The Impact of Nonlinear Narrative Games on Player Immersion

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Abstract. Nonlinear narratives have redefined the narrative experience in modern video games, offering players greater agency, interactivity and immersion. Unlike traditional linear narratives, non-linear structures introduce branching paths, multi-perspective storytelling and player-driven choices that shape how the story unfolds. This study explores how nonlinear narrative structures affect players' immersion on cognitive, affective and interactive dimensions through a focus on literature and case studies. The study shows that these three types of immersion are enhanced when players actively piece together fragmented storylines, encounter character-driven plots and emotionally charged scenes, and explore narratives that are responsive to player agency and the world. Despite these advantages, non-linear narratives present a number of design challenges, including narrative fragmentation, the illusion of choice, inconsistent pacing and high development costs. To solve these problems, the methods that can be used are to adjust the thinking of game design and use brand new tools that are cheaper to develop.

Keywords: Game; Nonlinear narrative; Immersion.

1. Introduction

Today, more and more people have easy access to all kinds of games. The development of the gaming and technology industries has made this possible. Video games have evolved into a sophisticated storytelling medium that can even rival traditional narratives in literature and film to a certain extent. As the industry matures, game designers are increasingly experimenting with non-linear narratives. According to Daneels, this kind of evolution has a profound impact on the player experience, as the interplay between narrative and interactivity influences cognitive, emotional, and behavioural responses to digital narratives [1]. Player immersion – the feeling of being deeply involved in the game world – has become a key factor in assessing the success of modern video games. Existing literature divides players' immersion into three main types: cognitive immersion, emotional immersion and interactive immersion. Researchers have explored the impact of different narrative structures on immersion, particularly in role-playing games (RPGs) and interactive story-driven games [2]. Narrative has long been an integral part of game design and plays a key role in player engagement [2]. In traditional RPGs, the narratives are the basis for world-building, character development and player motivation. As an interactive medium, games show a difference from passive narrative forms such as films and books. They promise players to shape the progress of the story through their own decisions and explorations. Different from traditional linear narratives which expand and narrate the story in a fixed order, non-linear narratives create a branching structure that dynamically adapts to players' decisions, fostering agency, engagement and immersion [2]. This interactive nature sets video games apart, providing a more immersive experience than traditional narratives [3]. Most of the existing literature indicates that the use of non-linear narratives expressed in various structures can, to some extent, affect or enhance the player's sense of immersion in different ways. This conclusion is also supported by the success of many games that use this narrative approach. However, some researchers have also pointed out the challenges posed by improper use of non-linear narrative structures. Nuyens et al. and Moser and Fang emphasize that non-linear narratives can lead to narrative fragmentation, decision fatigue and inconsistent pacing, and can also cause disengagement, as players may have difficulty putting together a complete, coherent and meaningful story [2, 4]. This paper aims to analyse existing research while exploring the connection between nonlinear narratives and player immersion using some case studies. Summarise the benefits and challenges of nonlinear narratives. Specifically, the research will focus on the following four points.

Firstly, researching how different non-linear narrative structures affect players' immersion in terms of cognition, emotion and interactive engagement. Secondary, case studies of games using non-linear narratives are used to assess their effectiveness in providing players with a sense of immersion. Then identify design strategies that can affect the player's sense of immersion. At the end of the article, possible future research directions, in particular the use of AI-assisted narrative and the use of virtual reality narrative, will be discussed.

2. Literature Review

Nonlinear narratives in video games can take on a variety of structural forms, each of which offers unique advantages and challenges for player immersion. These structures differ in the ways they allow players to influence the narrative and the extent to which they integrate cognitive, affective, and interactive immersion. Branching narratives are one of the most common forms of nonlinear narratives, in which player decisions lead to multiple possible outcomes [2]. Games like Detroit: Become Human and Life is strange feature decision trees where each choice shapes future events, creating a strong sense of agency and interactive immersion [1]. However, complex branching structures require a significant amount of content development, and poorly executed branches can lead to narrative fragmentation where different story paths feel immature or inconsistent [3]. A well-designed branching system ensures that choices make sense and influence gameplay beyond superficial changes. On the other hand, many buy-to-play and even mobile games have adopted an open-world design to accommodate more content and create opportunities for continued updates and development. In open-world narratives, players are free to explore and discover the story organically, rather than following a fixed plot structure. Games such as The Witcher 3 and Daleks: Redemption 2 use environmental and emergency narratives where interactions with the world shape the player's personal experience [5]. Open-world games often sacrifice narrative linearity in pursuit of immersion, allowing players to construct their own stories through exploration [2]. However, excessive freedom can dilute the impact of the narrative, as players may forget the main story if the world lacks a clear sense of direction or urgency [1]. Moreover, there is another kind of narrative called environmental narratives that convey narrative elements through world design, visual details, and indirect narrative techniques instead of direct storytelling. Games like Dark Souls and Bioshock immerse players in a richly detailed world where story elements are embedded in the environment rather than told directly [2]. This form of storytelling enhances cognitive and emotional immersion by requiring players to actively piece together the narrative [5]. However, it relies on player curiosity and attention to detail, meaning that players who do not actively interact with the environment may miss key narrative elements, thereby reducing affective impact [1]. Procedural narratives dynamically generate story elements based on player interactions and AI-driven systems. Games like No Man's Sky and The Stanley Parable use algorithms to tell stories that can be completely unique each time they are played [2]. This enhances interactivity and replayability, but typically lacks in-depth character development and emotional weight, and is therefore less effective for emotional immersion [1]. Procedural narratives work best when combined with pre-written storylines for consistency and coherence [5]. The effectiveness of nonlinear narratives depends on the extent to which developers combine player choice with narrative coherence. Hybrid approaches that combine branching choices with strong environmental storytelling often provide the most immersive experiences [1]. For example, The Witcher 3 blends meaningful choice, in-depth character writing, and open-world discovery, balancing dynamism and emotional engagement [5]. Understanding the strengths and limitations of each narrative genre is critical to designing immersive game experiences that resonate with players. One key challenge of nonlinear narratives is ludonarrative disharmony, in which gameplay mechanics contradict the intended story theme. One of the main issues raised in the game studies literature is the illusion of choice, where players believe their decisions affect the world, but ultimately face predetermined outcomes. Research suggests that greater player agency leads to deeper immersion, if

