

# Exploring the Process of Avatar Identification in Role-Playing Games : a Case of <The Last of Us>

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**Abstract:** With the advancement of media technology, it has become increasingly challenging to study new media contents and mechanics through traditional narrative theories. The emergence of video games once sparked intense debates between narratologists and ludologists. In video games, Role-Playing Games are particularly notable for creating a strong sense of immersion and identification with game characters. Furthermore, an avatar is the representation of the player that is projected to other players. During the gameplay experience, players tend to identify with the characters they control, leading to a profound state of flow. Through theoretical analysis and the process of developing avatar identification this study explores the beneficial impact of player avatar recognition on RPG gaming experience. It posits that the process of experiencing the game and the process of avatar identification largely overlap. To make the research results more obvious, the study analyzed the game <The Last of Us>(2013) by examining the avatar identification process in this game. Due to the single storyline of this game, it can more specifically demonstrate the role of avatar identification. The study aimed to illustrate how such a psychological mechanism emerges during the gameplay experience. Furthermore, avatar identification can stimulate a stronger desire for exploration within players during the game and suggests that players form an attachment to, or focus on the construction of avatar identity in games.

**Keywords:** Role-Playing Games, Avatar, Identification, Narrative, Player Experience

## 1. Introduction

The study of game narratives serves as a crucible of interdisciplinary exploration, transcending traditional academic boundaries and encompassing fields such as psychology, pedagogy, and computer science. Video games emerge as exquisite subjects for comprehensive media research. Their complex narratives, interwoven with player agency, present a compelling opportunity to bridge the theoretical chasm between communication studies and narratology[1].

In essence, the study of video game narratives not only complements but expands the horizons of communication studies and narratology[2]. Scholars are increasingly interested in the impact of narrative on games and their therapeutic potential, especially RPGs[3]. These scholars study the elements of player immersion in RPG by applying narrative methods. The study reviewed the development process of RPGs and sorted out the flow process of players in RPGs. By analyzing <The Last of Us> of RPG, the role of avatar identification in attracting player attention and generating flow was further elucidated.

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The study make a subdivision of the process of player immersion and believes that avatar identification plays a crucial role in this process. Understanding the game story is of great help to the player's gaming experience. Although this is only a theoretical study, avatar identification also has a certain correlation with the narrative and interaction in games. Research on narrative and interaction directions can also be helpful.

## 2. Literature Review

### 2.1 Role-Playing Game

Role-Playing Game(RPG) is a genre of video games that allow players to assume the roles of fictional characters in a virtual world. Unlike traditional games where players control a predefined character, RPGs offer a unique experience by letting players create and customize their characters, making decisions that impact the game's storyline and gameplay. RPGs, characterized by their socio-material diversity and evolution over time, are commonly defined by six key elements: player-character control, narrative guidance by a game master or digital system, a fictional setting, a rule system, the nature of the narrative, and the interaction between these components[4]. Players dive into rich, fantastical worlds where they embark on epic quests, interact with non-player characters, and engage in strategic battles. These games often feature complex narratives, intricate character development, and a variety of choices that shape the game's outcome.

RPGs are renowned for their ability to offer players a sense of agency, allowing them to shape the narrative, develop their characters, and make moral or strategic choices. Players are responsible for their avatars' actions and interact with other players in-game[5]. This genre continues to captivate gamers worldwide, offering a blend of storytelling, exploration, and strategic gameplay that appeals to a wide range of players. Whether played on a tabletop with friends or experienced solo in a digital world, RPGs provide an immersive and interactive storytelling experience that has become a hallmark of modern gaming[6]. The term "Kairos," coined by game designer and scholar Roger Caillois, refers to a moment of perfect timing or opportune moments in games[7]. In his book "Man, Play, and Games," Caillois proposed categorizing games into two primary types: paidia and ludus. These classifications help in understanding the fundamental aspects of different types of games. "Paidia" refers to unstructured, spontaneous, and creative play[7]. "Ludus" refers to structured, rule-based, and competitive play. Unlike paidia, ludus games have well-defined rules, clear objectives, and a competitive element, often involving strategic thinking and skill development[8]. Understanding the distinction between paidia and ludus helps in analyzing the nature of play in different games, ranging from freeform creative activities to structured, competitive challenges.

