. Sitting was obligatory so my experience of the space was a contemplative one, without any motion sickness. There are twenty environments to choose from, some of which included: sitting on rocks in the middle of a river and sitting on an observation deck of a space station. Each environment had 360° sounds as well as various animals and/or objects moving around. The animation of these features were long and well thought out, so it never felt like I was sitting in looped experiences. The environments felt alive.

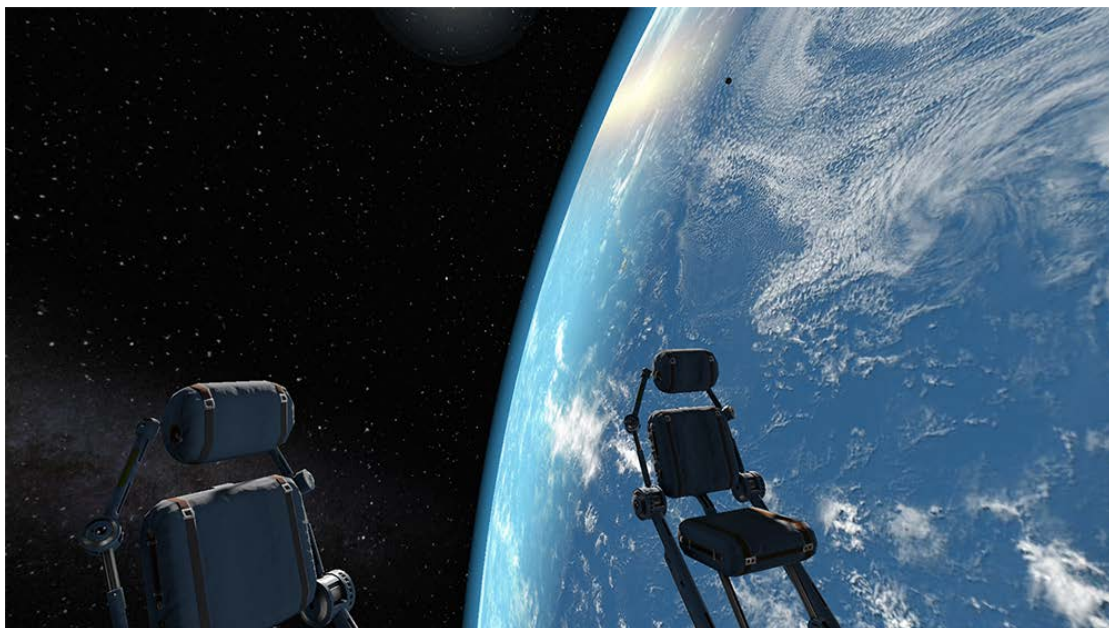


Figure 22. The outer space destination



Figure 23. The river destination



Figure 24. The China Town destination



Figure 25. The Paris rooftop destination

The next time I used vTime I decided to meet people. I was apprehensive at first but ended up having a great experience talking to complete strangers. I first started a conversation with a man from the Dominican Republic. His headset did not come with hand controllers so when he talked his virtual hands moved intermittently according to the loudness of his voice, he was able to go to his menu though and initiate hand gestures like thumbs up and clapping. Because I have controllers I was able to actively control my virtual hands in the space. Our conversation started by inquiring where the other was in the world and then it went from there, it felt very natural and candid stories soon followed. I told him a little about my immigrant experiences across three different countries, and he told me how he was unwillingly separated from his mother at the age of six and grew up in a different country to her. During our conversation another man from the Philippines joined us. I also enjoyed

conversing with him as he told us about the hardships of his country, the threat from ISIS and his opinions of the western media misconstruing the positive effect of the current Philippines President. I found both conversations fascinating and gained insight into other people's lives that were vastly different to mine.

During the experience there were some technical issues with sound dropping out. The avatars themselves also had some characteristics, which felt strange. Avatar eyes moved independently of the user so often the avatar's face didn't emotionally match the users words. I instinctually took avatar facial movements as inherent communication cues, so in these moments I felt confusion and struggled to fully 'read' the situation. I had wanted to try high-fiving someone in vTime but as neither of my companions had hand controllers this was not possible. However, having experienced the power of haptic feedback in my controllers from other VR applications, I expect the experience of touching someone in vTime would resonate both physically and emotionally.

In my opinion, the tone of this embodied experience was set by the organic gaze interaction that enabled my physical body to feel absorbed by my avatar. The limits placed on avatar movement in vTime also enabled my immersion to be felt in a continuous fashion, rather than being disrupted by motion sickness or the jumping visual nature of teleporting. I met people of different ethnicities but no effect of real-world stereotyping was apparent. The unique avatar representations, regardless of skin tone and gender, gave an impression of people's characters; and the beautifully rendered environments facilitated a group connection as we looked around and discussed what we saw.

6.2.1 Theoretical Analysis

vTime's rendering of embodiment incorporates:

- VR as a tool to enhance communication
- The notion of a social tool that can rival Facebook
- Avatars that are directly connected to real world embodiment
- Being proud to be yourself
- A commercial marketing approach
- The sole purpose of talking to other people
- Realistic visuals and environments that are alive
- Intrinsic gaze and touch functionality
- The encouragement of Western centric norms
- The exclusion of religion and representations of disabled bodies

What discourses are currently defining embodiment?

vTime's purpose is to facilitate communication between people in a more visceral way than current social media leaders. Therefore, its foundational framework is to directly translate an embodied human experience into VR. vTime views the distinct appearance of individual human bodies and physical functionalities of gaze and touch as matters of importance. These matters intra-act with VR technology, producing new practices of technological development that encourage user intra-action in crafting

personal notions of self. Through the numerous tools given to users to define themselves, western-centric norms of skin tone and ethnic features are shifting. However, despite an explicate encouragement for people to be themselves, the visual marketing provided by vTime still follow commercial standards and favour slim humans. Furthermore, the present exclusions of religious and cultural attire and features pertaining to disabled bodies are also reiterating boundaries that disregard other important aspects of the self. Hence, continuing other dominant discourses currently defining an ideal human in western society.

The foundational framework of embodied human experience is also iterated in the development of aesthetically wondrous environments. These environments intra-act with users and link their presence to a shared experience. The limits placed on the number of people able to converse, compulsory sitting and the possibility of touch interaction, also create performance boundaries that encourage candid communication.

Despite success in recreating some aspects of human experience, current technology brings disruptive impressions of other cues, such as facial expressions. The artificial nature of expressions makes reading the full scope of information normally delivered in real-life difficult. The goal of achieving accurate facial cues is in development and its progression will become apparent with new iterations of VR headset technology. However, this necessitating of technology to mirror our full visual communication spectrum is forging new power structures. Technology that is able to capture and reflect accurate facial cues will be collecting biometric data from users and this brings up issues of ownership regarding biological identity information.

How are embodied experiences configuring notions of self?

The action of crafting one's self involves investment of meaning and regardless of whether one chooses to depict real world accuracy, the amount of attention paid to virtual self-creation will relate to feelings of agency and responsibility. The intrinsic gaze functionality allows feelings of control to emanate from the corporal self and this, coupled with the possibility of touch, enables physicality of a reasonably intrinsic manner. In vTime, one can feel like a salient version of their real world self, and the wondrous living environments provide an enjoyable disconnection from real life contexts of interaction.

6.3 Rec Room findings

Company positioning

Rec Room does not have its own dedicated website. Instead it is a webpage located as a subheading within the website of the company Against Gravity.

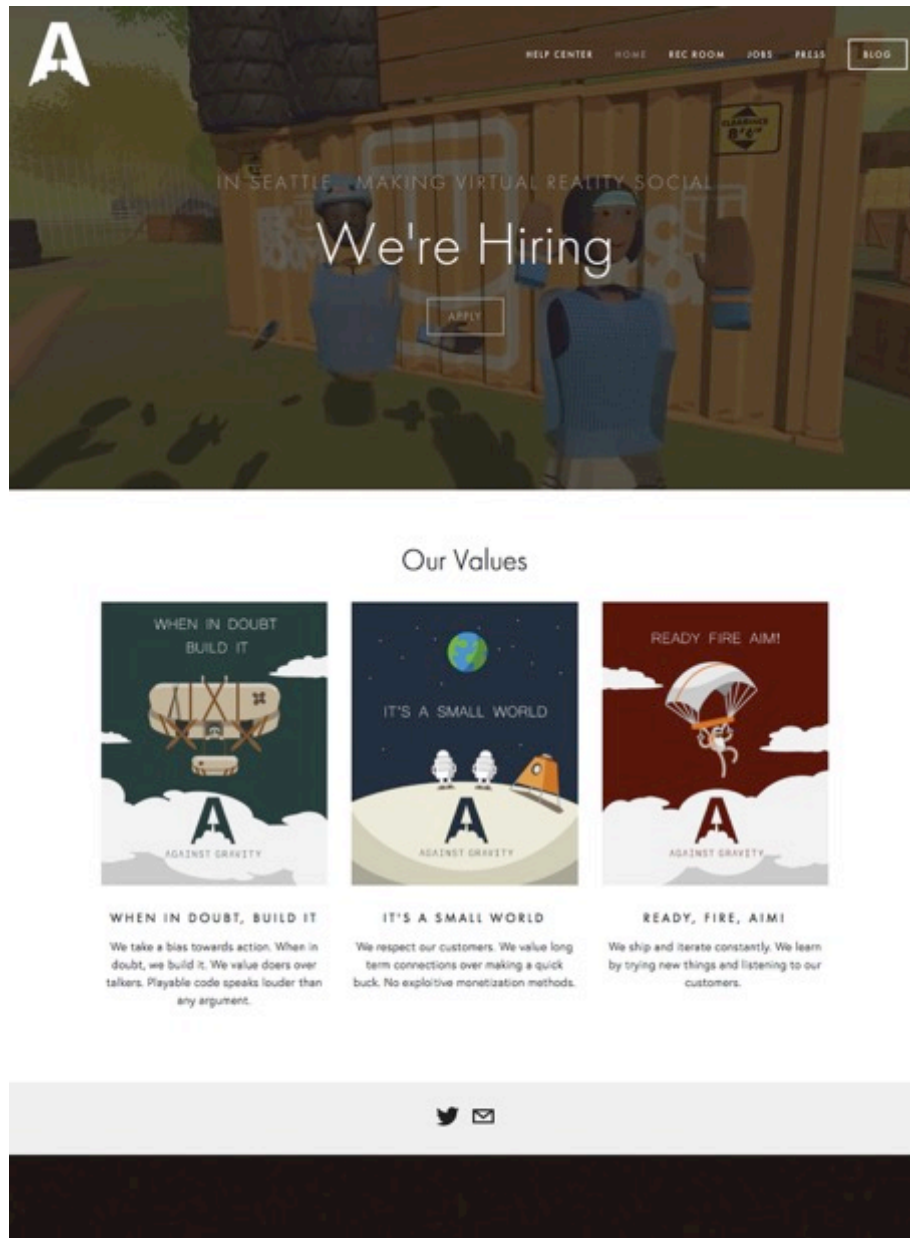


Figure 26. Website front page

The company values expressed focus on functionality rather than new concepts. The use of the words “doers” and “talkers” is frank and the preference expressed towards “doers” iterates the simple and to the point persona of the company. The sentence “Playable code speaks louder than any argument” comes across as a factual statement continuing the right and wrong binary of ‘doers’ and ‘talkers’. There is emphasises on the importance of customers by positioning them as a key directors of operation and

the phrase “We value long term connections over making a quick buck”, again reiterates a right and wrong binary where Rec Room occupies the positive position, while also eluding to the negative motivations of their competitors.

