

Chapter 8

Embodying VR Avatars as a Dynamic (Para)Social Interaction: Towards a Future Research Agenda


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Abstract

Our interactions with multiple selves are becoming increasingly complex through immersive technologies. We are not merely controlling our virtual representations through on-screen avatars but can now look through their eyes and walk in their shoes due to the embodiment illusion in virtual reality. This chapter examines who is looking back when we look into virtual mirrors and the consequent implications of such experiences. Current research in this domain lacks coherence and frameworks, often relying on reductionist grounds, focussing on personality traits, user types or demographic characteristics like age or gender. These approaches become insufficient given the significant impact of interacting with virtual avatars on shaping cognition and behaviour. The chapter argues for examining embodying avatars as a highly interactive and dynamic social dyad rather than a sum of the user and the avatar. This approach will involve rearticulating game studies' player–avatar relationship (PAR) and social psychology expansion theory, particularly the inclusion of others in the self. Parallel exploratory studies of rich VR communities' experiences and discussions would open new perspectives and phenomena, expanding our horizons and future research. Ultimately, the chapter aims to enable the development of meaningful and grounded literature on VR avatars, addressing the complexity of the phenomenon and the lack of interdisciplinary conversations, thereby providing a more comprehensive understanding of our interactions with embodied virtual representations.

Virtual Reality Gaming, 117–129

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Introduction

What makes you as you are and what are the boundaries of you? We can say that, from a biological standpoint, ‘you’ is confined to your physical body, and from a psychological standpoint to the web of your thoughts, emotions and behaviour. We can go further trying to unravel the essence of you-ness by considering DNA or personality as the defining cores. Going beyond these intrinsic aspects, we can broaden our perception to extensions that represent *you*, such as clothing, physical private spaces such as your home, or your profession and hobbies. We curate these physical representations on a daily basis depending on a number of circumstances such as financial constraints or potential social occasions, sometimes deliberately sometimes less so, but expressing our ‘selves’ nonetheless. On an even wider scale, we can talk about the sociocultural background and religious or spiritual beliefs and practices, all simultaneously shaping and representing us. In the digital sphere, simply looking at a social media profile, we can discuss choices in profile pictures or the curated content that one decides to share on their own profile. Finally, the relevance or lack thereof of these non-exhaustive aspects in our own perception of self as well as others’ perceptions of us may greatly differ, but remain parts of us and our expressions of who we are or what we are like. Certainly, these different perspectives or foci are recognised but have their own traditions in research and scholarly thought. Consideration of the array of these conceptualisations of self is beyond the scope of this chapter, but it is important to note a relatively recent attempt to consolidate them into a pattern theory of self (PTS) (Gallagher, 2013; Gallagher & Daly, 2018). PTS recognises all aspects described above and pins them as a dynamic web of self.

Importantly, it emphasises that we continuously evaluate and renegotiate these aspects of ourselves and in turn shape the pattern as a whole rather than necessarily treating them as independent and immutable. This perspective is central to this chapter which posits that the pattern of self and the presumed pattern of the embodied avatar as another self are interdependent through a social relationship.

Indeed, similar to the example of profile pictures, avatars we choose to use or that are imposed on us, in one way or another, become extensions of ourselves. The evolving technologies including such self-presentations are becoming seamlessly and unprecedentedly woven into most aspects of our lives and concepts of self-presentation and identities have taken on an entirely new dimension along with them. Each day, we navigate ourselves through continuous crafting and curation of the images we project in both physical and digital worlds – sometimes driven by subconscious impulses and sometimes by deliberate intent. Within digital domains, individuals have an unparalleled opportunity and freedom to represent varied facets of themselves in a myriad of ways, including embodied VR avatars. While many may still choose visual self-representations, or avatars, that closely resemble their physical selves or slightly enhanced versions thereof (Freeman & Maloney, 2021; Messinger et al., 2008), many take

this opportunity to also explore identities virtually without the biological or other constraints (Nowak & Fox, 2018).