### 2.2 Gaming Immersion

#### 2.2.1 Immersive Experiences and Influences

The concept of Immersion Experience, also known as Flow Experience or Flow Theory, was developed by Csikszentmihalyi in 1975 and falls within the realm of positive psychology. Immersion describes a psychological state where an individual becomes so focused that they become oblivious to their surroundings. This theory posits that mobilizing one's attention can effectively enhance work efficiency and has found widespread application in education, sales, and gaming. The theory is now widely used in the fields of education, sales, and gaming. According to additional research by Csikszentmihalyi (1988), immersive experience is an outward manifestation of psychological drive, and the two main factors affecting immersion are skill and challenge[9]. Optimal immersion arises from a

harmonious balance between these two factors, fostering a deep psychological impetus that drives individuals towards higher and more complex levels of achievement.

### 2.2.2 Player Immersion Principles for RPG

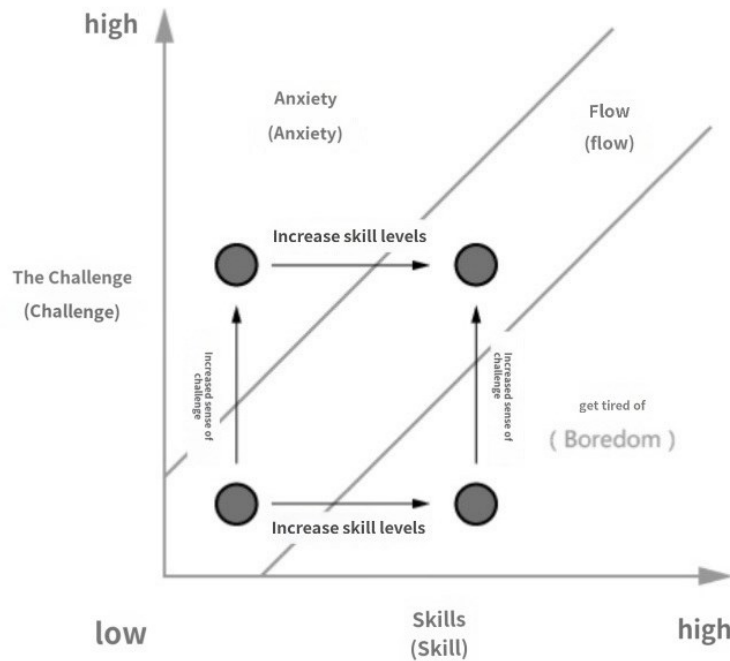
The study discovered that the first-person perspective and singular actions exert the most potent influence in fostering a sense of immersion and character identification. While the first-person perspective is characteristic of RPGs, the single action of tapping the screen is in line with what happens when a player reads an RPG text. Therefore, RPGs are one of the game categories most closely associated with immersive experiences for players. This section clarifies the concept of immersive experience and its influencing factors, and analyzes the principle of immersive experience in RPGs in light of their characteristics.

The influencing factors of an immersive experience, as pointed out in the literature, can be further understood as follows: skill is a sense of control and identity, and challenge is a sense of anticipation and curiosity. The control and recognition of past experiences drive individuals to be expectant and curious about the unknown; this expectation and curiosity transform into control and recognition of skills after they have successfully met a challenge. This positive feedback creates a strong psychological drive that manifests itself in a highly focused immersive experience. This aligns with the prolonged exploration process in RPGs.