Embodiment

The video on the website front page is a trailer for Rec Room. We see various avatars portrayed playing games in various spaces. The avatars are toy-like in their appearance with simple facial features, they are floating heads on rectangular bodies with floating hands, they have no legs and they are dressed in a mixture of sporting attire and fancy dress costumes. In the video, there is more screen time given to a male and female avatar, that both have darker skin tones. Rec Room is portrayed as a fun place that is diverse, however the lack of diverse hairstyles still points to the maintenance of some western norms.



Figure 27. A still from the trailer

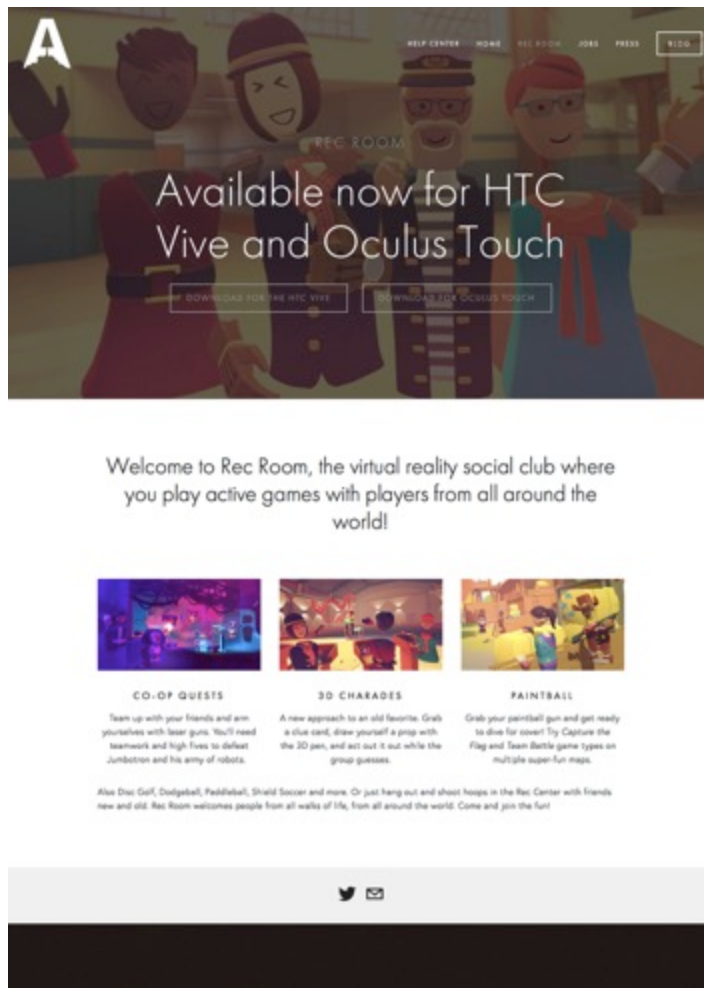


Figure 28. About Rec Room page

The phrase “Welcome to Rec Room, the virtual reality social club where you play active games with players from all around the world!” emphasises the international nature of Rec Rom, and the point of diversity is reiterated by the phrase “Rec Room welcomes people from all walks of life”. However there is no mention of personal identity. As this SocialVR space revolves around playing games, it appears the company focus is more on social dynamics related to actions of users playing games rather than their identity.

Text: Social VR/ A double-edged sword – Blog Post

This text is about how to deal with harassment in Rec Room. It states, “we are committed to our goal of making Rec Room a welcoming environment for people from all walks of life”. However, the words ‘identity’, ‘individual’ and ‘body’ are never mentioned. Harassment is portrayed as, “A user is getting up in my face in a way I don’t like”, “when a [user] is threatening to tickle you” and “one person’s ‘hilarious’ is another person’s ‘creepy’”.

The text states, that in order to avoid harassment one has access to “Ghost Mode”. Upon activation “Nearby players and objects will be “ghosted” (rendered translucent so they can’t block your vision), their hands are hidden, and their voices muted.” You can also dive into a deeper menu to specify which user you want to ghost so that the

other players remain visible. You can then ‘vote to kick’. This works on the concept of group consensus and nominates the harasser to be kicked out of the room. If enough people agree then the harasser will be removed. A visual example (gif animation) of harassment accompanies the text, with the perpetrator being a female avatar. The text is also explicit in sighting the gender of the harasser as female, stating that upon Ghost Mode activation, “Her hands are hidden, so she can no longer mess with me”. This is an interesting reversal of the usual discourse on harassment, but it could have been just as easy to use an androgynous looking avatar and not specify a gender in the hypothetical situation being portrayed.



Figure 29, a female avatar “getting all up in your face”.

Rec Room has made it clear that while these current anti-harassment feature are generally effective, they are “something we don’t love” as they are “purely reactive” and “puts the onus entirely on you to react to the situation”.

In reflecting on this text, it strikes me as interesting given the topic, that there is an active playing down of the severe impact of harassment and particularly sexual harassment in SocialVR spaces. The descriptions of harassment presented in the article makes it seem more like a mild annoyance rather anything that would have a serious impact. The use of a female avatar as the perpetrator in the hypothetical demonstration also completely backgrounds the notion of sexual harassment against females in virtual reality as a known issue in VR. In my opinion, the use of a female avatar as a source of annoyance in the demonstration immediately begins to create a discriminatory persona for female avatars in general.

My experience

Upon entering Rec Room I found myself in my personal ‘dorm room’. There was funky music playing and a voice over of a young English woman guided me through my basic hand controls. Movement in Rec Room was controlled by teleporting so if I held down the ‘teleport button’ which was mapped to both my left and right hand controls, I saw a dotted line from my hand to where ever I was pointing. If the dotted

line was green it meant I could teleport to that spot, if it was red then I could not. Once I let go of the teleport button, I was teleported to my chosen spot. My movement was accompanied by a visual zooming in to my new position, and the squeaking sound sports shoes make on a basketball court as you run and stop abruptly. In the middle of the room I saw a mirror and a reflection of my avatar. My default avatar body had pale skin, and short orange hair. The voice over informed me about my visual options and I was able to change my skin-tone, hair colour and clothing. Both of my avatar hands had faint yellow lasers emanating from them and when I clicked a button I could make selections. The voice over also told me I could turn by toggling my joystick on either hand controller. It made a swiping sound and my view also adjusted in a fast visual swipe. I turned about 45° at a time using the toggle or I could manually turn by moving my body. I changed my skin tone to mid-brown, my hair to black, my hairstyle to a ponytail and I decided to wear a bright blue patterned shirt. The voice over then told me about my personal menu. I could bring it up by looking at my watch, which appeared on both wrists of my avatar. I was then told that I could join other people in the 'rec room' by walk through the door in my room. I decided to stay in my room a little longer and get to know my controls better. In my menu I noticed that I had the option to pitch shift my voice, interestingly I could only shift it lower, with the controls 'normal', 'lower' and 'lowest'.

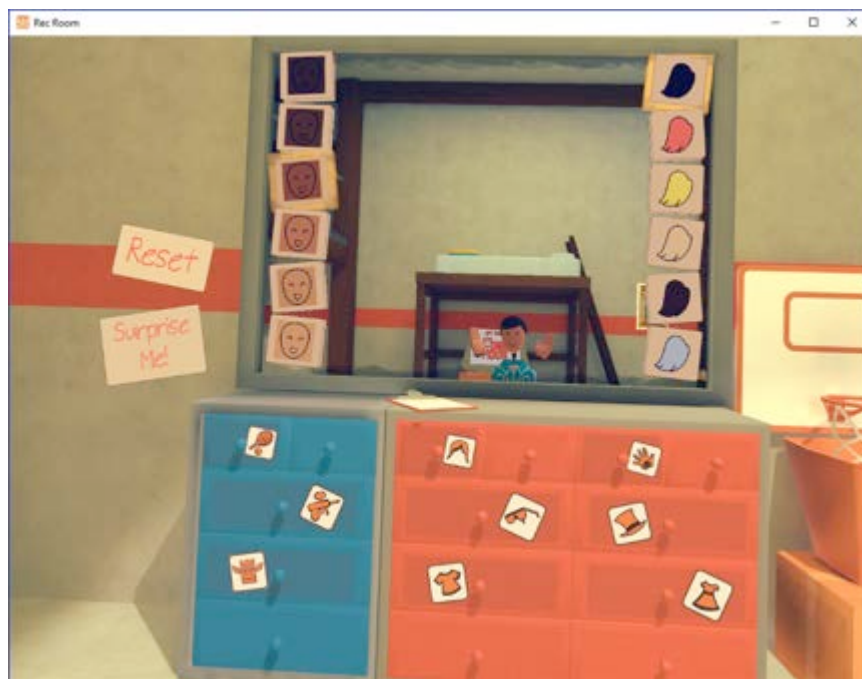


Figure 30. My avatar reflection in my dorm room mirror

In my dorm room there were various objects that I could play with like a basketball, ping-pong racket and even a whiteboard with pens and an eraser. When I got close to objects, they had glowing green outlines and by pressing the trigger button on either hand control I could pick them up. The action of picking up an object also initiated a vibration in my hand controller. It took me a little while to understand the mechanics for picking up, dropping and throwing objects, but it soon made sense to me.

There was a TV in my room and when I pressed the screen a video began. It informed me about the 'stop gesture' functionality. If someone was annoying me I could simply hold my hand up in a stop motion for one second and I would get a notification in my menu. If I confirmed the notification it would make that person invisible. If I wanted to make that person visible again then I could simple go to my menu controls and unblock them.

The 'rec room' was very lively with lots of voices; I could hear men, women and children as well as other languages like Japanese. Lots of people waved at me as I wandered around the room and I waved back. It was a very friendly atmosphere. There were various doors placed around the room that lead to different activities. I decided to go through a door labelled 'The Lounge'. In this room there was a poker table, ping-pong table and some couches, and there was also a stage at the front of the room where a couple avatars were drawing on white boards. I approached them and said hello, they were playing Pictionary and invited me to join. One was a woman from America and the other was a man from Canada. We played Pictionary for a little while, and then the man helped me practice my avatar functionality by playing Frisbee with me. I asked both of them how they liked Rec Room and they seemed very enthusiastic. The woman told me that just before I joined them they were playing Pictionary with a man from Korea who didn't speak much English but they were teaching him English words by drawing pictures on the whiteboard. The man suggested the three of us go and play a quest game together, he told me to bump his fist with my fist, as this physical contact would allow me to follow him into a new activity. So we bumped fists (which made my controller vibrate) and then I received a notification to join him in the activity he had selected. I was transported to the weapons room of the quest game. In this room there were various weapons that I could practice with before we started the quest. I played with a bow and arrow and decided to use this as my weapon. Once everyone had chosen a weapon we entered the quest. We were immediately under fire by creatures wielding swords and throwing firebombs. I was hit, the colour drained from my vision and I dropped my weapon. A message popped up in my vision that I needed to 'high five' one of my teammates in order to be revived. My team mates were also notified that I was hit and the man who was ahead of me came back and high fived me. I regained colour vision and weapon functionality and we carried on. I had a lot of fun shooting monsters. Unfortunately we never made it to the end of the quest, as when we got to a higher level we were all hit at the same time so it was game over. Before I left my Rec Room experience, my companions and I became 'friends' we did this by shaking hands for one second and then we were automatically added to each other's friend list.