As technology continues to march forward, the platforms and the ways in which we can explore or amend our identities and their representations will continue to evolve. Today, VR environments and their affordances present unique uses and interactions, which are continuously infiltrating more domains – ranging from training, education and professional life to mental health interventions and leisure activities (e.g., Dincelli & Yayla, 2022; Keizer et al., 2016; Mayer et al., 2023; Radhakrishnan et al., 2021). In this vastly expanding field, one of the most intriguing facets of VR is the immersive illusion of embodiment or ‘stepping into another’s shoes’ and changing the schema of our corporeal boundaries through body tracking technologies to include avatars as well (Furlan & Spagnolli, 2021; Maselli & Slater, 2013; Petkova & Ehrsson, 2008). This phenomenon goes beyond mere curiosity and an intriguing experience; it has emerged as a powerful tool for fostering perspective-taking and extending our cognition and ways of knowing the world beyond the limitations of our physical selves (Beyea et al., 2022; Furlan & Spagnolli, 2021; for example, in the VR game *Moss*, the players’ perspective of space and size changes through embodying a small animal and consequently viewing their environment from an otherwise impossible perspective). In other words, it blurs the boundaries between the self and the other, challenging our understanding of the boundaries of ourselves as individuals and consequent possibilities for freedom of reinventing ourselves, or at least temporarily assuming desirable identities or facets thereof. This seemingly straightforward yet remarkable mechanic of embodying avatars in VR holds the potential to be an empowering force on one hand (e.g., Gorisse et al., 2023; Osimo et al., 2015) or an exploitation of stereotypical understandings for reducing bias through evoking empathy with the embodied other (Chen & Ibasco, 2023; Crone & Kallen, 2022; Herrera et al., 2018).

In immersive interactive media that enable embodiment, systems often grant users the autonomy and agency to customise their avatars or even create their own with no boundaries set by the system itself (Bujčić et al., 2023; Nowak & Fox, 2018). Users shape their virtual selves, aligning them with their own self-image or adapting them to suit the context of the experience and often do so without understanding their choices or what consequences they might bring, such as in free-choice avatars in the *VRChat* game application (Freeman & Maloney, 2021). The motivations driving avatar customisation mirror the complex and context-dependent nature of human self-conceptualisation, self-expression and belonging. Just as one selects attire based on the demands of a masquerade ball, a formal event or a visit from guests, the choices made in avatar customisation in certain contexts reflect these dynamic patterns of our self-aspects (Gallagher & Daly, 2018). Thus, any effects of embodied avatars on our acute or long-term self, just like of any other aspect of ourselves, are not as straightforward as adding a piece to a puzzle; rather, they interact in one or more aspects with our existing patterns and are shaped, enabled or limited by them.

Consequently, these virtual self-representations transcend the realm of mere visual aesthetics and preferences. They play an active role in shaping our thoughts, behaviours and self-perceptions and potentially impact a renegotiation of other aspects of ourselves. The postures adopted by our avatars and their attire

have a subtle yet profound impact on our subconscious, echoing the effects of physical body language in the physical world (e.g., Macey et al., 2022). We also tend to conform to the biases, stereotypes and meanings we associate with our gaming avatars (Praetorius & Görlich, 2021; Szolin et al., 2023b; Yee & Bailenson, 2007), suggesting at least partial and temporary incorporation of the avatars in the self. Even more so, in embodied VR games, these effects appear to have a stronger impact (Beyea et al., 2022; Praetorius & Görlich, 2021) due to embodiment through the illusion of body ownership (Maselli & Slater, 2013), while the effects of self-representations can ‘bleed’ back to our non-digital selves and behaviour, extending their impact beyond the virtual (e.g., Herrera et al., 2018; Rosenberg et al., 2013). Although desktop-based avatars have a similar effect, that of VR games can potentially profoundly affect not only the player experience but also our everyday lives. VR games like *Half-Life Alyx* and *Boneworks* could elicit different playstyles if their avatars were customisable, while one of the main allures of open worlds such as VRChat seem to be the freedom of expression, exploration and targeted influence of embodied avatars, along with the embodied interaction afforded through them (Freeman & Maloney, 2021; Freeman et al., 2022; Maloney & Freeman, 2020).

