**Literature Review**

Understanding Player Immersion through a variety of Gameplay Devices and Design Techniques

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**Introduction**

Immersion has the capability to be a deciding variable in the success of any interaction between product and consumer; a game that lacks in immersive experiences can be detrimental to how the player perceives it. There are multiple design choices that may lead to a naturally more immersive atmosphere, such as story elements that hook you in, and audio that sinks the player into an environment, but what choices can we as game designers make when the term Immersion itself is continued to be used more and more ambiguously (Niels Christian Nilsson, et al., 2016) in multiple sources of media we experience and interact with. This literature review will analyse what is defined as video game immersion, as well as expanding and comparing available mediums for player immersion within video game design.

**Understanding Gameplay Immersion**

Critically evaluating a wide range of immersion methods, one must first understand how immersion can be broken down into its core principles. We can refine game immersion into a few key stages (Brown E and Cairns P, 2004), which first involves familiarising and engaging the player, followed by reducing how much of the real world that the player intakes (including aspects such as time, or elements of their surroundings), which ends with the player totally immersed within a game. The article showed that there were particular barriers that must be overcome in order to reach each stage, such as a willingness to play the game in the first place, and more recent studies are still uncovering new factors. Denisova and Cairns (2015) determine that aspects such as player achievement and success are vital for producing immersion, and that adapting elements such as gameplay difficulty would make the player more receptive to a game to begin. More recent studies even showcase multiple variations on immersion within video games, which identify areas of immersion that exist outside of simply sinking the player into the environment or the story telling within a game (Mata Haggis-Burridge, 2020).

Altogether, this highlights that the success of immersive design relies firstly on its ability to draw and absorb the player into the game and continue this throughout the play session. Once this is achieved, gameplay design must then withdraw the player from reality, with aspects of the real world being replaced with events happening in game, hence encapsulating the player within the game environment rather than their physical environment. In theory, a continued exposure to these criteria will produce total player immersion, not necessarily strong audiovisual or narrative themes that designers are so frequently focussed towards.

**Difficulty/Achievement and Player Understanding**

Cheng, et al. (2017) review the use immersion in order to help students retain more information as the precursor to an exam. The study showed that the engagement of the students with the game and the results this had on their retention of information in-game which included material on the test, concluding that how well they interacted with the game directly improved their performance for the test. However, a key takeaway from the article was how the nature of learning and improving within the gameplay was incentive enough for the students to continue playing. This is strong evidence to suggest that developing a better understanding of the games rules and strategies produced immersion.

Further analysis of the research revealed that there are different aims for 2 different types of user, which would be critical when producing different genres of game. The first group of players were ones with prior knowledge about the topics within the game, who’s success was heavily weighted on the first step of immersion, engagement, to produce the best experience. A second group, those who were new to the topics present in the game, required total immersion in order to absorb the material properly. Reframing this within the scope of a video game, this second group is important to consider, since games are capable of covering a wide variety of abstract and unknown themes for a lot of consumers. Therefore, simply engaging users within a game is not enough to develop a strong understanding of the methods players will need to use to complete the game. Instead, to gain a full sense of achievement and comprehension of gameplay, a video game must encapsulate the player’s attention fully. Since teaching the player core gameplay and rewarding progression will not be enough to fully immerse the player, this method of immersion requires further techniques of immersion on order to be utilized fully. The Article by Denisova and Cairns (2015) discusses the idea of using different difficulties to produce the sense of achievement to a multitude of user capabilities.

They comment on how set difficulties neglect the users experience and ability to absorb themselves within a game, consequently suggesting that adaptive methods of setting difficulty, such as an algorithm to monitor and relay information about player progression to the game’s difficulty settings would more organically adapt to the player’s needs. A more seamless method of balancing gameplay to an individual user’s needs retains the player’s full attention, additionally granting the player the feeling of success without having forced it through manually adapting the games settings. Their study concludes concrete evidence of the rate of total immersion being increased when player’s individual needs are adapted to on the fly, as well as when a player achieved a better performance.

A separate article by Denisova and Cairns (2019) which expands more upon adaptive difficulty for player immersion interestingly found that a Players expectation and understanding of the goals of adaptive experience for the user’s needs also increased player total immersion, which enforced the idea that immersion can be achieved outside of physical aspects of a game. When designing gameplay, immersion can be achieved by incorporating a better understanding of gameplay goals within the user themselves, ensuring the understanding that the player wants a custom design that adapts to their needs in time, resulting in a greater sense of achievement within the player and a more positive experience overall.

**Reactive Gameplay**

Content within a video game is obviously a massive component to the player’s engagement, and great gameplay will naturally keep a player coming back to play, enabling consistent opportunities for the player to be immersed. However, if we take the gameplay itself and make that the immersive component that breaks down the barriers between the player’s physical surroundings and a games environment, we have a medium for immersion that exists outside of visuals, story, or audio.