Figure 31. An example of a quest game.

In adjusting to my embodied experience in this space, I appreciated having a private space to practice my control functionality before being surrounded by other people. This stopped the whole experience from feeling overwhelming. Although it took some getting use to, the vibrations in my hand controllers made my avatar control feel like an intrinsically embodied experience. Likewise with the visual motions and sounds that accompanied my movement.

I found the aesthetic appearance of avatars with simple line-drawn features promoted a light atmosphere. The fact that all avatars had the same base structure also maintained visual equality. Regardless of skin colour, hair and facial hair, everyone resembled a child's toy. Hence, the mental association attached with avatar appearance was inherently friendly. In my opinion the physicality of avatar interaction also made actions more meaningful by literally vibrating in one's corporal self. I felt the combination of physical motions combined with menu interaction and sounds, created a direct connection between my real world physicality and my virtual presence.

6.3.1 Theoretical Analysis

Rec Room's rendering of embodiment incorporates:

- Welcoming people from all walks of life
- A focus on social interactions around game play
- Physical experiences
- Real world identity is not relevant
- A focus on doing over talking
- A child-like aesthetic and perspective
- Reactive anti-harassment tools
- The equating of harassment issues to annoyance
- Economic strategies that are secondary

What discourses are currently defining embodiment?

The main focus of Rec Room is to enable social interaction through game play that can cut through social and cultural boundaries. These matters of importance outline the framework of creating a meaningfully embodied experience in the space. This framework intra-acts with VR technology, producing new practices of technological development that also carry the company's fundamental value of doing over talking.

The explicit company value of placing economic strategies behind user experience also allows material-discursive practices to focus solely on embodiment for social interactions that encourage equality, rather than enacting hierarchical boundaries that come with a focus on economic or cultural capital.

The sports themed premise of Rec Room reiterates the value of doing over talking in a literal sense. This theme also guides material-discursive practices in fusing the corporal bodily senses with virtual presence, hence making physicality the main focus of avatars. This physicality combined with the child-like rendering of human features serves to background personal identity, which is irrelevant when playing games in the space. The human skin-tone options denoting one's racial background are unnecessary, but as avatars represent 'people' playing sports, the western notion of 'people' comes with a deeply embedded discourse that Rec Room did not think to remove. However, while racial characteristics are present, their rendering within Rec Room's innocent aesthetic is currently disengaging stereotype activation. Similarly, avatar gender is not an intrinsically embodied state; rather, it is treated like an accessory that can be adjusted, which includes one's vocal signification. However, the limited options for vocal pitch do signal a preference towards masculinity being the ideal, hence revealing another hangover of a historical discursive practice.

While anti-harassment tools remain 'reactive', the introduction of new physical gestures like 'the stop gesture' enable one to feel physically in control of their personal space in VR. This easily enacted gesture subsequently also relegates the notion of harassment in VR to an annoyance that can be easily stopped and reiterates the light-hearted, child-like perspective that is encouraged by the aesthetics of the space.

How are embodied experiences configuring notions of self?

Avatars in Rec Room give users a strong sense of physical agency with a clear purpose to interact within the context of play, which also reiterates a sense of childhood. This 'play' allows one to be both physically and mentally immersed in the virtual world, with a sense of self that is loosely related to a real world self, but mostly governed by the tasks at hand.

7. Discussion

Through the discussion in my literature review, I have come to the understanding that a white, western male tradition is currently defining the boundaries of human experience in VR. However, agential realism argues that there is always possibility for change; therefore, the potential to shift the current boundaries in VR is still open, regardless of its initial starting point.

There are similarities between the three SocialVR spaces in their ideological positioning of inclusion, their semiotic renderings of race and their solutions to unwanted interactions. However, the way these elements are enacted, through intra-action with different concepts of SocialVR, technology and the perspectives of creators, create completely different outcomes. This provides insight into the ways in which agency works and how the potential to shift boundaries arises.

AltspaceVR presents itself as a clearly left-leaning and politically correct space. It makes a strong argument for the inclusion of women and LGBTQ members of society and is focused on making SocialVR experiences comfortable and safe for everyone. However, these good intentions fold in on themselves, as AltspaceVR's understanding of society and human interaction is based on the logic of inherent division between people, which actually serves to keep these divisions intact. Despite the differences between people, there are also many similarities and acknowledging the similarities first is a better place to start when trying to build a utopian social environment. By using computer game rationality as a base for avatar controls, AltspaceVR is adopting the ideologies that come with this control functionality and therefore further reiterating a white, western male tradition. In combating motion sickness issues, it gives people the choice of how they want to move around the space, however, there are those who can experience both modes and those who cannot. As the findings of Munafo et al. (2016) in my literature review point out, those more likely to enjoy both modes of experience are male. The functionality offered by AltspaceVR is not actually a choice for everyone rather, it reinforces a hierarchy that is based on the biological makeup of the user's real world body. As Edgar (2016) states, the body and world function as a meaningfully integrated system, with the physical capability of the body shaping how objects are meaningfully understood in the world (p 58), therefore those with greater physical capability in AltspaceVR have the potential to make greater use of the space and subsequently have greater influence in meaning making practices that emerge.

Both vTime and Rec Room also advocate for inclusivity, but in a less outspoken manner. vTime is focused on gender issues, but never mentions any specific divisions. Correspondingly, its avatar diversity revolves around human body shapes, without creating a binary male/female standard. Rec Room's take on diversity also doesn't mention differences between people and this perspective pervades their avatar functionality. Both vTime and Rec Room are more successful in keeping their controls non-hierarchical. vTime's gaze functionality revolves around a common eyesight power which is intrinsic to the user's body. This functionality is guided by vTime's positioning of avatars as one's real world self. The limits it places on avatar movement, also creates a unified experience for all users. Likewise, Rec Room's teleport only mode of movement is focused on providing equal movement control across all users. This decision is influenced by the context of this particular SocialVR

space, which necessitates equal game play functionality for all users. The experience of a Rec Room teleport compared to AltspaceVR also varies greatly. Rec Room's teleport is a much more embodied experience that creates a consistent visual zoom as you move, as well as providing an accompanying sound that adds another sensory texture to movement. AltspaceVR's teleport on the other hand is silent and the image fades in and out of black, which appears more like a jump motion than a consistent movement. This temporary blindness is disruptive to an immersive experience and highlights the separation of one's corporal body from the avatar.

The settings of social interactions in VR also impact greatly on their outcome of shifting boundaries between people. AltspaceVR is premised on a free-roaming world, where there are many different activities and events in many different environments. It is positioned as a virtual extension of real life, so therefore governed by similar concepts of how one interacts in the real world. Due to this direct translation of socializing into VR, the power dynamics of real life society like race and gender are an implicit feature in the virtual environment. The salience of race and gender are amplified by their simplification in the space, and the anonymity that generic avatars provide also opens up the potential of increased anti-social behaviour. vTime is also positioned as an extension of real life, however, rather than being a free-roaming space, it is focused on seated conversations between a limited number of people. The positioning of people directly within eye line of each other is a confrontational structure that encourages co-operation. One does not feel anonymous in this space, regardless of whether one's avatar is a real-life representation. A user's sense of agency and embodiment is greatly increased by their role in creating the outward appearance that others respond to in an intimate space. Rec Room on the other hand is positioned outside the real world. It facilitates a child-like sense of self, where interaction is mainly performed through play. Fulfilling sensory feedback and the semiotic renderings of avatars and the space also work to encourage this child-like perspective.

Racial divisions and slender body norms are still reiterated material-discursive practices in all three SocialVR spaces. These are elements that matter in current western society and in turn are made to matter in each of these spaces. Rec Room is the most successful in making these elements fairly insignificant, given their least human-like avatar representations. However, the inclusion of racial features leaves the potential open for this to become a significant matter in the future, even if current material-discursive practices render them benign.

Racial features seem to be so deeply embedded in our sense of self, that they are difficult to transcend even in SocialVR. This is reinforced by a sense that the main consumer purpose of VR will be to function as an important part of our life. Much like other digital technologies that are so intertwined with the habitus of our lives, "that they almost invisibly constitute the computational atmosphere of our existence" (Elwell, 2013. p 235), VR is poised to add yet another layer to our identity that will also affect our overall sense of self and others.

By examining three of the pioneering SocialVR spaces, I have gained insight into how historical material-discursive practices still pervade modern renderings of embodiment, with their salience dependent largely on the context of the space. The context of each space greatly influences the embodied experience provided, which in

my experience elicited different responses from my specifically female and non-European body. My study revealed how easily structures can preference certain types of people, while the rest of us are complicit, because our “perceptions of reality are so profoundly colonized, shaped by dominant ways of knowing” (hooks, 2013, p 437).

A clear example of design imposing dominant ways of knowing on one’s body, was my left-handed self struggling with the right-handed controllers of AltspaceVR. The common sense of these hand controllers means that everyone has to conform, even if it is uncomfortable. While this control functionality would eventually become easier if habitually practiced, the people that these controllers’ preference in the first place, would always have a leading advantage. This analogy can also be used in describing the less obvious but equally significant issues faced by female and non-European bodies in the overall framework of VR embodiment. This analogy also holds weight when thinking generally about the socio-historical constitution of structures in western society and our varying degrees of success when interacting with them.

Through carrying out my research, I learnt a lot about language in relation to action and I also gained a new understanding of myself and the responsibilities I bare through my identity. By using the methods of MCDA and Analytic Autoethnography I carried out a material-discursive study, which enabled me to see, that even if something is intentional, the circumstances surrounding this intention play an equally vital role in its enactment. The agential realism framework has shown me that I share responsibility for my place in the world through the way I respond to others. This insight has enabled me to see that I am not separate from a white, western, male tradition, but rather, connected to it. Furthermore, this allows me to reconceptualise my understanding of the VR industry and my position in it.

My study has shown that shifting boundaries between people in SocialVR is not just about stating an opinion loudly. Opinions can have negative potential if they are not backed up with thoughtful reflection on one’s own role in the current state of affairs. An agential realism ethics viewpoint argues that creators of VR need to take responsibility for the material-discursive practices that their chosen methods are (re)iterating. They must look back to understand the ideologies infused into the tools and concepts they are currently using, and they must look forward to think about how these elements can be reconfigured in a way that is responsive to many different types of people. It is also equally important that design choices are made in consultation with many different perspectives. Coming up with inclusive solutions in SocialVR spaces requires a new way of thinking about how we define people. Differentiating should not be a process of ‘othering’ or separating, but rather, it should be a process of making connections and commitments (Barad, 2007, p 392).

