Virtual Groping:
The Dark Side of Virtual Reality Games

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Introduction

When playing *Asgard's Wrath* (Sanzaru Games, 2019), an open-world adventure virtual reality (VR) game, I once attempted to lean on the counter of the in-game tavern resulting in me almost falling in the real world. This was the result of me feeling truly "present" in a game and forgetting the real world. This otherwise innocent, but interesting, aspect of games have been examined by game scholars and attributed different terms such as *immersion*, *involvement*, *embodiment* and *presence*. But when Jordan Belamire experienced virtual groping in the VR game *QuiVr* (Blueteak, 2018) the feeling of "being there" became more serious (Belamire, 2016).

QuiVr is a VR archery game and the first VR game Belamire tried. In the game players are presented as identical floating heads and hands, with voice chat being the only give-away about the sex of each player. Only three minutes into the multiplayer mode, she experienced another player virtually rubbing where her chest and crotch would have been. In the article Belamire poses the question: "As VR becomes increasingly real, how do we decide what crosses the line from an annoyance to an actual assault?" (Belamire, 2016).

The original title of the article was "My First Virtual Reality Sexual Assault", but "sexual assault" was instead changed to "groping". Whether this experience is considered assault is not easy to determine. In this report I aim to present useful terms from video game theory for the discussion regarding this question. I will do this by covering immersion, involvement, flow, presence and embodiment and how we can use these, sometimes abstract, terms to better discuss and understand the incident. I choose these terms because they help our understanding of the "physicality" of our bodies and the feeling of being present in games. I found this to be applicable since we often attribute sexual assault to having a physical quality, though some definitions also cover "...psychological and emotional violation in the form of a sexual act" (Metropolitan Police, 2021).

I stress that I do not seek to provide my own definitive answer on how this should be judged, but instead seek to provide an understanding and vocabulary to the people who are better equipped than me to determine whether or not it is assault. I formulated this into the following research question: *How can we use the theory on immersion, involvement, flow, embodiment and presence to understand and discuss the act of virtual groping in VR games?*
I will therefore refrain from focussing on other areas of the incident, namely toxic masculinity, legality and ethics. Ethics has been tackled by Sparrow et al. (2020) who did an analysis of a discussion on Reddit.com regarding the article.

Theory

For this section I will begin with a top-down view of immersion and go further into the other terms individually and end with a summary of how I will use the terms in my own discussion afterwards.

Immersion

"...immersion has become an excessively vague, all-inclusive concept" (McMahan, 2003). Immersion as a term is too broad and covers too many different feelings during video-gameplay for us to use without further specification. For academic purposes it has therefore been redefined continuously and has had its meaning separated into other terms such as *presence, involvemen*t, *flow* and *embodiment* to name what I have found to be most commonly connected. This makes immersion a sometimes difficult topic to discuss. I will inevitably leave some aspects of the theory out for the sake of scoping. I will in the following section present the relevant theory for this report and how they relate to each other.

Murray (1997) described immersion as "The experience of being transported to an elaborately simulated place is pleasurable in itself, regardless of the fantasy content. We refer to this experience as immersion." (Murray, 1997, p.99). Murray goes on to compare being submerged in water to the feeling of being completely surrounded by another reality that takes over our attention and perceptions.

Later game scholars have eased up on the definition of immersion. Not keeping it to 'complete submersion' only. McMahan (2003) mentions how immersion seems to cover both being engaged in a game on a diegetic narrative level, but also on a non-diegetic, game mechanical level.

Jennett et al. (2008) presents terms that we can use to understand these different aspects of immersion better. They start out by stating how "...immersion is indeed used to describe the degree of involvement with a computer game." (Jennett et al., 2008, p. 642). They go on to present three levels of immersion. The first level being *engagement*. Covering the players investment of time and effort into learning to play a game effectively. Second level, *engrossmen*t, refers to when the player stops being aware of their surroundings and the controls and are able to solely focus on the game. On the last level, *total immersion*, the player is emotionally invested and describes a sense of presence in the game (Jennett et al., 2008).

Involvement

This concept of degrees of immersion is shared by Celleja (2007) in his *Digital Game Involvement Model*. He uses the term involvement and later *Incorporation* instead of immersion to avoid the vagueness of the term. The model is a descriptive tool used to visualise involvement through a distribution of players' cognitive attention. The model separates involvement into six categories/frames: *Tactical* (decision making), *Affective* (emotional investment), *Narrative* (designed and personal interpreted narrative), *Shared* (interacting with NPC's and other players), *Performative* (control of the game), and *Spatial involvement* (navigation) (Calleja, 2007).