However, the boundaries of our understanding are clear when we note that the majority of insights on digital self-representations in the context of embodied VR are drawn from studies either involving controlled and imposed avatar representations, often void of user agency and closer to proof-of-concept explorations than authentic expressions of individual choice, or explore the existing user base with no structured holistic theory-based approach as a basis. Consequently, the individual relationships between ourselves and our virtual self-representations have been neglected in favour of even further perpetuating stereotypes as the silver bullet for reducing biases through perspective-taking or enhancing our virtual interactions, such as gender- or ethnicity-determined behaviours. The current research practices thus often uncritically operate within the frames that virtual self-perceptions and identities are simply used as tools, or masks, to reach desired effects or are explored in an unstructured way.

The Major Veins of Avatar Research

To understand what and how we know about the impact avatars can have on users, we will first shortly consider several prominent veins. The multifaceted meanings and uses of avatars differ depending on the system as well as individual preferences and can arguably be considered through three non-discriminatory categories, namely avatars as tools, objects and personas. As tools, they serve the utilitarian purpose of navigating interactions within virtual environments as systems; as objects, they are interacted with as playful things; and finally, as personas, they are conduits for identity exploration and performance. Albeit avatar research has often been multi-disciplinary, we can discern and consider major veins in at least the following perspectives: psychological studies provide a glimpse into how avatars shape our self-concepts and behaviours and motivations for using certain avatars; sociological

analyses highlight their significance in taking on roles signalling belonging while interacting within online communities and player–avatar relationships (PARs) as social communicative processes; cultural studies emphasise the significance of avatars as symbols of identity and objects encoded with power relations existing outside the digital world and within human–computer interaction, VR embodiment considers technologically-mediated deepening of the connection between users and their virtual counterparts, incorporation of different senses such as touch and the expansive scope of possible embodiments, including animals.

From a psychological perspective, we can consider two major contributions mechanisms through which avatars change how we think, feel and behave (Proteus Effect) and what motivations stemming from our images of ourselves drive avatar customisation (self-discrepancy theory). First, as noted before, the so-called ‘Proteus Effect’ (Praetorius & Görlich, 2021; Szolin et al., 2023b; Yee & Bailenson, 2007) is often used to partially explain the affective, cognitive and behavioural changes in users when embodying an avatar. This effect suggests that digital representations, like avatars, can impact users’ thoughts and actions, much like their physical self-representations and that they essentially serve as mirrors reflecting and shaping our psychological processes. Proteus effect relies on three psychological theories and relies on perceiving avatars as extensions of ourselves. Importantly, as shortly mentioned in the introduction already, a recent meta-review noted that VR-embodied avatars have a stronger influence on us than on-screen ones (Beyea et al., 2022). Second, understanding the motivations behind avatar selection and customisation has been a complex endeavour. Some attempts at explaining these motivations stem from, for example, the self-discrepancy theory (see Higgins, 1987) which provides a useful and often referred to framework, distinguishing between perceived actual, ideal, and ought selves and how are the discrepancies between these three pre-existing images of ourselves projected onto avatars and virtual personas we create (e.g. Loewen et al., 2021; Mancini & Sibilla, 2017). Recent research suggested that avatar creation styles – simplified and categorised as realistic, idealised or fantastical – often align with the discrepancies between individuals’ actual, ideal and ought selves respectively, stressing the psychological significance of avatars as tools for self-expression and exploration (Loewen et al., 2021). However, motivations for avatar use also encompass them as instruments for intentional identity concealment or playful experimentation, such as gender-swapping or subculture exploration (Freeman et al., 2022; Paik & Shi, 2013).

Sociological perspectives also recognise avatars not as passive images but as active agents contributing to the formation of online communities and digital subcultures. Here, avatars are often discussed as potentially embodying principles akin to Erving Goffman’s dramaturgical perspective which emphasises self-representation as a performance, role-playing and changing of masks (see Goffman, 2016, originally published in 1959; Krell & Wettmann, 2023; Martey & Consalvo, 2011; Saker & Frith, 2022). Similarly, individuals construct and manage their virtual identities much like they do in social face-to-face interactions, creating and acting out different roles. Notably, the rise of MMORPGs at the beginning of the century marked a significant milestone in the study of avatars within online virtual environments with

rich literature (Williams et al., 2011). In these complex virtual social worlds, avatars take on various forms and roles and users are able to adapt their representations, enabling engagement with others and forming social connections and defining belonging through their chosen digital personas.