In the early stages of a game, the protagonist (player) is a blank sheet of paper and needs a kick-start to gain control and recognition. Therefore, the game often designs some simple teaching sessions to help the player quickly build up their knowledge of the game world and their role through background descriptions and gameplay demonstrations. As the player gradually adapts to the game, they are guided by the quest system to further explore the game world, obtain more information and feelings, and develop a stronger sense of control and identity. Simultaneously, this generates anticipation and curiosity about the unknown subsequent gameplay. The player continuously carries out new explorations in the feedback loop between the two, thus obtaining a fully immersive experience.

The immersive experience also feeds the RPG, and according to Ding Qian et al. (2018), the better the immersive experience, the stronger the players' willingness to continue playing, and the more loyal they will be to the game. Long-term exploration of RPGs needs to retain players, and enhancing the immersive experience is the right way to do so. RPGs have inherent interface presentation factors that, if left unattended, can turn into risk factors undermining the immersive experience for the player. RPGs tend to combine multiple elemental systems and gameplay modules, and if they work well together, the game will continue to hold the player's attention. However, if there are any disconnects that are not well connected, it is easy for the player's concentration to be dissipated, compromising the immersive experience.

For example, both game experts and beginners can quickly become addicted to online games. The reason for this phenomenon can be easily explained using the principles of challenge intensity and skill balance expressed in [Fig. 1]. Although it is the same game, but for users of different levels, different challenge intensities will be set according to the user's ability: for beginners, the challenge coefficient is very low, and there are even various instructions (such as novice guidance, etc.) at the beginning to help beginner users Master skills; for game masters with strong skills, various game mechanisms, game levels, etc. may be set up to increase the difficulty of the game and increase the challenge, thereby stimulating the fighting spirit of game users.



[Fig. 1] The impact of Challenges and Skills on User Status

### 2.3 Game Deceives the Player

“Whoever enters here is temporarily sacrosanct[10].” Hejzinh’s theory of the “magic circle” of litigation, contests, and other game-like activities has been used by game researchers to this day. Games deconstruct and reorganize reality, and regardless of the degree of similarity between the game world and the real world, what happens in the game world (i.e., within the magic circle) can be regarded as unrelated to reality. In the author’s view, according to Zhuang Zi, video games allow players to “not know the Zhou”, i.e., to temporarily leave behind their original reality, to get rid of the rules of the real society, and to follow the program guide to explore to their heart’s content. Moreover, no matter how immersed the player is in the game experience, he or she is able to recognize the difference between the virtual world and the real world, and that “this is just a game[11].” Given that players are basically able to distinguish between the virtual and the real, how does the game manage to lure players into a race to jump into the magic circle and make them actively abandon the real world?

The Japanese dramatist Tadashi Suzuki introduced the concept of “tricking” the audience. Through their performance, the characters on stage draw the audience from the real world into a virtual space with the performers. They use the performance to engage the audience’s senses, persuade them of the events on stage, and evoke empathy with the actors. In video games, a programmed “trick” convinces the player that they can influence the virtual world through real-level operations and experience different emotions in this alternate space compared to real life. The speaker’s internal changes are displayed to the viewer, as the actor establishes a connection through their charismatic use of language, space, movement, and energy. Through this connection, the viewer is triggered into a hyper-everyday, ever-changing intuitive perception, allowing them to experience a physical and spiritual satisfaction different from everyday life. The act of deceiving through spoken lines creates a deep space, enabling the viewer and the viewed to transition from initial structural separation and alienation to a state of coexistence.

This form of “deception” implies that video games imitate reality without being identical to reality itself. Marc Albinet, the design director of the Assassin’s Creed game series, perceives “game” and

"reality" as opposites. He believes that a serious game with science-based content or a dramatic game with a tragic plot must use the virtual existence of the game to immerse the player in a game world distinct from reality. "The main idea of the game is played, not told." Thus, games may choose to disrupt the rules of the real world. Game developers deconstruct and reorganize real-world problems, desires, and fantasies with unique narrative techniques. This deconstruction of reality is akin to allowing the player to enter a "cave" where the exact route is unknown. Players are deprived of their knowledge of real life to varying degrees, and therefore, they need a "guide" who can show them the way. On one hand, the player follows the game's instructions to progress; on the other hand, they recognize the game's intended message based on the emotional guidance provided by the game developer. Thus, video games differ from the reality we live in, as they "cave in the bare world" for the player to explore.