Research suggests that numerous devices may be used to provoke powerful emotional or cognitive responses from the player, such as using a user’s brain activity to prompt in-game changes (Mikołaj P. Woźniak, et al., 2021). Once a player’s attention is captured, over time this technique could be used to reach total immersion as outlined by Brown and Crains (2004), but this method even extends beyond that, emotionally attaching to the Player to the game. Incredibly, this might give intuitive gameplay design the power the compete on an immersive level with more traditional immersive techniques, such as narrative design. Eye-tracking is another method previously used to adapt gameplay. In an article by Melodie Vidal et al. (2015), players using this unique sense of engagement “reported experiences of immersion and presence and described strong feelings of embodiment”, which indicates that techniques like this can be used to withdraw the player from their physical surroundings, once again meeting the criteria of reaching total immersion.

From these studies, one can understand that multiple techniques for reactive gameplay can be used to achieve player immersion, reaching further than simply what exists presently. Nonetheless, it is important to note that whilst these gameplay devices successfully engrossed the player, their application may be limited when applied across a broader sense of gaming. Primarily, the hardware used through these studies would limit many users from even begging to experience them. Even without this limitation, genre and ‘niche’ gameplay would be another obstacle for these designs to overcome. Doug Bowman and Ryan McMahan (2007) Declare that VR Immersion is only effective within limited applications, demonstrating that such techniques would only be effective within certain gameplay scenarios.

Despite this, an element discussed that can be captured to provide designers with new immersion tools is the use of reactive gameplay; when the user gains feedback in the form of actual gameplay from the inputs they are providing, total immersion could be maintained, since a direct link between player and game is produced.

**Gameplay Mechanics and Feel**

Another area of immersion to explore proposed by Haggis-Burridge (2020) is ‘systems immersion’, which he identifies is “when a player is highly engaged with the decision-making activities and rules of the game”. This is supported by the aforementioned research conducted by Cheng, et al. (2017) regarding game rules and contents understanding and its correlation to overall performance and immersion. Haggis-Burridge elaborates on how even though a game’s setting or story and the obscurities of such may not be able to directly link to something a user may experience, players may still be able to understand the progression they make through the tools at their disposal within a game environment. If the gateway to progression is the mechanics within the game, then the ‘feel’ of the gameplay, or the interaction between the gameplay mechanics and the user are also a critical aspect of immersion.

Outlining problems associated with the term ‘game feel’ in a similar fashion to immersion itself, “we have never collectively defined game feel” (Swink, 2009), thus producing a mixed understanding of what it means in relation to player immersion. Thankfully, Swink continues to take the core elements of game feel and develop them into tangible variables that we can analyse. An immersive technique in gameplay mechanics he refers to is the interactivity between the user and the game itself, regarding the responsiveness of the game from the user’s input. In this sense, it means the action that takes place when the player issues a command to the game, and the parameters that occur in the game (including how they are balanced) to give a convincing ‘feel’ to the action.

A good example of this might simply be player movement; the player should move accurately on soil, slide around on ice, and when they perform a dash, it should begin with a large burst of movement and slowly dissipate to add layers of conviction to the gameplay. Thusly, the controls and game mechanics feel immersive in themselves because they successfully create a dynamic experience that the Player can link to the game, even if they are as abstract as controlling a character in a platforming game. The important takeaway here is that these can exist outside of something the player may experience, for example a first-person camera with custom animations for specific actions. This enables Immersion through gameplay mechanics to be unprohibited by the context and setting of the game, or impressive visual representation.

**Conclusion**

From the research I have conducted, I have found some strong articles and studies that analyse a variety of methods for gameplay immersion outside of traditional methods used by game designers. Referencing immersion definitions across multiple texts, my understanding of what immersion looks like within many gameplay devices has adapted drastically, and I have found a plethora of evidence to suggest that immersion may occur through gameplay itself. Analysing the texts chronologically, we can draw that our comprehension of immersion is constantly shifting, from the core ideas of immersion to breaking it into subsections. I can conclude that immersion is no longer the ability to simply submerge a player within a game’s atmosphere.

Whilst audiovisuals remain a powerful canvas for immersion within video games, there are alternatives for an immersive experience. Despite this, I still understand that specific genres of game may call for such stunning graphics or dynamic soundtracks that the games industry is so synonymous with, and that these elements can be a vital component of allowing a Player to be seduced by a title from the get-go. From adaptive gameplay that coalesces with players capabilities to mechanics that are so immersive that just a button press can encapsulate the player, we as designers have an arsenal of design tools at our disposal to capture, captivate and totally immerse our audience.

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