On the other hand, there have been attempts to conceptualise the relationship between the user and avatar as a parasocial relationship or a parasocial dyad within games. These are most often seen through the lens of the PAR typologies developed by Banks and colleagues (Banks, 2015; Banks & Bowman, 2016; Szolin et al., 2023a). These typologies consider the relationship between users and their avatars, taking into account aspects such as emotional proximity and identification between the user and their avatar. Specifically, PAR recognises four distinct relationships – avatar as object, avatar as me, avatar as symbiote, and avatar as social other – each indicating varying levels of self-differentiation, agency and intimacy and their patterns. There is conflicting evidence on whether the perception of an avatar as a social actor is positively related to convergence/identification (Banks, 2015) or phenomenal divergence between the user and the avatar (Szolin et al., 2023a). Regardless, PAR rightly emphasises the dynamic between the user or player and the avatar as the basis for its use and effects alike.

Although closely related to some of the perspectives described above, it is important to separately note that avatars are also considered as *symbols*. Through the perspectives of avatars as laden with symbolic significance expressed through their representation, cultural studies offer insights into how avatars present diverse identities, particularly concerning race, gender and sexuality, but also into how they might shape our perspectives and meaning making of the virtual environment (de Wildt et al., 2020; Thibault & Bujić, 2020). Postmodern approaches such as critical theory consider how avatar design as representative portrayals can perpetuate or challenge existing power dynamics, marginalisation and stereotypes (de Wildt et al., 2020; Ketchum et al., 2011). Finally, cultural perspectives are often considered together with sociological ones, and particularly so in the mentioned example of MMORPGs.

Finally, human–computer interaction approaches focus on avatars as aiding in immersion in the virtual environment, visually positioning the user as an agent and exploring the boundaries of what representations we can embody and how. However, this is of particular relevance in immersive reality environments as body tracking VR technologies, enhancing the illusion of presence in the virtual environment (Maister et al., 2013; Slater et al., 2022) and embodiment of the avatar (Maselli & Slater, 2013; Petkova & Ehrsson, 2008). As users observe their virtual bodies and hands moving synchronously with their physical actions, the illusion of body ownership emerges (Maselli & Slater, 2013; Slater et al., 2022), and the effects of psychological phenomena such as Proteus effect have a more profound impact (Beyea et al., 2022; Szolin et al., 2023b). The experiences within embodied VR specifically have demonstrated the ability to influence body image, cognition and behaviour (Keizer et al., 2016; Kilteni et al., 2013; Pan & Steed, 2019; Peck et al., 2013).

Notably, the malleability of the self-perceived image extends beyond human bodies to encompass animals and fantastical forms, breaking away from stereotypical anthropomorphic representations (e.g. Krekhov et al., 2019). Investigations of

serious applications of VR embodiment span a wide range, from empathy-building experiences to embodied simulation training and psychotherapy. Indeed, albeit contested (Bollmer, 2017; Hassan, 2020), VR has often been termed as the ‘empathy machine’ (Bujić et al., 2020) due to its visual immersion and consequent unique ability to induce different illusions, from ‘being there’ or place illusion (Slater et al., 2022) to ‘being another’ (Ventura et al., 2020). While critics argue that true empathy remains elusive in VR as avatars can only ever be representations of subjective interpretations, the technology has demonstrated its potential to significantly alter attitudes and behaviours, such as reducing bias and influencing perceptions of gender identity (Maister et al., 2013; Tacikowski et al., 2020), as well as affect computer-mediated communication (Bente & Krämer, 2011) and virtual communities (Maloney & Freeman, 2020). Reconciling the touted potential and its criticism, again, can be seen in understanding avatars not as potentially direct parts of users or, alternatively, users becoming avatars or the represented other but rather as a *complex dynamic* of the two patterns.