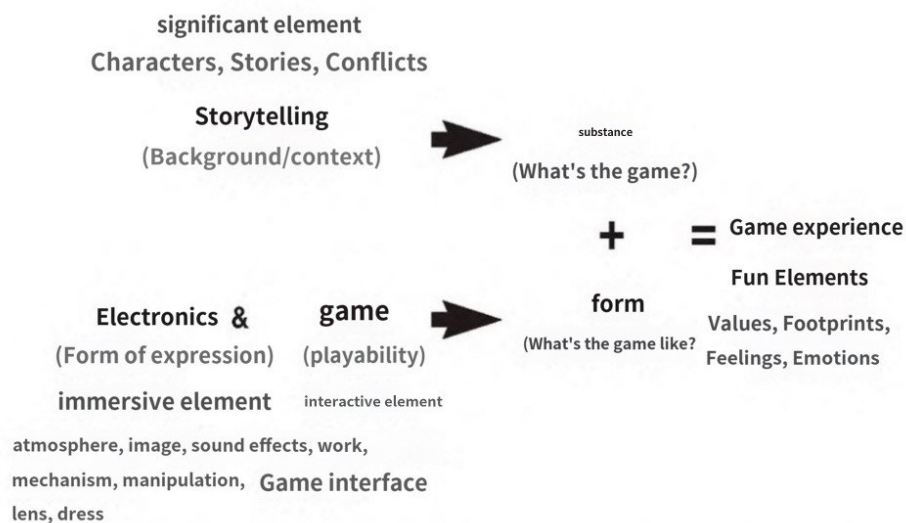
Therefore, exploring the caves sounds fraught with difficulty and danger at first glance, but there will always be people who want to find out what is going on. The game gives the player an immersive experience that is hard to get out of. By opening different games, the player can experience a different kind of life. In *The Elder Scrolls V*, a player can be a "dragonborn" with the power to slay dragons, and he or she can do anything to save the world from suffering. Or in *Watch Dogs: Legion*, the player can choose one of the 9 million controllable game characters on a mission to liberate London. Thus, playing the game can be seen as a way for the player to "metaphorically fit in with" this dream, and to derive a different kind of satisfaction from the mentally pleasurable immersion experience.

## 2.4 Players Exist in the Unreal

This shows that many players, even if they cannot take things away from the game, can have an experience that they do not have in real life for a few hours. "We actively want to experience these emotions in stories, art, and games, and our experiences in games are not erased; these emotions will be at the forefront of our minds." Mark splits the video game experience into two parts: form (presentation and game mechanics) and substance (story creation) [Fig. 2].



[Fig. 2] Game Experience



[Fig. 3] Game Experience Construction

The former delivers the appropriate emotional experience to the player playing a particular game, while the latter is responsible for conveying the creative ideas and thoughts and feelings of the game developer. The interactive element of the game form suggests that the player and the game are relatively equal; the player opens the game and enters the appropriate commands, and the game is able to give the player the programmed feedback that he or she desires. Mark's proposed definition of the game experience is shown in [Fig. 3] [12].

According to the above figure, the aesthetic realm of the object and the self may seem to be only associated with the form of the game, which represents the element of immersion, but Mark goes on to point out that the form and the substance of the game complement each other, and that the storyline and characterization buried in the game by the developer can also produce immersion in the player.

This study then, suggests that the goal of immersion is achieved when the game immersion experience occurs in a way that allows the player to identify strongly with what is happening in the game and to forget that it is not real. A game program is an action that allows the player to input commands and provides feedback based on the player's behavior. The player does not believe that "this is real" because the text of the game is confused with reality, but rather has a sense of participation in facilitating immersion because the commands he or she enters have some effect on the game as a whole.