8. Conclusion

In this study I examined three pioneering SocialVR spaces, AltspaceVR, vTime and Rec Room, to identify dominant discourses surrounding the rendering of avatars and my subsequent embodied experience in each space as a woman of colour. My aim was to measure the inclusivity of each space by using personal experience to make a broader generalization about the state of inclusivity in SocialVR. My findings of AltspaceVR lead to a surprising insight into the resilience of socio-historic power-relations, in spite of strongly opposing intentions, and pointed to the importance of understanding the historical constitution of technology and application methods, if change is going to be meaningfully enacted. vTime and Rec Room were more successful in rendering inclusive environments based on clearly structured contexts of socialising. In placing performance limits on what was possible in these spaces, the creators were able to focus on constructing meaningful experiences that were reflected both in the type of avatar embodiment they offered and the corresponding embodied experience.

Overall my study revealed that in order to prevent the reiteration of traditional white western male power structures, VR creators must look back to understand the ideologies infused into the tools and concepts they are currently using and they must look forward to think about how these elements can be reconfigured in a way that is responsive to many different types of people. While my personal viewpoint as a woman of colour was able to raise some incompatibility issues in relation to my specific embodied experiences, more perspectives are needed to guide a truly inclusive perspective of SocialVR.

This work can be considered a preliminary study, as it is limited by its scale and time constraints. However, it demonstrates the positive potential to better understand human experiences in VR and it can be used as a basis for a larger study with many participants. Studies like this are important in questioning assumptions of common sense related to designing for diversity in VR. In order for VR as a medium to meaningfully break down boundaries between people, a clear and constant awareness is needed of how its technological development and the embodied experiences it provides, are affecting various human dispositions. I hope that this is one of many studies that will keep the industry self-reflexive in developing responsibly.

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Endnotes

On the 27th of July 2017, AltspaceVR announced its imminent closure. This set shockwaves through the industry as it was a pioneering and very popular SocialVR space. The unexpected closure was due to the company failing to acquire future funds for its continued development. 2016/2017 has proven to be a disappointing year for the VR industry, as projected adoption figures for the general public were not reached. Subsequently investors have become cautious and AltspaceVR became the first major casualty. Though AltspaceVR has officially closed, the space still remains open (as of 14th August 2017) in a skeletal structure, and I believe the creators are still working on solutions to try and save it. As a pioneer, AltspaceVR refined technology to serve their purposes in SocialVR and it will be interesting to see if knowledge gained in creating this space will emerge on another platform in the future. The closure of this space is another example of agency at work in the on going definition of embodiment in Virtual Reality.

More can be read about AltspaceVR's closure here:

<https://www.roadtovr.com/altspacevr-one-first-social-vr-platforms-shutting-next-week/>

Amendment:

It was announced on the 16th of August 2017 that AltspaceVR had been saved and the space has been up and running with full functionality ever since.

More can be read here:

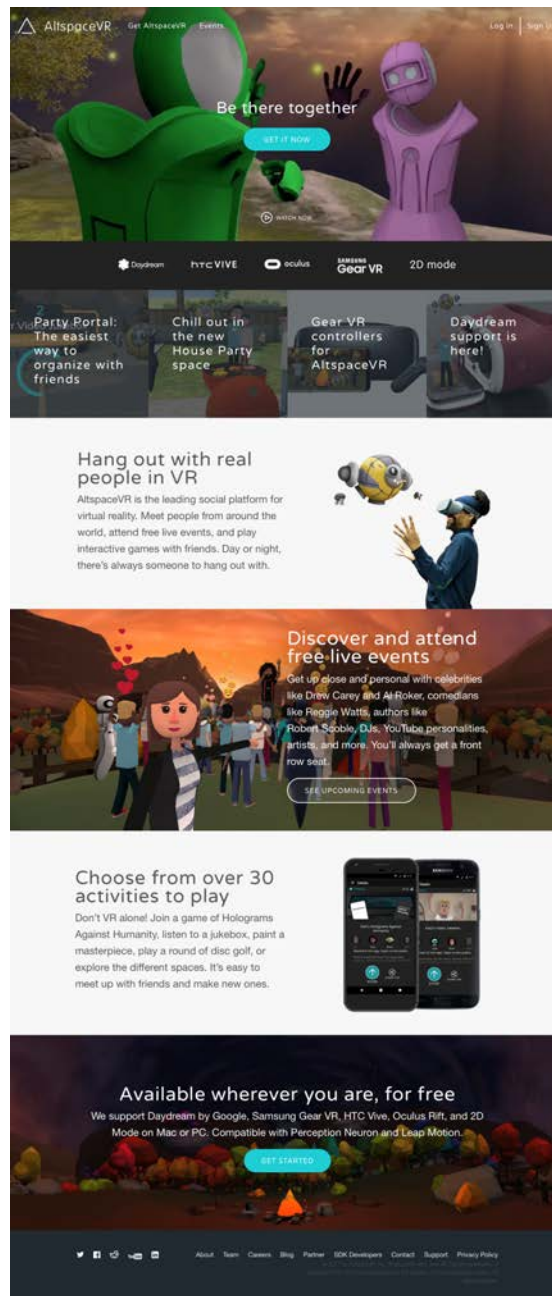
<https://www.roadtovr.com/altspacevr-reopens-virtual-doors-may-live-on-yet/>

Appendix

AltspaceVR

Full Multimodal Critical Discourse Analysis

1. Website front page



From looking at the front page and its accompanying visuals, the message being conveyed is that AltspaceVR is a place where people are friendly and diverse. The focus is on not being alone. The text is informal but imperative. Phrases like “Be there together”, “don’t VR alone!” and “hangout with real people in VR” are used.

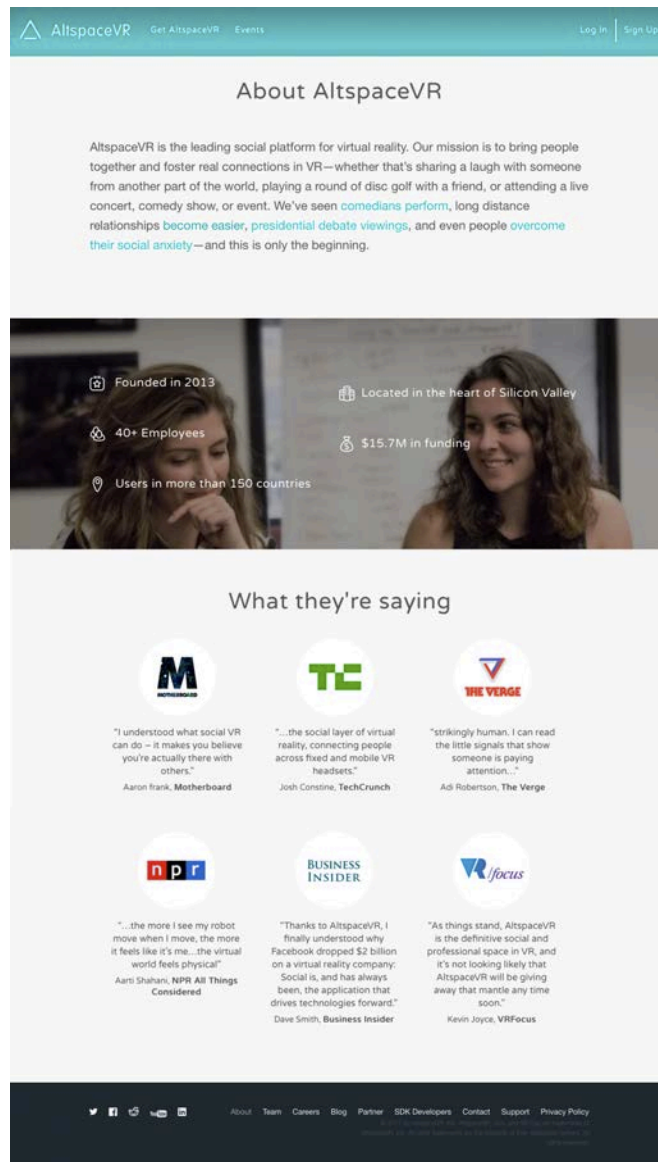
We see a banner video at the top of the page flashing images of scenes within AltspaceVR, along with footage of a woman and man in the real world, both wearing VR headsets. In the section below the banner video, we see a man in a VR headset. All three real people portrayed on the front page are of different ethnicities, and this can be understood as a comment on diversity, presenting AltspaceVR as a platform for everyone.

The next section displays a live event scene. We see a female avatar ushering the viewer into the scene. The performer on stage is also waving at the viewer. There are soft warm pastel colours and most prominently love hearts directly next to the female avatar's head. The main focus of this image is the female avatar, which is significantly gender coded with colour and object associations. The prominence of the female avatar adds to the diversity message being presented, albeit in a manner that adheres to conventional ideals of women/girls.

The description of attending live events and getting “up close and personal with celebrities” and YouTube personalities, denotes a cross over with current Internet celebrity culture and signifies a form of cultural capital within AltspaceVR. Although the text speaks about “free live events” there is no explicate promise that all will be free. Therefore I assume that AltspaceVR as a VR event venue could be an economic strategy of the company in the future.

Overall, I find the main focus of the text is on “you” and what “you” can do in AltspaceVR. It seems to be a fun extension of your real life but interestingly there is no mention of how you can be as an individual identity. Even though we see images of various types of robot and human avatars, the backgrounding of personal identity in favour of participation indicates that AltspaceVR is a place to fit in rather than a place to express oneself.

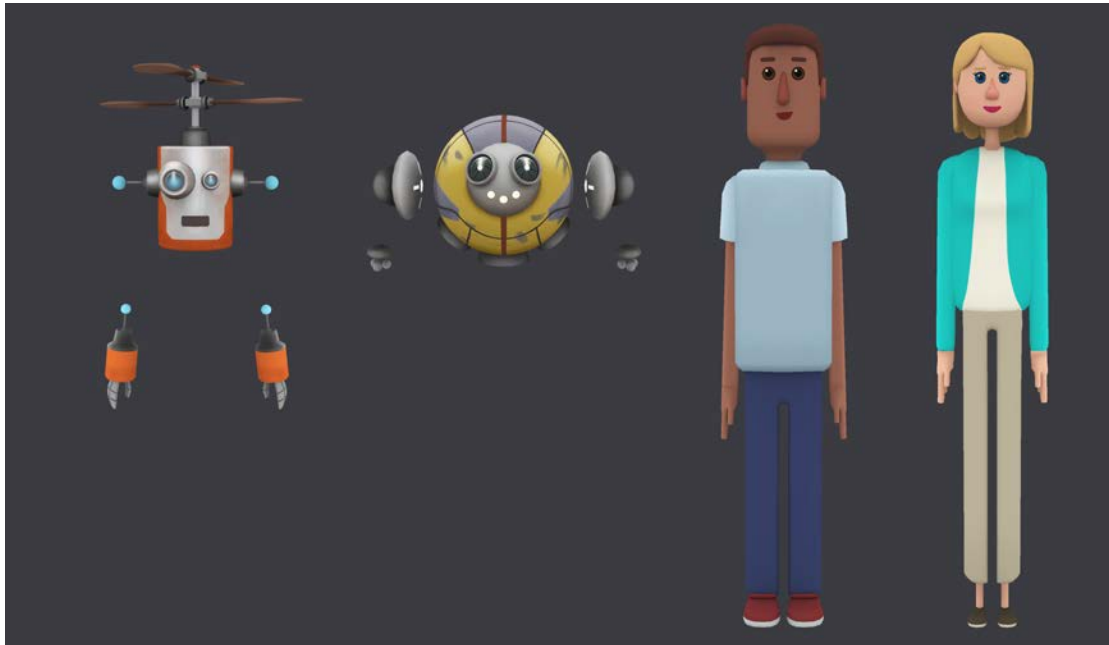
2. About the company – website page



This text takes a business tone. It states that, “AltospaceVR is the leading social platform for virtual reality” and “Our mission is to bring people together and foster real connections in VR”. To illustrate the fostering of real connection, examples are given of what AltospaceVR has already achieved by making long distance relationships easier and helping people to overcome social anxiety. Again there is no mention of how individuals are rendered but it is assumed that people will regard AltospaceVR as an extension of real life. The quotes used at the bottom of the page back up this position with phrase like “strikingly human” and “the virtual world feels physical”. There is no mention of AltospaceVR being free of charge, its absence on this page, which is aimed at potential investors, leaves possibilities of economic gain open.