Each of these can be experienced on an outer layer/phase representing asynchronous macro involvement, referring to thinking about playing. And the deeper synchronous micro involvement, describing playing itself. The player can at the center achieve incorporation. This is a state of *Deep Involvement*, resulting "...in a shortening, or disappearance of distance between player and game environment." (Calleja, 2007, p.88). Calleja (2007) states that "Incorporation is the subjective experience of inhabiting a virtual environment facilitated by the potential to act meaningfully within it while being present to

others." (p.89-90). Emphasising that being "present" in the gameworld is tied to the possibilities of action. Fitting with the claims of Heidegger's (1927) term *Dasein* or "being-in-the-world" as presented by Merleau-Ponty (1962). Merleau-Ponty (1962) later stresses that "consciousness is in the first place not a matter of 'I think that' but of 'I can'." (p.159).
This definition of incorporation connects concepts of flow, presence and embodiment. The latter is not explained in detail by Calleja (2007) himself, but I find it to be hugely beneficial to include. Especially for VR experiences since it is a very physical and embodied experience. I will go further into embodiment and presence later in this section.

Interestingly, multiple of the frames that make up Calleja's (2007) model cover different parts of immersion which have been separated into other terms. Immersion as something that covers mechanical interaction with the game interface (Performance and Spatial), being interested in the game's mechanics and challenges (Tactical) as well as players' emotional and empathic engagement with the narrative and characters (Affective, Narrative and Shared). These groupings fit nicely with the three levels of immersion Jennett et al. (2008) presented.
Jennett et al. (2008) also describes how engaging experiences besides presence can be tied to flow and *Cognitive Absorption*. Cognitive absorption refers to how people can be involved in any type of information technology (Jennett et al., 2008). Csikszentmihalyi (1990) describes flow as "the state in which individuals are so involved in an activity that nothing else seems to matter" (Jennett et al., 2008, p.642). Chen (2007) also adds that this feeling is tied to a "high level of enjoyment and fulfillment" (Chen, 2007, p.31). While flow is applicable to games it also applies to any other activities we can be deeply engaged in. *GameFlow*, though, is specifically defined for games (Jennett et al., 2008). This version includes the same factors as before but expands them to include player skills, clear goals, feedback and social interaction.

Having now distributed immersions different meanings into more specific terms, I feel comfortable going into presence and embodiment.

Presence
"Slater et al. (1994) define presence as a psychological sense of being in a virtual environment." (Jennett et al., 2008, p. 643). Even though immersion and presence seem to be closely linked it is important to understand precisely how and when they are not.
On the topic of *Immersive Virtual Environments* (IVE's) Bowman and McMahan (2007) makes a clear distinction between immersion and presence. Stating that immersion is something that we should be able to measure objectively from looking at the software and hardware. They do not go into specifics about how this should be done in practice. McMahan (2003) had earlier stated three rules for creating immersion: "(1) the user's expectations of the game or environment must match the environment's conventions fairly closely; (2) the user's actions must have a non-trivial impact on the environment; and (3) the conventions of the world must be consistent, even if they don't match those of "meatspace."" (p.68-69).

From this we can understand immersion as a term for a game's believability based on its perceptual fidelity and logical consistency which should be measured objectively. This understanding of immersion separates it fully from individual psychological experiences that

the other terms I have presented cover, such as presence which is a subjective psychological response that a person can get while engaged in an IVE.

Jennett et al. (2008) separates presence and immersion by pointing to how a player can experience a high level of immersion (meaning involvement and gameflow) while playing *Tetris*, but no presence whatsoever. Slater (2003) draws parallels to the real world where we are very literally present all the time, but not always experience high levels of immersion (involvement) if engaged in uninteresting activities. This brings up the challenging notion that even though a person might be completely involved in a game on every level, this does not necessarily affect our feeling of presence and vice versa.

Slater (2003) explains this relation by claiming that presence is seperate from the experience of playing. Presence being the form and the experience being the content. The content can be engaging and involving on different levels regardless of form. And the form is a response to the level of immersion (sensory fidelity).

Slater's (2003) use of presence in the real world, though useful as a metaphor, is not what I mean when discussing presence in this report. It will be more accurate to refer to the term *telepresence* (Klevjer, 2012). Telepresence was originally used to describe the feeling of presence through the use of a communication medium, but has also been used to describe feeling telepresent in video games.