So, is it necessary for a player to manipulate a virtual body to generate a sense of participation and subsequently an immersive experience? Yu Wenjuan categorizes one of the conditions of immersion for gamers, "bodily participation," as the player's manipulation of a game character provided by the game and interacting with things in the game world with the help of the avatar[13]. However, this is not a mandatory requirement for immersion in games, for two reasons.

Firstly, a "manipulatable character" is not something that all video games have. While it is true that there are many popular characters in today's gaming world, there are also many games where immersion can be accomplished without the need to control a character. Text-based adventure games, for example, present large passages of text that are closer in nature to traditional reading (hence the term "visual novel"), but the player is only manipulating the "interface" of the game from start to finish. The player is always controlling the game's "interface" by typing commands such as "play next," "autoplay," "save progress," etc. into the game program. Immersion can also occur because of beautiful graphics and an emotional soundtrack. Type-Moon's "Night of the Magic Envoys," produced and published by the Japanese game studio Type-Moon, lacks a single voice-over of character lines and does not give players the option of choosing the subsequent storyline[14]. Still, it features excellent animation, soundtracks that mobilize the player's emotions, and a storyline that is either bloodthirsty or spine-tingling. It allows the player to concentrate on the experience, forget about reality, and obtain a gameplay experience. This work has also become a game classic in the hearts of many fans.

Therefore, manipulating a character in RPGs is not a necessary condition for game immersion, but character dialogues, game sound effects, and game menus triggered by the player's physical body when inputting commands can all contribute to immersion.

Secondly, "transparency of the medium is required for immersion to occur[15]." This thesis argues that this does not just mean that the player forgets about the existence of the device running the game during play. The player will be more concerned with their impact on the virtual world, watching the changes in the game as a result of their commands, rather than the medium that connects the game world, i.e., the manipulated game character itself or the player themselves. The player may be so engaged in a sustained gaming experience as a result of conquering a particular level that they forget to get up and move their body for hours. Or the player may remember how they conquered a level, have a strong emotional experience of the plot, but may not remember the details of a command they personally typed in or the details of how they survived the bloodshed, and so on.

Therefore, in the game immersion experience, the player focuses on the emotional experience that the game content brings to him or her. The player remembers the dream of becoming the other, is

comfortable in the process of the game, and enjoys the pleasure of being different from reality through the character in the game, not remembering his own reality, and there is no need to connect his real life with the virtual world, and he achieves the realm of materialization and unity.

### 3. Gamer Identity Construction

#### 3.1 Freedom in the Game World

In the previous chapter, it was mentioned that Caillois had proposed that any game lies on a spectrum, with child's play (*paidia*) at one end of the spectrum and game (*ludus*) at the other, with the closer the *ludus* end of the spectrum, the stricter the rules are, and the closer the *paidia* end of the spectrum, the more relaxed the rules will be, and even give the player a certain amount of space to open up to negotiation. The degree of freedom of the game is closely linked to the narrative of the game. The stricter the rules of the game, the higher the restriction on the freedom of the player, who walks through the whole game in a relatively narrow path, and the narrative will not be affected by the player's own behavior, but the gameplay will be relatively homogeneous. Conversely, the higher the degree of freedom of the game, i.e., the more open the game world is, the more difficult the narrative becomes, the more autonomous the player is, and the more skill the developer needs to control and lead the player through the narrative.