The choice of image on this page continues the diversity narrative and in particular makes it explicate that AltospaceVR is a female friendly work environment.

3. New avatars available in AltspaceVR – blog post



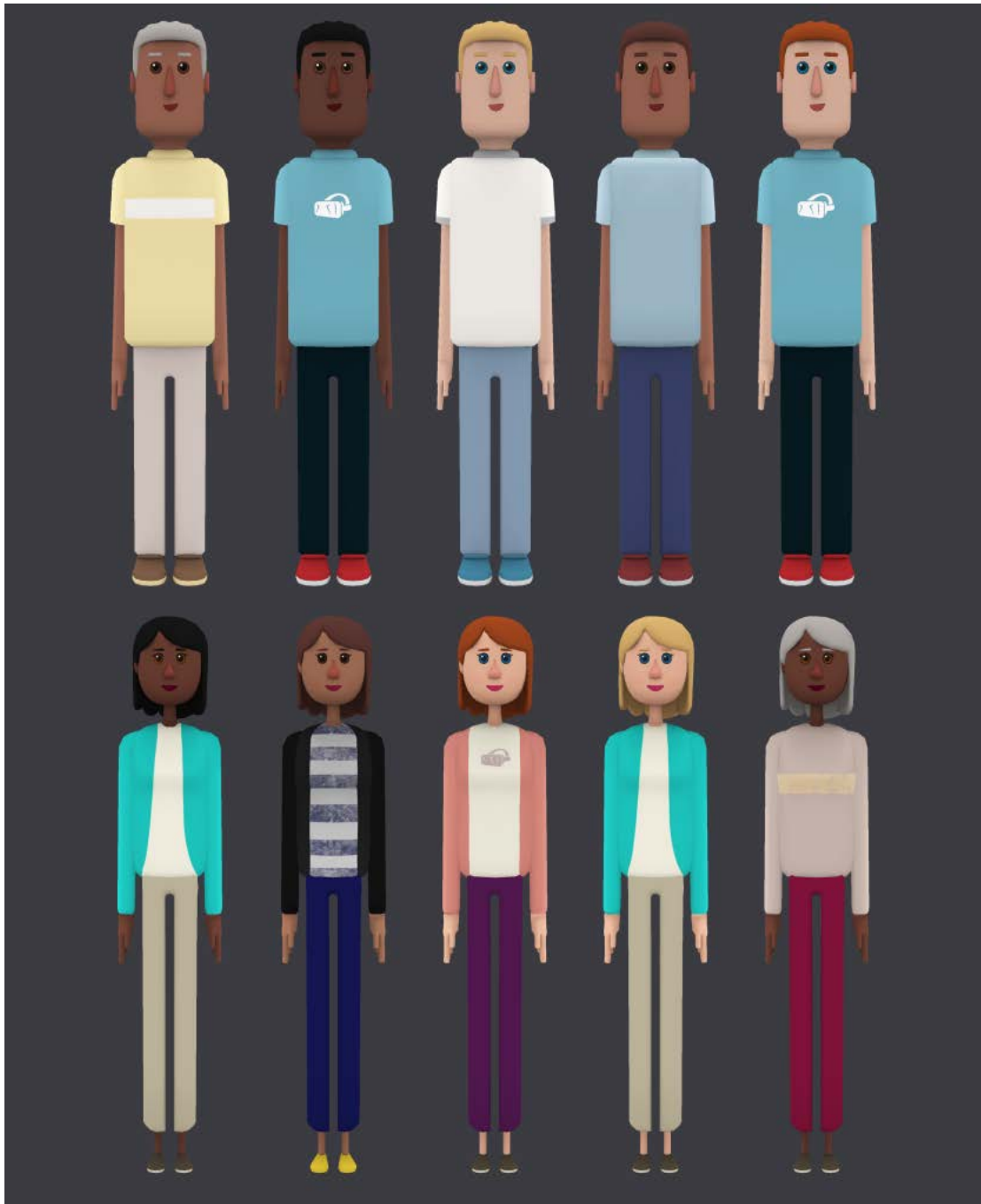
New Avatar line up

This blog post celebrates the release of two new robot avatar models and the AltspaceVR’s first human “avatar line” (the original avatars were all robot models). The article states,

Our vision at AltspaceVR is to enable natural communication online, where talking to another person in VR can feel like being together in the same place. Avatars are central to this vision.

The choices for the new robot avatars are described as keeping with the current ‘whimsical’ nature of AltspaceVR’s style. The human avatar designs are described as “major milestones for several reasons”. Interestingly the text lists only two reasons: Firstly by describing the need to get the detail and animation balance in human avatars just right in order for communication to feel ‘natural’. “We iterated on many different concepts before landing on these two models for our initial release”. Secondly,

We wanted to add variety to improve how people felt they were represented. Each human avatar launched with five hair styles, three skin tones, and three shirt styles, totalling 90 human variants. This is a huge step for avatar diversity in AltspaceVR, and it’s just the beginning.



Human Avatar line up

I find the concept of ‘natural communication’ in VR interesting given that it is a completely constructed environment, where users in this case are embodied in stylised avatars that correspond with AltspaceVR’s ‘whimsical’ brand. AltspaceVR’s use of ‘natural communication’ as a catch phrase signals a clear discourse that is equating what natural means in virtual reality to what AltspaceVR is constructing as an aesthetic.

I have three points of contention in looking at the human avatar presented in Figure 4. My first point is the choice of hair given to avatars. The text states “five hair styles” although it is apparent that “hair styles” actually means hair-colour. Given AltspaceVR’s positioning as a diverse-minded company, this misleading statement

suggests an attempt to gloss over identity issues related to hair. The female avatars have a short bob-cut hairstyle with straight hair and the male avatars have short vaguely curly hair. While the male avatar hair was somewhat ambiguous ethnicity-wise, the female avatar hair adheres to the social norms. Without the user being given a choice to change this attribute, women whose hair features outside the social norm are ironically more limited in representing themselves in this virtual space. Secondly I found the body shapes of human avatars to also adhere to social norms. Both are slim and with female avatars given long and skinny legs. The avatars are designed to fit the ‘whimsical’ style of AltspaceVR but the cute and petite appearance of the female avatars appears infantilised, and to me sends an uncomfortable message about ideal femininity. It is clear that these are only initial models with more on the way, and I understand that technical reasons currently limit user choices. However, in deciding which features will be standard, these decisions reveal preferences for certain types of humans, therefore also creating exclusions. Any decision made for representing a standard human creates exclusions, but AltspaceVR’s specific decisions clearly steam from the dominant discourse of power relations within the western world. This leads to my final point, which is the positioning of human avatars in relation to each other, in the above image. In both the male and female line-up the central figures are light-skinned. While this may seem innocent, a clear and repetitive decision was made. It is also interesting to note that the grey-haired avatars in both line-ups are placed on the outer.

4. IT’S A (HU)MAN WORLD – blog post



Title image of the post

This text was written to present anti-harassment features available to avatars in light of sexual harassment reports in SocialVR spaces. The most infamous story to surface was the sexual harassment of avatars belonging to women. This harassment included male users chasing women around VR environments and upon getting close groping space corresponding to the avatar’s breasts, butt and crouch, even if the avatars themselves possessed no such attributes. In virtual social spaces one uses their voice to communicate as headsets have inbuilt microphones, so as soon as a woman vocalises herself she becomes a target to some. In an effort to make sure that harassment does not become a norm, AltspaceVR has focused on developing tools to combat such behaviour.

The introduction of the article describes the potential of VR as,

Untethered by the limitations of the physical world, virtual reality spans geographies, unites people across genders, cultures, and occupations, and doesn't have to abide by the laws of physics.

However in the very next paragraph it relates VR directly back to our real world existence and how VR can have a functional place with in our real world lives. It then goes on to state,

Along with its potential, virtual reality also poses brand new issues that need to be addressed in brand new ways. As droves of newcomers enter a frontier-like virtual world, so too will they encounter its social norms and community ideals. At AltspaceVR, those ideals mean richer communication and radical inclusion.

The focus of the article then becomes about “proactive tools that could be combined with reactive measures” in tackling the problems of harassment in VR. The article asserts,

In the [physical] world, we have tools to express levels of discomfort, like facial expressions and body language, but in VR you're physically limited [...] In VR you might not be able to push someone back, but we can build tools that give you a different set of options to control your space.

This statement conflicts with the first, particularly the way physical limitations are portrayed. Even though the article began by celebrating the potential of VR, a clear perspective is expressed that the embodied state of a person including the sound of their voice in VR should relate directly to the real world. There is no discussion of how an avatar's gender signified construction could enable harassment in the first place, instead it is a given that real world problems will flow into VR and AltspaceVR can provided the tools for you to 'control' your space in this medium.

By adopting the perspective of VR being an extension of real life, this article presents AltspaceVR's stance as actively trying to shift power relations concerning women and LGBTQ individuals. The words “power” and “control” are used often and the notion of exerting one's personal power is constructed very strongly. This establishes AltSpaceVR's tools as common sense, and in doing so conceals the fact that the 'power' given to users is purely dependent on the specific perspective of embodiment and design choices of AltspaceVR.

The article makes it explicate that women and LGBTQ rights are a company priority, which is also evident in hiring practices. It states, “Determined to provide safe environments that encourage richer communication, a team comprised primarily of women developed AltspaceVR's Space Bubble” which,

Renders an avatar invisible once they reach a certain proximity to a user. The encroaching avatar is also made invisible to the rest of the users in the space to prevent harassment that a targeted user can't see

Other tools also involve being able to block other users by muting them and making them invisible in your experience of the social space.