Embodiment

Embodiment refers to how we perceive ourselves as either agents (action-takers) or patients (recipients of actions) in a world (Gregersen & Grodal, 2008). In relation to video games we can understand embodiment as a feeling of extended self into a simulated gameworld through sensory stimulus. I will use the Gallagher's (2006) terms of *body schema* and *body image* to examine the notion of extending the self. Body image relates to our perception of our own bodies and can include things like vehicles we are driving or costumes we are wearing. Body schema, like dasein, covers our bodies ability to act and manipulate things (Gallagher, 2006 in Gregersen & Grodal, 2008). They explain playing video games as "...a kind of body image in action" (Gregersen & Grodal, 2008, p. 67). The ability to perceive one's body and to act with it is crucial when creating presence. As Calleja (2007) also mentioned, incorporation happens when the player can act meaningfully in a game world giving the sense of presence.

Summary

I will close this section by presenting how I suggest using the terms discussed thus far as to be useful in the discussion surrounding Belamire's experience in *QuiVr*. I will afterwards discuss and reflect upon how we might tackle similar cases of inappropriate behavior in video games.

In cases like the one Belamire experienced it is interesting to determine whether there was a "physical" quality to the type of contact she had since this is often, but not exclusively, attributed to sexual assault. The physicality of one's body in games is embodiment and is measured by what degree the player feels ownership of their avatar and ability to act as that avatar. If the player experiences high degrees of gameflow and engrossment during gameplay the degree of embodiment strengthens the feeling of telepresence. The player

experiences incorporation when they feel telepresent, emotionally invested and the outside world does not occupy any of their cognitive attention.
Besides these physiological experiences while playing, the immersiveness of the hardware and software should be measured by objectively measuring the games perceptual fidelity and consistency to establish how well the game facilitates a believable environment.

Discussion and Reflection

In the following section I will discuss my thoughts on the Belamire incident and how we can use our understanding of video games to tackle such cases.

Immersion fallacy - "realness" in games
On the topic of immersion, the immersion fallacy is often brought up when discussing whether we can view experiences in games as "real". "The immersive fallacy is the idea that the pleasure of a media experience lies in its ability to sensually transport the participant into an illusory, simulated reality. According to the immersive fallacy, this reality is so complete that ideally the frame falls away so that the player truly believes that he or she is part of an imaginary world." (Salen and Zimmerman, 2004, p. 31). Instead of the immersion fallacy, Salen and Zimmerman (2004) propose that players adopt a "double consciousness" when playing. It is through this double consciousness that players are able to accept often unrealistic events in games as believable and experience telepresence in games, but are still aware of the fact that they are playing a game and it is therefore not real.

This understanding of playing creates distance between the player and the actions done in game. It functions as a counterargument to allegations against video games causing violence because players always know they are playing. What does this say about what happened to Belamire? Should we not take the experience she had too seriously since it was "not real"?
Still I think that the dynamic in this incident makes it different. In this case, Belamire was not the action taker but the recipient of actions from another player. The action taker might be playing, but the recipient was not. That action was not "play" because it broke the conventions of what was considered ordinary play in that game. Additionally, the fact that it happened in an immersive VR game (due to good graphics and consistent game rules) that places the recipient in a first-person perspective only strengthens the feeling of embodiment and telepresence. This uniquely VR-perspective forces the player to experience emotional alignment with the character they are controlling.

So the argument of innocent actions in games becomes less potent since we in VR-games can experience very tangible effects of those actions through the way we relate to the recipient we are controlling in game.

Video games have proved themselves effective in facilitating emotional engagement (Isbister, 2017). So we might not find it beneficial to discuss how real games are, when we know they provide real emotions based on our experiences playing them. As the theory suggests we feel most emotionally engaged when we experience incorporation. From Belamire's retelling of her experience it seems as though the reaction she had was because she had felt present and could imagine her body in the game. Floating hands gesturing in the

air was perceived as physically touching her. I would therefore argue that the degree of involvement and immersion is important when considering how serious an incident such as this is.

Measuring involvement and immersion

This leads to the challenge of measuring involvement and immersion in each incident. Obviously, this is complicated because we do not have any way to tangibly record and measure this. Involvement and telepresence being a psychological feeling and even immersion potentially being more difficult to measure due to hardware differences between players.

This opinion also introduces the idea that we should judge these incidents not only on the actual action of the "harasser", but the experience of the recipient. The exact same action could have different intensities depending on the recipient's degree of involvement. Should we then judge the actor based on their intentions, actions or results in recipients? Only the action itself remains constant and objective, while the other introduces subjectivity. This is a more philosophical question that I will not go further into. I will however reflect on our options for measuring subjective feelings of involvement and telepresence.