For example, in <The Last of Us>, the designers will put very obvious props on the paths that must be traveled through the game. The player is drawn in through newspapers, letters, televisions, and other items that clearly create interaction. Another example is the game "Memories of Eddie Finch" in the game screen there are many guiding elements, such as distant lights, partner guidance, the location of the voice, etc., in addition to allowing players to understand the relationship between the characters, the world view, but also provide players with the goal of travel, to a large extent, to ensure that the player smoothly advances the linear plot. "For example, at the very beginning, Sara is walking around the room, and the sound of the TV will draw you over, and then you'll see news about the infection on the TV, and there are times when a certain place will be extra bright, which also hints that you can go that way." "There are some obvious buildings where you can just follow your companion when someone is with you, and there are some obvious lights, sounds and stuff, and some of the roadblock placement is pretty obvious."

The freedom of a game produces a great narrative feel, but the game needs to be free at the same time as it needs to be guided in such a way that the player does not get lost in the game world, and of course there are games that emphasize the player exploring at will, and in these types of games there is not specific linear story, and the narrative of the game depends heavily on the player's own actions and interactions with other players. For example, *Sky Light Encounter*, in which the guidance mechanism is extremely secretive, aims to tilt the game toward exploration, so the setting of the guidance mechanism is also related to the degree of openness of the game and the strength of the narrative, and the style of the setting of the guidance mechanism varies from game to game with different strengths of the narrative.

#### 3.2 Game Difficulty and the Mindstream Experience: Erasable Narrative

Strong narrative RPGs are different from movies in that they have gameplay with a certain degree of operational difficulty, and at the same time the game has a large space for trial and error and a low cost of trial and error, and the player learns over the course of many iterations. Narrative in games has the property of erasability, for example, in the domestic narrative game *Invisible Guardian*, players advance the plot by playing the role of the game mission and making behavioral choices at key plot points; once a wrong choice is made, it will lead to the end of the plot, but choices can be made again by going back

to the previous plot[7].

The erasure narrative of games changes the way people learn: whereas in the print world, they learned about new things from manuals, in the game world they learn through trial and error. The difficulty of the game, i.e. the frequency of such repeated attempts by the player, also affects the narrative experience of the game. Being cut off from the gameplay too often can be destructive to the continuity of the narrative, so the setting of the game difficulty is also an issue that needs to be emphasized in the narrative balance of the game. The player's excitement and narrative experience will vary depending on the difficulty of the game. Repeatedly failing to pass a certain level disrupts the player's rhythm and decreases their willingness to play.

Cheksemihalyi's theory of "mind flow" illustrates how the difficulty of a game affects the experience of the game. "Mindstreaming" is the process by which an individual's mental energy is completely devoted to an activity. The mindstreaming experience means that the individual feels a strong sense of excitement and fulfillment when engaging in the activity, enjoys an excellent sensory experience, and enjoys a flow of actions and thoughts, so that temporary concerns are ignored, and even the individual becomes distant from himself/herself. The mind-flow experience is closely linked to games, and game interaction is a very direct source of mind-flow that leads to an excellent mind-flow experience[16]. The importance of the "mind-flow experience" is demonstrated when the player's abilities are utilized to their fullest extent under the state of full concentration. If the difficulty of the game is much higher than the player's abilities, the player may feel anxious, but if the difficulty is too low, it will lead to boredom.

The "Dynamic Difficulty" system in video games provides participants with an appropriate match between skill and difficulty. Firstly, this matching is reflected in the difficulty selection before the game, where players can choose the difficulty mode based on their own gaming ability. In <The Last of us>, the game's difficulty also changes as the player's skills improve. As the player becomes more skillful and their reactions sharpen, more challenging targets will appear, introducing additional danger. This type of difficulty adjustment ensures that participants do not experience emptiness after satisfaction but rather engage in a continuous cycle of "facing challenges, overcoming - new challenges," maintaining enthusiasm for the game.

Another approach is to break down game tasks into milestones. In <The Last of us>, tasks are divided into relatively simple and clear steps. "Relatively simple" means that the difficulty level of a task is close to the player's current skill level, not exceeding it too much. However, it typically aligns with the highest level of the player's current skill, requiring a certain amount of effort to complete. Establishing balanced and moderately paced challenges and levels allows the player to remain in a state of engagement for an extended period during the game.