In looking at the actual concepts infused in the anti-harassment tools, they seem counter to “richer communication and radical inclusion” providing instead tools that help to passively ignore issues people have with each other and the reasons behind them. Using the phrase “radical inclusion” seems contradictory, but in adopting this language it is able to equate these anti-harassment tools with the notion of ‘radical’ in the mind of the reader. The texts also talk about “recalibrating the ‘real world’ and the notion of “protecting humanity” as well as stating “we’re trying to solve a problem that society has not yet figured out how to solve”.

In my opinion the specific configuration of these anti-harassment solutions are influenced by an economic strategy to have as many people using AltspaceVR as possible without disruption. While meant for inclusive purposes, these tools have the potential to alienate and divide, enabling people to reconfigure their experience of public social spaces to only include individuals perceived as agreeable. This potential takes the idea of a “filter bubble” to a new level in what is meant to be a diverse and inclusive social space.

vTime Analysis

Full Multimodal Critical Discourse Analysis

1. vTime Website Front Page



The first thing that I noticed when looking at the webpage was the use of colour, vTime's striking 'brand' colour palette makes it immediately memorable. Set against a grey background the gradient of pink to orange is unusual, especially in the context of a tech company. The use of the traditionally gendered colour could also signify a message of diversity and shifting boundaries to the viewer. In what seems to be an iteration of this message, the banner video on the top of the page shows ethnically diverse groups of avatars interacting in different 'vTime destinations' with the majority of the avatars being female.

The text takes an authoritative and informative tone with statements like "The best way to meet, chat and share in VR", "vTime is the first VR sociable network that allows anyone, anywhere to socialise with family and friends in virtual reality" and "The future is already in your pocket". This statement also highlights the mobile nature of the app. The text is company focused and emphasises what vTime "allows" for potential users. The description of vTime as a "VR sociable network" seems to position it's aspirations to be as significant to VR as Facebook is to the Internet. The use of the word 'sociable' instead of 'social' also highlights the difference VR makes.

The second section of the webpage is focused on quotes from big name tech and business publications. The first visible quote on the page states,

It was at this point that it occurred to me that we may never really need the fabled Star Trek transporter H.G. Wells' time machine, because in virtual reality, you can already transport to any place or time with a mere gesture.

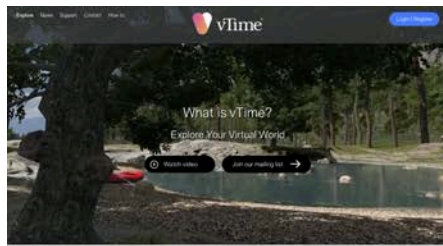
This quote highlights the high definition visuals and presence inducing nature of vTime. The other quotes follow a similar narrative. vTime's aspirations to be perceived as a leader in social connection are also iterated and made plain by the inclusion of the quote "Forget Facebook: World's first mobile VR social network lets you meet your friends in virtual reality".

In the following section there is a link that directs readers to another page, which describes vTime in more detail. This section is also accompanied by an image of a blonde woman wearing a black lace top with a Samsung Gear mobile VR headset on. The image has a heavy lighting effect applied making everything faded and white. This fading into white effect emulates traditional imagery associated with dreams, spirituality and the notion of transcendence. The woman's pale skin adds consistency to this image effect and her black lacy top adds contrast that while matching the black edges of the VR headset also reveals her skin beneath to evoke a sensual vibe. From the little we can see of her appearance, her slim build, straight blond hair and the lingerie-esqu look of her clothing place her as a western archetype of feminine beauty. While the rest of the webpage is consistent in its visual style the clear difference of this highly evocative image brings even more attention to it. Through the combination of using a real person of her specific physical appearance and lighting, the notion of western sensuality emanates and functions to attract the male gaze and instil a social norm for women to aspire to. This image is not simply portraying a woman in VR but a woman that adheres to western social norms. Regardless of the diverse imagery of the avatars at the top of the page, this single image is striking to one's emotional consciousness. A message of consequent audience identification and wanting is expressed and hence this image subtly follows the advertising practice of 'sex sells'.

Directly below the image are more quotes, this time taken from user feedback, the first quote states, "I would say vTime is definitely the most presence inducing app available right now" with following quotes emphasising its 'incredible' experience and graphics. Viewing these quotes directly after the image of the woman further builds on notions being conveyed by the image, and sets up a mental connection between the 'type' of woman who may be using the app and incredible graphics/experience. The quote "I just played vTime on the Gear and I may just chuck in Twitter" also iterates vTime's positioning as an unrivalled social app.

Finally the call to action "Be a vTime pioneer" towards the bottom of the webpage, enforces the notion of VR being unexplored territory that vTime enables access to.

2. What is vTime? - Webpage



Socializing with friends
will never be the same.

vTime is the VR sociable
network that takes the
humble smartphone, and
transforms it into a passport
to the outer edges by
simply adding a virtual
reality headset.

Released for Samsung Gear
VR, Oculus Rift, iPhone and
Google VR, the free app allows
people anywhere to socialize
with family and friends in a
growing library of incredible
virtual environments.



The language on this webpage has a formal and imperative tone. It is once again company focused and uses phrases like “vTime is the VR sociable network that takes the humble smartphone, and transforms it”, “vTime lets you socialize” and “Personalize your experience by creating a vTime avatar” to describe what the company platform provides and enables for users. The statements, “We’ll be working closely with the community to develop the network you want to see” and “We’ll be holding regular vTime FOURms where you’ll have a chance to vTime with us directly”, continues to put the company actions first in relation to users.

At the top of the page a video banner plays showing us four destinations available in vTime. Each destination is shown without avatars and the overlaid text states “Explore Your Virtual World”. This connotes that what vTime offers is the ‘virtual world’ and combined with the imagery portrays it as a pre-existing space waiting specifically for the viewer to enter.

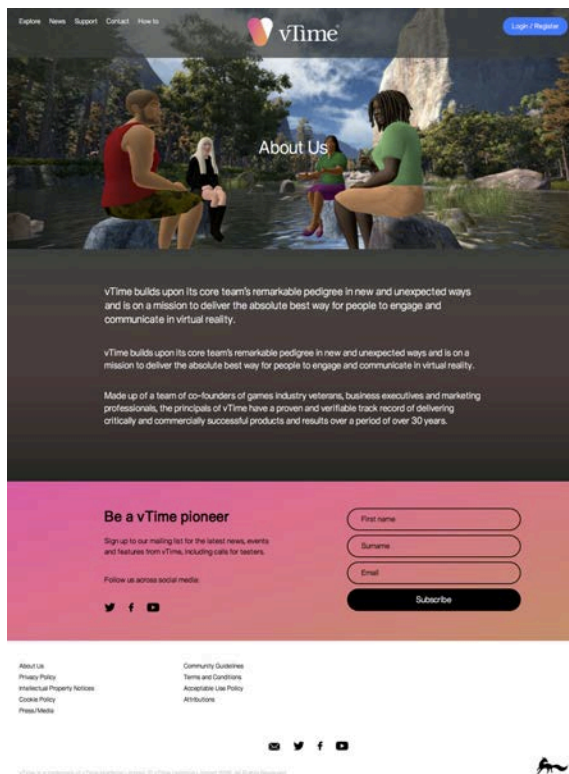
Its use of phrases such as “a passport to the outer edges”, “claiming your unique username” and “Be a vTime pioneer”, suggests users of vTime will be explorers in the new territory of VR. This connotation usefully conceals the fact that the VR experience offered by vTime is completely constructed from the company’s own interpretation of VR. There is also an emphasis on the “incredible virtual environments” vTime offers.

vTime’s functionality allows users to record and broadcast their conversations in VR; they even provided a ‘talk show’ destination, which can be seen in the accompanying imagery. By creating this recording and viewing “on-demand” functionality, it is apparent that users participating in these actions will gain cultural capital in the space. This could also transform into a potential economic model whereby users would pay to watch certain broadcasts, and this indicates the importance vTime is placing on ‘personalities’. The use of the phrase “on-demand” signals a clear influence of online movie and music streaming services.

The use of the phrase “ Make it personal” when describing the user’s avatar creation process along with the word ‘craft’, indicates that people should invest time into creating a meaningful representation of themselves. This endowing of significant meaning into one’s personal avatar as a “bespoke virtual you”, along with the phrase “share your world with ours” affirms vTime’s aspiration of being ‘the’ VR tool that manages one’s social connections.

The accompanying image in the avatar information section is of a slim Caucasian male avatar with the ‘eye-colour selection’ menu visible and set to blue. Next to the avatar’s head is a circular colour swatch that has a number of colours on it and he has distinctive features such as glasses and facial hair making it clear that there are many features to choose from. This section of text and it’s accompanying imagery are meant to portray how vTime ‘allows’ you to “craft a bespoke virtual you”, however the choice of avatar used sends a clearly western normative message in spite of the ‘complete customization’ idea being communicated. Any choice of avatar in this example would create exclusions but this specific choice seems to reiterate a norm that is also particular to the tech industry.

3. vTime About Us – Company Webpage



The impression I get looking at this company ‘about page’ is that it is an after-thought. While it is visually consistent with other pages of the website certain elements on this page appear unbalanced. Firstly the banner image shows a diverse group of avatars conversing in a nature setting, however the overlaid text while centred is awkwardly placed over the image, with the edge of word ‘us’ partially covering one of the avatar’s faces. Given there is space between the avatars the image could be more centrally aligned to be consistent with the impeccable graphic positioning on the rest of the website. Secondly, one paragraph of text has been repeated. It is first visible in larger text then again directly below in a smaller font. I am assuming this is an unchecked mistake, as it doesn’t make sense to me to repeat the same sentence twice on a row.

The text has a very business tone that manages to not give details on any aspect of what it talks about.

vTime builds upon its core team’s remarkable pedigree in new and unexpected ways and is on a mission to deliver the absolute best way for people to engage and communicate in virtual reality.

Made up of a team of co-founders of games industry veterans, business executives and marketing professionals, the principles of vTime have a proven and verifiable track record of delivering critically and commercially successful products and results over a period of over 30 years.

Interestingly this text does not speak about the medium of VR and the possibilities it offers as a new communication medium but again is company focused. It presents VR purely as a business opportunity rather than showing any passion for the medium. It’s emphasis on the “core team’s remarkable pedigree” and business track record is also clearly trying to position vTime as a sound investment opportunity.

4. How we design for diversity #IWD2017 – vTime blog post

This blog post was written in tribute to International Women’s Day 2017. The introduction to the article states,

The vTime Community is global and diverse. In late 2016, we redesigned our avatar creation system to reflect the uniqueness of each of our users, breaking down gender stereotypes in the process. For International Women’s Day 2017, vTime designer Beki Sutcliffe explains how she took on the task of making our avatars as diverse as our users

Directly below this introduction we see the following image,



Banner image for blog post

The word diversity is used twice in the short introduction, however despite this article written for International Women’s Day, I found it curious that in the above image male avatars still out-numbered the female avatars. The avatars are however ethnically diverse. The background also exhibits a rainbow-like colour gradient that can be associated with the LGBTQ community. As I read the article further it became apparent that “breaking down gender stereotypes” actually means making the question of gender irrelevant in creation of avatars,

We designed 36 archetypes to choose from as the first step in creating your new virtual self, as well as 24 different body shapes. This allowed for avatars with smaller and larger builds, in addition to subtleties in shoulder, waist, and hip measurements. With these changes we could remove the question of gender and create a more nuanced system which represented a wider spectrum of people than ever before.