Brockmyer et al. (2009) saw a need for a tool for measuring the subjective experience of being engaged in video games. They developed the *Game Engagement Questionnaire* (GEQ), a 19-item questionnaire about absorption, flow, telepresence and immersion (involvement) (Brockmyer et al., 2009). This questionnaire could be useful for our purpose, but, as the authors mention themselves, might have some limitations. A lot of the questions focus on gameflow with questions about losing track of time, not being aware of surroundings, playing "automatically" (Brockmyer et al. 2009). If we were to use this questionnaire we would have to expand it by asking additional questions more directly related to embodiment and thereby telepresence and involvement. These questions should be backed by the theory presented earlier.

For embodiment we could ask questions related to body schema ("I feel that my actions are my own") and body image ("I feel like things that happen in the game happen to me"). And continuing with the focus on actions Calleja (2007) and McMahan (2003) stated how these actions needed to be meaningful and impactful ("My actions have tangible and meaningful impact on the world").

A potential weakness with the questionnaire is the options for answering, being either "No", "Sort of", and "Yes". Especially on a topic as involvement I would prefer a likert scale that allows respondents to be less extreme in their answers. The experience of involvement and engagement is also not a constant feeling throughout gameplay, so sweeping statements might not be entirely representable to the actual experience. The experience of involvement can vary across sessions of playing especially if the gameflow is lacking.

This weakness is almost impossible to circumvent with a questionnaire because it can only get responses based on the respondents' reflections on their experiences rather than what they are thinking at the exact moment of playing. Even by the definition of flow, there are things players do not notice while deeply engaged in games. And by making them answer a questionnaire based on their experience of playing, their answers might be hurt by their ability to reflect back on an experience that they were not specifically aware of while in it.

This does not make the GEQ useless, but encourages a mixed-methods approach that might make use of interviews or observations of gameplay (if available). Calleja's (2007) player involvement model could be used for this as a way to visually present the results for such a qualitative investigation.

Virtual Reality - form over content?

In this discussion I also want to revisit the statement from the Belamire article that I quoted in the introduction: "As VR becomes increasingly real, how do we decide what crosses the line from an annoyance to an actual assault?" (Belamire, 2016). VR games, as most video games, keep improving visually. Games like *Agard's Wrath* are even able to simulate your body and arms virtually while playing. Making it possible to look down and see your own avatar's movements portrayed in game, instead of the floating camera that we have come to expect in many games.

This does on the surface feed into the concern that the quote presents; that if VR games become continually more immersive they introduce the dangers and fears of the real world. Phobias and uncomfortable interactions with other people become more common in games that can accurately facilitate them through realistic audio and visuals. Potentially eliminating video games as escapism since we might introduce too much of the real world into them. A recent example for how high immersion can lead to triggering phobias is in *Grounded* (Obsidian Entertainment, 2020). This non VR game has players miniaturized in a garden and offers a slider for how realistic the huge spiders in the game are to accomodate for arachnophobia.

A counterargument to VR becoming too real is offered by Slater (2003). As I presented earlier he states that even though a game might seem perceptually real, if you are not engaged in it, it will have a lesser effect on you. Still, uncomfortable experiences can still happen in games regardless of your degree of involvement, but theoretically you should feel more distant to the events in the game through this lack of involvement. And using what we know about the effects of high immersion to avoid potentially uncomfortable experiences; Game developers can borrow the fidelity slider from *Grounded,* making other player avatars (or other sources of discomfort) less defined and unable to act in appropriate ways in games that facilitate it.

Conclusion

In this report I sought to review theory on immersion and its related terms to propose how we might use theory for discussing incidents like the one Belamire experienced. I have presented vocabulary to help us understand our bodies and telepresence in video games and reflected on their usefulness, and the areas that we need to expand upon. Specifically finding tangible ways to measure both psychological involvement, such as the GEQ, as well as objective immersive fidelity of games. Beyond measuring we need to decide how we evaluate these incidents. On the basis of the intentions of the harasser, the actual actions itself, or the psychological and emotional effects on the recipient? And whether we can actually say that there are physical effects from virtual groping as well.

It should be obvious that what happened to Belamire was more intrusive than other types of online harassment such as text messages, but whether it falls within the same category of real world assault is undecided. Potentially needing a new definition that falls somewhere in between because of its fluidity depending on the recipient's degree of involvement and telepresence while playing at the time of the incident.

Using Slater's (2003) terms of form and content, we might experience VR as a more immersive form than other media, but this is less important if the content therein remains the same. In the cases of sexual harassment and toxic masculinity one can blame VR as the form that facilitates this behavior, but the content (illicit behavoir) is as important as the form (VR). This did not happen solely because VR facilitated anonymous groping, but because people can act inappropriately given the chance. This report focussed on VR games and video game theory, but we must not forget the societal issues that potentially make video games an unsafe space for players rather than pleasurable escapism.

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