The concept of the game's "clarity" can be understood as the clarity of instructions given to the player. Even if instructions are provided in a non-textual format, they should be clear and not confusing to the player. Additionally, the player should receive timely feedback after instructions are given, such as obtaining clues or weapons, serving as an incentive to keep the player enthusiastic until the end of the mission.

### 3.3 Game's Dynamic Narrative Transitions

When analyzing the narrative discourse of <The Last of us>, it becomes clear that there is a logical shift between dynamic and static narratives during the game's narrative. The combination of gameplay and cinematic borrowing allows for the presence of a large number of shots in the game that resemble the way a movie is edited, giving the player the experience of watching a movie, a part of the narrative that usually appears as a static narrative. However, if there are too many of these static statements in the narrative, the lengthy transitions will leave the player with a lack of gameplay experience. The video game is different from the movie in that video games break through the pure appreciation mode of

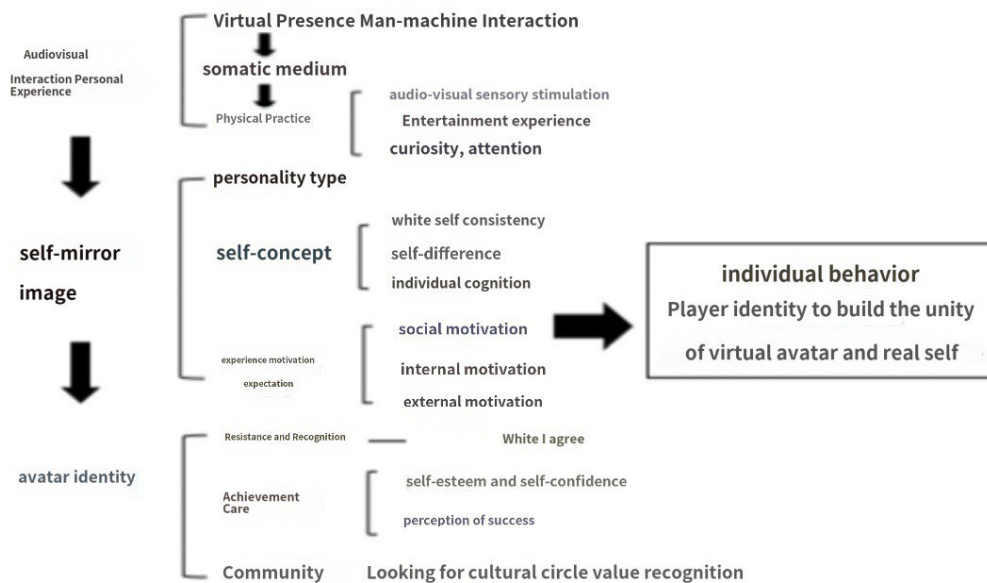


gameplay, resulting in a new type of interactive experience of participation. So in the game, both the static mood narrative and dynamic process narrative are interplaying, and the reasonable conversion of the two is also to a certain extent, balanced the contradiction between the gameplay and the narrative.

When the player does not have a deep sense of participation, some behavioral choices just stay on the surface of the shallow interaction, it can only be said to be a simple interactive movie. However, if it does not focus on the narrative plot, and simply consists of only player-operated game interactions, it makes the game not rich enough and lacks narrative. Therefore the reasonable conversion of dynamic narrative and static narrative is a factor that game developers need to pay attention to. In terms of static narrative, Naughty Dog Studios has set up movie-level transition animation and music notation narrative for <The Last of us>, grasping the time of the transition animation and the nodes inserted. At the same time, Naughty Dog also pays close attention to the dynamic narrative to enhance the playability of the game, through interactive dialogues, props, player behavior to improve the sense of participation in the game, so that the dynamic and static conversion on the one hand, taking into account the gameplay and narrative, but also in the conversion of the same time to give the player the buffer and the rhythm of the ups and downs.