The premise of this article quickly changes from being inspired by International Women’s Day to the notion of gender irrelevance when crafting one’s avatar. The text discusses vTime’s initial “simple” choices in avatar creation, which were due

to limited time and resources, however it states that vTime has “identified the question of gender as a problem – supported by feedback from the community”. The article also asserts that, “from launch it was – and still is – important to us to expand and improve upon the existing avatar system to give us – and our users – more freedom and choice.” As evident in the previous vTime texts, these statements continue to put vTime’s actions first in relation to their users and also in relation to the concept of VR. The use of the word “freedom” is redundant in this context however it serves to make a mental connection of what vTime is constructing as ‘freedom’ in VR.

The text states “In vTime your avatar represents you in the virtual world. The vTime community is diverse, interesting, and unique. Therefore the avatars that it is possible to create should be too.” This statement not only positions vTime as ‘the’ virtual world but also iterates that your virtual self should bare a clear resemblance to your real world self, this is also repeated by the statement, “the ultimate goal of making vTime somewhere you can feel proud to be yourself.” It is apparent that while vTime enables gender ambiguity, it should only be in relation to how you exist in the real world. An obvious limitation in being truly gender ambiguous is the vocal signification of one’s real world voice that is carried through into vTime. While vTime in relation to their avatar constructions states “at times this has been a development challenge, but one we feel it’s important to dedicate the time to” it is clear that this “developmental challenge” is limited by the scope of the company’s ideals and economic strategies. In this case it is to enable the user to invest their real world selves completely into their personal avatar construction.

The words “diverse” and “unique” are used more than once in the text making it evident that the company is pushing their avatar creation options as a big draw card as well as the notion of their existing user base. The text never mentions the LGBTQ community however the specific focus on non-gendered embodiment does position vTime as an advocate for LGBTQ identity issues. Interestingly even though the text states “In the future we’ll be looking to add more body shapes with varying levels of muscle mass, tattoos and body modifications, make-up, complexion options, accessories and much more” it provides no clear mention of culture or religion, therefore signifying them as less important issues in regards to a user’s virtual identity.

The text is accompanied by a video that shows the process of creating an avatar. The cover image of the video shows a male avatar of Asian appearance however when the video begins we see a Caucasian dark-haired male avatar and a blonde-haired female avatar that both have slim builds. It goes on to show the “archetype options” menu but eventually returns to the Caucasian male avatar. The video demonstrates how this male avatar’s body shape can be changed, however the body shape that is ultimately settled on is a slim build. The video then cuts to another male avatar of a more ethnic appearance that has a beard. The accompanying voice-over at this point states, “If you’ve chosen incorrectly you can select back at any point”. We are then taken back to the Caucasian male avatar and are shown the skin tone and aging options. After this we are shown the blond-haired female avatar and the customization options of facial hair, eyes

and eyebrows are demonstrated, the video continues with the blond-haired female avatar fine tuning her features. After describing the facial feature options in depth the voice-over states, “with millions of bespoke combinations to choose from you can make your avatar look more like you than ever before”. The video then goes on to show different wardrobe options and in the end we are presented with a clearly gender-coded avatar of a western female norm. I find this ironic considering that this video and the text that it accompanies is trying to express how the avatar creation process enables the creation of avatars as ‘diverse’ and ‘unique’ as the users of vTime.



the slim build male avatar.



“if you’ve chosen incorrectly”.



The blond woman



5. The Personal Shield – A New Way For Our Users To Take Control Of Their Personal Space – Blog post

This article announces vTime's implementation of 'The Shield'. This tool accompanies vTime's introduction of "Touch Controller support, which allows you to get closer than ever to your vTime friends" The notion of 'harassment' is never directly addressed, however it seems to be subtly implicate in the statement "The shield ensures that all our users can feel comfortable with the added levels of social presence that Touch controller support brings to the network." The personal shield is also described as "invisible force-field" which for me conjures up notions of science fiction narratives. The word 'control' is used often in the text in relation to one's personal space and the VTime experience in general. The shield "offers new ways to control who can get closer to you." vTime users have the option of configuring their 'shield' (which is on by default) in order to either be on for all users or allow the shield down for friends. The text states that when the shield is 'off', the shield icon in the user menu will be red, when the shield is off for friends only, the icon will be yellow and when the shield is on for all users, then the icon will be orange.



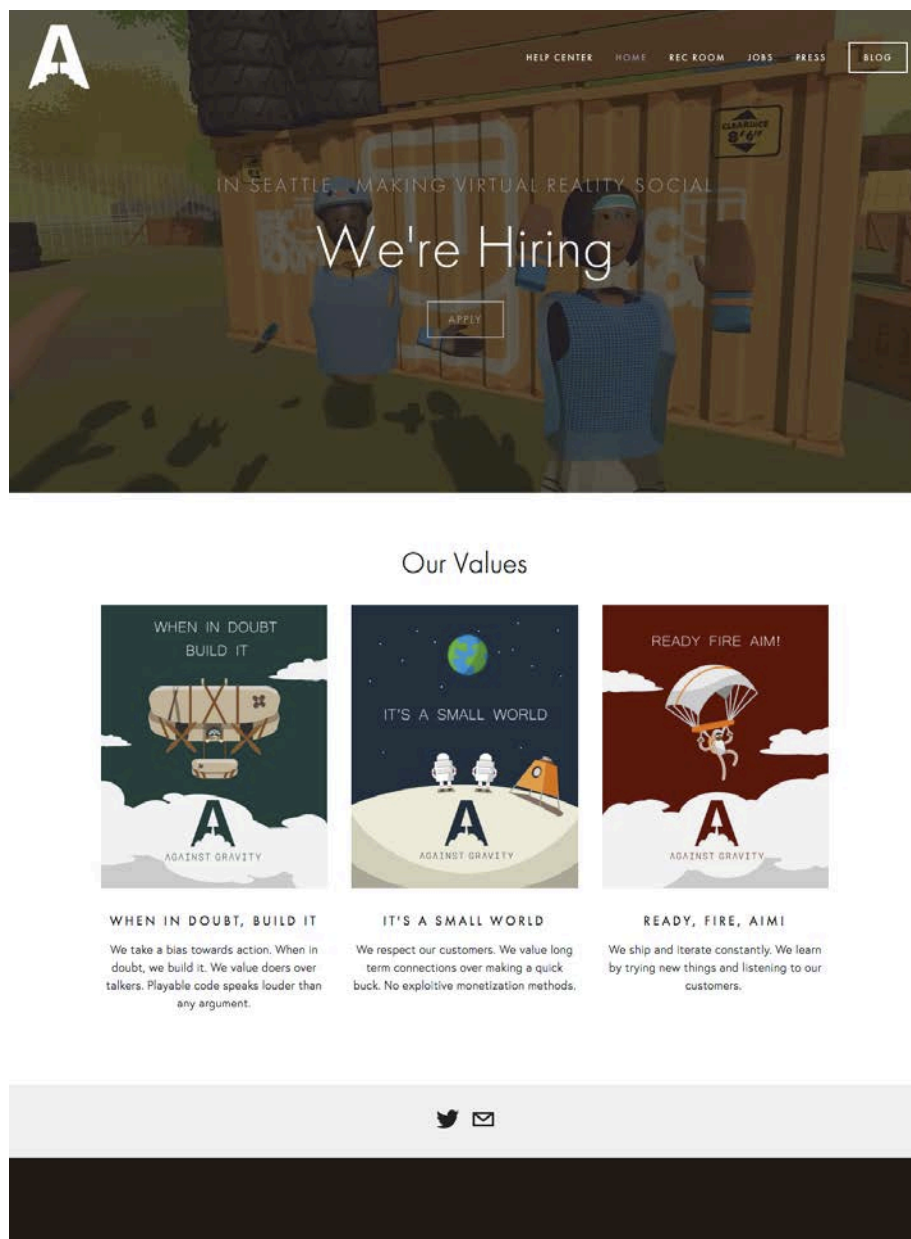
The image accompanying the article offers a prescribed illustration of a woman with her shield on and it is yellow, indicating that her friends are able to make 'physical' contact with her.

Rec Room Analysis

Full Multimodal Critical Discourse Analysis

1. About Company – Website page

The first thing that is clear when looking at Rec Room internet texts is that the SocialVR space does not have its own dedicated website. Instead it is a webpage located as a subheading within the website of 'Against Gravity' - the company that makes Rec Room. This positioning of the SocialVR space as part of a company rather than the company itself, as is the case of the other SocialVR spaces, leads me to believe that 'Against Gravity' will be potentially creating other consumer VR based applications to sit under its brand.



At the top of the webpage we see a very visible logo for ‘Against Gravity’, the website menu is located on the other side of the page in smaller and more innocuous text. The main message seems to be that the company is currently hiring, with this text presented in a large font and in the same bright white tone as the company logo. In less visible text above we see “In Seattle, making virtual reality social”. The banner video laid under the text is a trailer for Rec Room, it starts with an animated ‘Against Gravity’ logo and in the next shot is a scene of avatars playing games with the text ‘Rec Room’. It then continues to show various spaces. We also see various types of avatars with a mix of genders portrayed. The avatars are toy-like in their appearance with simple facial features, they are floating heads on rectangular bodies with floating hands, they have no legs and they are dressed in a mixture of sporting attire and fancy dress costumes. Their hairstyles are mainly short and euro-centric; one avatar has a bright orange Mohawk. The female avatars have either a bob-style hair cut with straight hair or their hair is in a ponytail. No avatars exhibit curly or afro-centric hairstyles. In the video there is more screen time given to a male and female avatar that seem to be either a couple or close friends, they also both have darker skin tones. At the end of the video the “Rec Room” texts appears once again along with “join the fun for free on steam” (Steam is an online gaming and VR content distribution platform). The video portrays Rec Room as a fun place that is diverse. The fact that the main ‘characters’ followed in the video are not the Caucasian norm also contributes to its message of diversity, however the lack of diverse hairstyles still points to the maintenance of some western norms.

In the next section we see the heading “Our Values” accompanied by three images in different colour tones that look like poster designs. They also exhibit a toy-like appearance reminiscent of a children’s book. The text in each image is repeated in the text directly below each image. The ‘values’ are short and succinct which along with the child-like imaginary creates a ‘ simple, innocent and to the point’ persona for the company.

The first value states,

WHEN IN DOUBT BUILD IT

We take a bias towards action. When in doubt, we build it. We value doers over talkers. Playable code speaks louder than any argument.

To me there is a clear impatience expressed which is focused on functionality rather than new concepts. The use of the words “doers” and “talkers” is frank and the preference expressed towards “doers” iterates the simple and to the point persona of the company. In pitting “doers” against “talkers” the company is also expressing an ideology based on their ‘logic’, which suggests that if they can’t build something then the idea doesn’t work. The sentence “Playable code speaks louder than any argument” comes across as a factual statement continuing the right and wrong binary of ‘doers’ and ‘talkers’. Such assertive language serves to background the notion that there is more than one way to approach VR creation.