Overall, the dominant approaches in our understanding of avatars lack transdisciplinary coherence and frameworks but rather predominantly rely on reductionist grounds, following simplistic and often unstructured approaches. Due to the complexity of the phenomenon of *self*, let alone the interaction of self and avatars, and lack of interdisciplinary conversations, state-of-the-art is mostly divided into arguably isolated humanistic and social sciences approaches probing from different sides. We can thus argue at least the following pitfalls:

- When it comes to the user (self) as an individual, we currently tend to disregard pluralistic perspectives and base our investigations of motivations and effects on personality traits, user and player types, group identities, or demographic characteristics such as age or gender.
- Similarly, virtual representations (virtual self) in controlled studies are operationalised and their effects are investigated through stereotypical representations or nominal incongruencies, such as age or ethnicity.
- Finally, the relationship between users and their digital representations relies on similar frames, stereotyping roles and relationships into a handful of archetypes, often not even accounting for longitudinal and narrative aspects of the relationship. These at the time landmark examinations are becoming insufficient and potentially societally harmful through the perpetuation of stereotypes and simplification of our self-perceptions and interactions with self and others alike, demonstrating a lack of grounds for meaningfully considering the diversity and complexity of individuals. Indeed, this social process is bound to be subjective and personal, despite potential group-level aspects of the user’s background and lived experiences.

VR Embodiment as Mirrored Self

Diverging somewhat, we could also explore the user– or player–avatar interactions and relationships as mirroring. Mirrors are powerful symbols, deeply

ingrained in human culture, representing truth, illusion and self-perception, with a significant role in mythologies and arts while offering a reflection of our collective consciousness of ourselves as individuals containing multifaceted identities. In terms of reflections on the role of mirrors and mirroring selves, Jacques Lacan proposed the ‘mirror stage’ in child development, providing valuable insights into the three-stage psychological process: initially, a child perceives its mirror image as a real other, then realises it’s a mere reflection and ultimately recognises it as a self-image as perceived from their perspective. This progression bridges the gap between a child’s self-perception (the ‘specular self’) and how others perceive them (the ‘social self’), albeit neither is a single homogenous whole. This development applies not only to physical mirrors but also extends to their digital counterparts in the context of embodied virtual reality and the mirroring of self through virtual self-representations and how we perceive them. This consideration also emphasises the longitudinal nature of the development of this (para)social relationship and its impact, such as in VR games with a fixed avatar throughout the gameplay (e.g. *Half-Life Alyx*).

In VR, mirrors take on new roles and potentials by becoming one of the possible instruments for inducing the sensation of body ownership over the virtual presentation or avatar [Maselli and Slater \(2013\)](#). By synchronising the movements of the physical body with its virtual representation, individuals expand their body schema and alter their self-perception to, in some way, negotiate and incorporate their virtual visual counterpart to their physical and psychological selves.

This transformative process resembles Lacan’s mirror stages, as users navigate their digital reflections and develop their perceptions of and social relationships with them, experimenting with identity and embodiment. In the initial stage, users may perceive their avatars as a real other, mirroring Lacan’s first stage. Then, as they become aware of the embodied nature of their relationship, they realise the avatar’s true nature – a (distinct) reflection of themselves. Finally, they may reach a stage where they fully recognise the avatar as included in own self-image, mirroring Lacan’s third stage. Just as children come to understand themselves through their reflection, VR users can engage in playful or serious self-discovery, exploration and expansion through avatars ([Freeman et al., 2022](#)). However, depending on the context, the dynamic of this relationship may change through a change of motivation, such as exploration and self-expansion during leisure activities on one side or goal-oriented empowerment for the purposes of serious tasks. These digital counterparts thus potentially become mirrors allowing us to critically explore and redefine ourselves, challenging existing conceptions.