### 3.4 Behavioral Patterns of RPG Player Identity Construction

Based on the results of the case study, and the relevant conclusions of the empirical study, this study integrated the behavioral patterns of identity construction of RPG players as follows:



[Fig. 4] Behavioral Patterns of RPG Player Identity Construction

## 4. Conclusion

The study reveals a significant relationship between the process of Avatar Identification and the overall game experience. During the immersive game experience, players focus on the emotional experience that the game content provides. This interaction leads players to form deep emotional, achievement-oriented, and evaluative connections with their virtual characters, aligning them more closely with their real selves, thereby intensifying the immersion. The study integrates the role of Avatar Identification. In the static experience of the game, cinematic expressions are often borrowed. The game

attracts players' attention through rich cinematic shots and editing techniques similar to movies. In future research, we will attempt to further validate the role of avatar identity through comparative experiments.

In RPG games, players have ample interaction with the virtual game world. Players can actively manipulate game characters, and the game interface provides immediate feedback, enhancing the player's perception of the game world. Players tend to emotionally, achievement-wise, and evaluatively connect the virtual character with their real selves. The fusion of the player's identity with the game character makes it easier for players to establish a closer identification with the avatar in the game. During the video gaming process, the game provides timely feedback on factors that influence Avatar Identification. Once identification is achieved, it allows players to have a prolonged flow experience. By examining this process, the study aimed to enrich the research on game immersion and extend beyond the traditional confines of narratology into broader new media research domains.

## References

- [1] Juul, Jesper, Games telling stories? A brief note on games and narrative, *Game Studies*, (2005), Vol.1, No.1.
- [2] K. S. Tekinbas, E. Zimmerman, *Rules of play: Game design fundamentals*, MIT press, (2003)
- [3] B. Sutton-Smith, *Toys as culture*, Gardner Press, (1986)
- [4] J. P. Zagal, S. Deterding, Definitions of “role-playing games”, *Role-playing game studies: Transmedia foundations*, (2018), pp.19-51.
- [5] R. Ferdig, *Handbook of research on effective electronic gaming in education*, IGI Publishing, Hershey, (2008), pp.235-250 .
- [6] M. L. Ryan, *Narrative as virtual reality 2: Revisiting immersion and interactivity in literature and electronic media*, JHU press, (2015)
- [7] Roger Caillois, *Man, play, and games*, University of Illinois press, (2001)
- [8] T. Donovan, *It's all a game: The history of board games from Monopoly to Settlers of Catan*, Macmillan, (2017)
- [9] YuanZi Sang, KiHong Kim, Yang Pan, From Technology to Content: Research on the Development of VR Flow Experience, *The International Journal of Advanced Smart Convergence*, (2022), Vol.11, No.3, pp.93-101.  
DOI: <http://dx.doi.org/10.7236/IJASC.2022.11.3.93>
- [10] John Hejzinha, *People of the Game - A Study of the Playful Elements of Culture*, translated by Fu Cunliang, Beijing: Peking University Press, (2014), p.96.
- [11] Diane Carr, *Computer games: Text, narrative and play*, Polity, (2006), p.9.
- [12] Tadashi Suzuki, *Culture is the body: The theatre writings of Tadashi Suzuki*, Theatre Communications Group, (2015)
- [13] Marc Albinet, *Concevoir un jeu vidéo: Tout ce que vous devez savoir pour élaborer un jeu video*, FYP editions, (2010)
- [14] Hongche Wang, *How Labyrinths Tell Stories: 'Giant Cave Adventure' and the Transmedial Origins of Video Games*, Reading, (2021)  
DOI: 10.1177/1555412012473364
- [15] Jesper Juul, *The art of failure : exploring frustration in video games*, Beijing Institute of Technology Press, (2019), pp.5-6.
- [16] Michael Ruckenstein, *Homo ludens: a study of the play element in culture*, *Leisure and Ethics* 237, (1991)