The second value states,

IT'S A SMALL WORLD

We respect our customers. We value long term connections over making a quick buck. No exploitive monetization methods.

My impression of using such blunt language is that it also serves as a backhanded insinuation about the company's competition. The frankness continues with the phrase "making a quick buck" and a binary is once again set up, with the company occupying the positive position in stating points, which imply what other companies may not value. The use of the phrases "our customers" and "no exploitive monetization methods" also quietly deviates from the text presented in the video "join in the fun for free" setting up an expectancy of monetization methods in the future.

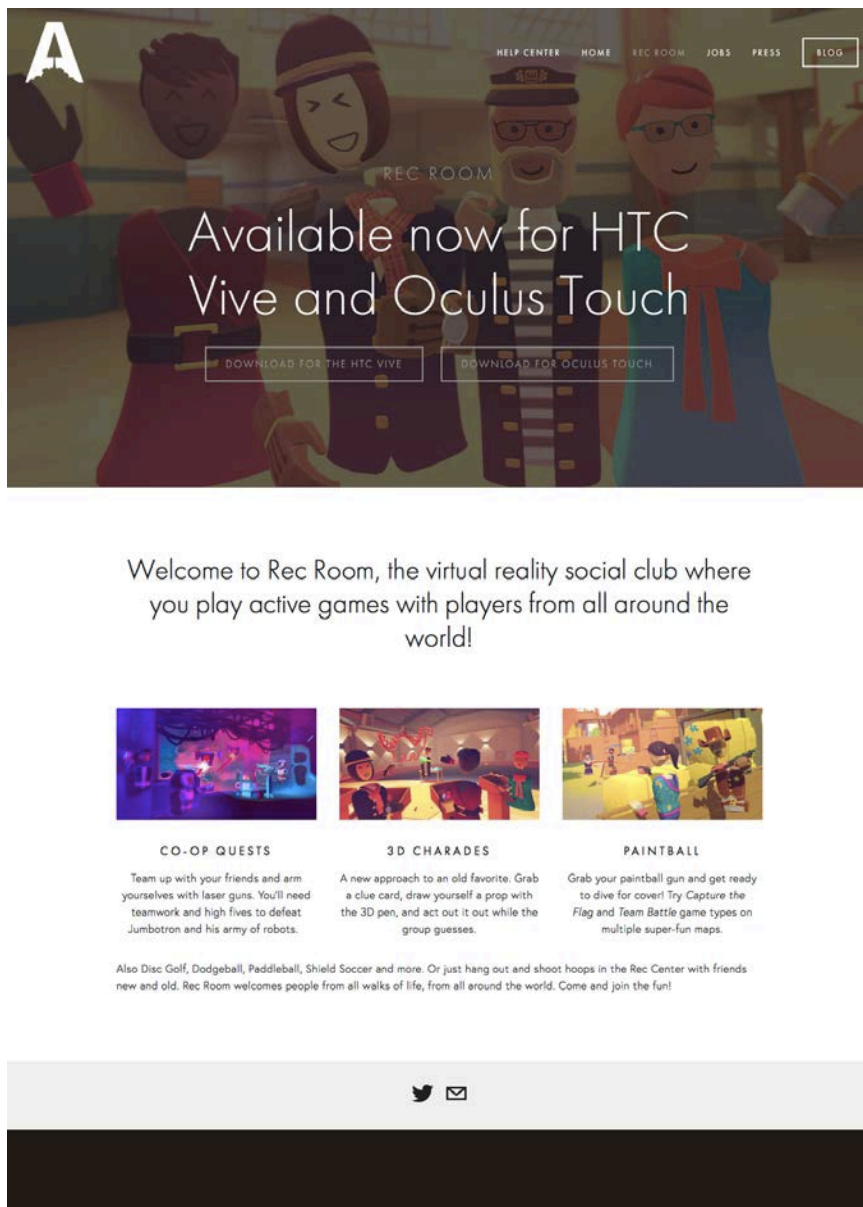
The third value states,

READY, FIRE, AIM!

We ship and iterate constantly. We learn by trying new things and listening to our customers.

The text implies that the company is constantly creating and releasing works which, will be ultimately judged on its functionality by customers. The statement "we learn by trying new things" is a general and non-descriptive measure of the company's creative process, it just states a universal common sense on the topic of learning. In making this statement however, it serves to once again set up a binary of what the company is doing and what others may not be doing. It also continues the narrative that whatever the company is able to make functional is the right way of doing and thinking about things. Finally this text also iterates the company's customer focus, positioning the customer as a key director of operations.

2. About Rec Room – webpage



In the first section of this webpage we once again see the bright white ‘Against Gravity’ logo. Interestingly the text “Rec Room” is almost invisible as a heading. There is a focus on the availability of the app on the major VR headsets.

In the background image of this top section we see four avatars. They have varying skin tones, and are dressed in attire reminiscent of a fancy dress party. An older avatar is present with a prominent white beard and is dressed as a sailor. Two of the avatars appear gender coded with one wearing facial hair and another in a dress with a bow but the other two avatars seem more gender ambiguous. The avatars are all smiling and look like they posing for a group photo. This image portrays Rec Room as a place where different types of people can all have fun together.

The section below is laid out similarly to the main website page. The text is once again clear and to the point, “Welcome to Rec Room, the virtual reality social club where you place active games with players from all around the world!” On this webpage the text specifically addresses the reader in an imperative form.

Three images and descriptions below portray some of the many activates and we see various avatars taking part. Below that the text continues, “Rec Room welcomes people from all walks of life, from all around the world. Come and join the fun!”

There is an emphasis on the international nature of Rec Rom, and the point of diversity made by the banner image is reiterated by the phrase “Rec Room welcomes people from all walks of life”. However, there is no mention of avatar embodiment or personal identity and the text does not expand on how a person’s ‘walk of life’ can take form. Given that this SocialVR space revolves around playing games, this lack of description asserts the company focus on social dynamics related to actions of users playing games rather than their identity. In looking at the avatar ‘style’ provided for users to embody in Rec Room, regardless of the various customisable options, they still all possess a cute and comical appearance that corresponds to a child-like view. This particular view, which is also not overtly gender-coded, could help to serve in easing real world identity discrimination from being played out in Rec Room.

3. Text: Social VR/ A double-edged sword – Blog Post

This text is about how to deal with harassment in Rec Room. It begins by talking about a video that was posted of an avatar getting harassed in Rec Room, it states that two perpetrators began advancing on another the player in a way that forced the player to quite the game. The harassed player seemed “somewhere between amused and shaken by the weirdness of what just happened.” Using this video “as a jumping off point” to address the issue of harassment in Rec Room the text states, “we are committed to our goal of making Rec Room a welcoming environment for people from all walks of life”, reiterating the ‘about Rec Room webpage’. However, the words ‘identity’, ‘individual’ and ‘body’ are never mentioned. Harassment is portrayed as, “A user is getting up in my face in a way I don’t like” or “when a [user] is threatening to tickle you”. Anti social behaviour is referred to as: “one person’s ‘hilarious’ is another person’s ‘creepy’” and ‘Code of conduct’ is the term used for behavioural boundaries these include the following rules:

- Rule #1: Be excellent to each other!
- No sexually explicit behaviour or language in the locker room or public activities.
- Whatever you choose to do in a private activity, still make sure everyone is cool with it.
- Sexist, racist, discriminatory or harassing language is not welcome in Rec Room.
- Don’t mess with other people’s games! We don’t want to implement a million rules to control your behaviour in every game. Don’t make us.

Like all of the other company text, the code of conduct is brief and too the point. An interesting feature however is the last rule. Instead of leaving it at one sentence, it continues in a scolding fashion, “We don’t want to implement a million rules to control your behaviour in every game. Don’t make us.” The over articulation of this final rule leads to the assumption that it is a pet peeve or on going problem in Rec Room. The warning that they don’t want to “implement a million rules” is an exaggerated firmness, connoting that if people don’t behave they will ultimately be responsible for decreased freedom in the space. I find the tone akin to that of an angry parent or teacher, with the threat to “control your behaviour” revealing the true power dynamic at play in this space. Instead of speaking in a way that appeals to the rational of participants and treating them like adults this final rule does the opposite in a manner that seems to be addressing teenagers. The ideal subject position encouraged by the text is one that is part of the Rec Room community with sentences like: “Luckily, we are blessed with a community of players who’ve been great” and “Seriously, much love to all of you who’ve worked with us on this!” However this positive affirmation of the community only comes after stating the negative issues. As in previous texts a clear reflection of the company’s binary approach to things is expressed.

The article continues, in order to avoid harassment one has access to “Ghost Mode”. Upon activation “Nearby players and objects will be “ghosted” (rendered translucent so they can’t block your vision), their hands are hidden, and their voices muted.” You can also dive into a deeper menu to specify which user you want to ghost so that the other players remain visible. You can then ‘vote to kick’. This works on the concept

of group consensus and nominates the harasser to be kicked out of the room. If enough people agree then the harasser will be removed. A visual example (gif animation) of harassment accompanies the text, with the perpetrator being a female avatar. The text is also explicit in sighting the gender of the harasser as female, stating that upon Ghost Mode activation, “Her hands are hidden, so she can no longer mess with me”. This is an interesting reversal of the usual discourse on harassment, but it could have been just as easy to use an androgynous looking avatar and not specify a gender in the hypothetical situation being portrayed.



A female avatar “getting all up in your face”

Rec Room has made it clear that while these features are generally effective, they are “something we don’t love” as they are “purely reactive”. The text continues,

It puts the onus entirely on you to react to the situation. We don’t consider this ideal, but we’re still in the early stages of figuring out the right mix of reporting, moderation and other tools to increasingly prevent (as opposed to react to) unwanted interactions.

This statement again reveals the ‘parental’ role that Rec Room is occupying. In reflecting on the tools, the text acknowledges that users are already familiar with ‘vote to kick’ and that “we see people using it a fair bit”. It also states that Rec Room are going to “do a better job of introducing and teaching Ghost Mode to new users”. They assert “ We encourage players to practice initiating Ghost Mode in their Dorm Room [the players personal space], so its second nature if they ever feel the need to use it.” Although the company concedes that the current protection tools are not ideal, the implementation of these actively segregating tools has the potential to encourage specific habitus and thus a common sense of being able to easily exclude ‘other’ individuals.

In reflecting on this text, it strikes me as unusual that given the topic there is an active playing down of the severe impact of harassment and particularly sexual harassment in SocialVR spaces. The descriptions of harassment presented in the article makes it

seem more like a mild annoyance rather anything that would have a serious impact. The potential of people's games being ruined however seemed to be addressed with more sternness. The use of a female avatar as the perpetrator in the hypothetical demonstration also completely backgrounds the notion of sexual harassment against females in virtual reality as a known issue in VR and instead makes a statement on equality in performing acts of harassment. However, in my opinion, the use of a female avatar as a source of annoyance in the demonstration immediately begins to create a discriminatory persona for female avatars in general.

Finally the article ends with a reiteration of the phrase "be excellent to each other!" It appears to be a catch phrase that also reflects the teenage language mentality, which seems to be part of the 'brand identity' of Rec Room.