Towards Future Studies in Embodied VR Avatars

Moving forward, research on our relationships with embodying avatars and the possible nuanced influence these relationships might exert on ourselves as a whole should function on the premise of parasocial interaction (such as that proposed by PAR by Banks and colleagues; [Banks, 2015](#); [Banks & Bowman, 2016](#)). Moreover, to achieve a more perspective-inclusive and meaningful framework, this chapter

proposes regarding the ‘self’ of users and avatars alike through a lens that encourages transdisciplinary complexity. It should be recognised that this issue is not unique to avatar research – research on selfhood in itself, as a necessary basis for this field, suffers from the same drawbacks of disciplinary traditions. Nevertheless, recent efforts such as the pattern theory of self (Gallagher, 2013; Gallagher & Daly, 2018) can serve as an invaluable starting point. Adopting a consolidating theory of self in avatar research would encourage stepping away from the single-aspect foci dominant in social sciences and similarly reductionist often exploratory (i.e. inductive) approach in humanities. Whereas neither of these is unsound and in fact have previously laid out valuable grounds for understanding the scope of the impact embodied avatars can have, they more often than not fail to communicate and reconcile their traditions on understanding the self of the user, avatar and their interactions and implications.

The future veins of avatar research should thus consider at least the following three pillars: (i) adopting a novel theory of self to reshape the interdisciplinary perspectives of selves and virtual selves alike in the context of avatar use; (ii) understanding the dynamics between these two selves through a uniquely interdependent (para)social dyad and (iii) investigations of their interactions and consequent user’s meaning-making should refrain from usual top-down stereotypical- or normative-based approaches and instead adopt bottom-up individualised approaches grounded in PTS. The following short expansion of these points is based on the premise of adopting Gallagher’s pattern theory of self (Gallagher, 2013).

Self and virtual self as unique dynamic patterns. The pattern theory of self is a pluralistic framework of self-stemming from philosophy and moving beyond discipline-specific determinants of the self. Importantly, it posits that an individual’s sense of self, identity and consciousness is not based on a singular, fixed entity (the self) but rather emerges from the dynamic interplay of a pattern of aspects within (and, arguably, around) ourselves, from experiential and sensorial to cultural backgrounds and environments. It suggests that the self is a dynamic and ever-changing construct, shaped by the integration of sensory information, experiences, memories, cognitive processes, sociocultural environments and others. This view of self should primarily be applied in the context of mapping users’ sense of self but also their perception of the avatar’s patterns as they are the ones inducing effects on the users rather than top-down assumed meanings.

Inclusion of other in the self. Emphasising relational ontology through the interconnectedness between individuals and their relationships with others, more attention should be given to phenomena such as inclusion of other in self-principle of the self-expansion theory (Aron et al., 1992) to encompass our virtual representations as the social other. The core theory suggests that as we engage with others and develop rapport and bonds, we gradually adapt and incorporate aspects of their identities and perspectives into our own extended sense of self. Notably, it recognises that our self-concept is not limited to an isolated, individual identity but is instead enriched by the presence and influence of others. It can be applied to various aspects of human interaction, including empathy, understanding and the development of shared values and beliefs and as such presents an important facet of our (re)negotiations of self when faced with our virtual self-representations. Consequently, it implicitly positions the self and virtual self as a social dyad. Albeit this theory has been sometimes

considered in user–avatar relationship studies (Banks, 2015; Possler et al., 2022), previous approaches succumbed to the problems in state-of-the-art, including reductionism and stereotypisation.

Finally, *symbolic interactionism*, when applied to self-representation through avatars in virtual environments, becomes particularly relevant for underlining the complexity of this social interaction. In this context, symbolic interactionism highlights that users construct their digital identities through symbols and interactions, just as they do in the physical world. Notably, these symbols are assigned subjective meanings, which are often overlooked through the overly consistent use of stereotypical representations or categorisations of user–avatar interactions. Avatars thus serve as symbolic representations of the self, embodying some aspects of the users' identity patterns while also expanding them. Importantly, the qualia and degree of this expansion are closely determined by the existing patterns. All imposed avatars as well as personalised ones reflect an array of such symbols, from clothing to the general appearance (e.g. Adam & Galinsky, 2012; Tanenbaum et al., 2016), all of which are interpreted by users through their own unique patterns of identities, values, experiences as well as current psychological states and the context of use. Through the exchange of symbols within the virtual space, users build relationships with their avatars, establish shared meanings and navigate their sense of self in a dynamic manner.

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