decisions have unique and meaningful consequences, characters respond plausibly to past actions, or the game system tracks the long-term impact of players.

Non-linear narratives in video games have evolved with technological advances, cognitive narratives and interactive digital narratives. Research on non-linear narrative in video games is rooted in narrative theory, game studies and cognitive psychology. Scholars emphasize how interactive digital narratives differ from linear narrative forms [2]. Player immersion is a multidimensional phenomenon that describes the depth of a player's psychological, emotional, and sensory interaction with a game [5]. Unlike passive media such as books or movies, video games offer interactivity, allowing players to influence events and thus significantly enhancing immersion [2]. Scholars in existing research have divided immersion into three key dimensions, each of which plays a crucial role in shaping the player's experience. The first one is the cognitive immersion which means the mental engagement required to process story elements, make decisions, and solve problems in a game world. This is especially important in branching narratives, where players must remember past choices and anticipate future consequences [2]. A higher level of cognitive immersion is produced when the narrative logic is structured and internally consistent, preventing players from feeling disjointed by story fragmentation or choice overload [3]. The second kind of immersion called emotional immersion shows the emotional connection with the characters, events, and overall narrative. Players gain this immersion by placing themselves in the shoes of the in-game character. Emotional immersion is particularly high in character-driven games, where strong writing, voice acting, and visual storytelling can enhance the player's empathy [1]. Games like The Last of Us Part II use character switching mechanics to challenge player loyalty and create deep emotional engagement through storytelling techniques [3]. The last kind of immersion is interactive immersion. This kind of immersion represents the player's sense of control over the game world is crucial in nonlinear narratives. Emotional immersion is particularly high in role-driven games, where powerful writing, voice acting, and visual storytelling can enhance players' empathy [1]. Representation-limited games (e.g., Final Fantasy XV) have a 35% lower narrative retention rate because players feel less connected to the outcome. A well-designed nonlinear narrative should balance these three dimensions, ensuring that players experience psychological engagement (cognition), emotional connection (emotion), and agency (interaction), without one element overwhelming the others. The best nonlinear narrative designs seamlessly integrate these elements to maximize player immersion and satisfaction. If a game places too much emphasis on interactivity at the expense of emotional depth, players may feel disconnected from the story. Conversely, if a game focuses too much on cinematic storytelling without meaningful player agency, immersion may suffer from passivity [1]. Research suggests that excessive decision complexity can lead to narrative fatigue. A study by Nunes et.al found that players exposed to 10+ major decisions per hour reported reduced recall of past choices and lower long-term immersion [6]. Players who encounter fewer, more impactful choices have a better recall of story events and feel more emotionally connected [7].

3. Case Study

3.1. The Witcher 3: Wild Hunt

The Witcher 3: Wild Hunt was developed by CD Projekt Red and is known for its deeply immersive open-world environment and non-linear narrative structure. The game is based on the novel The Witcher series. It tells the story of the aftermath of The Witcher 2: Assassins of Kings, where those who wanted to use Geralt are gone. Geralt seeks to change his life and embarks on a new personal mission. The main narrative of the game lies in the main quest, side quests, faction selection and establishing character relationships. Enhances all aspects of immersion by enabling players to choose, explore and make moral decisions to shape their experience. Players are offered meaningful choices that ripple through the story, requiring them to critically consider the consequences of their actions. Decisions made by players early in the game often resurface after a few hours, affecting future tasks. At the same time, The Witcher 3's open world design encourages players to explore its

main feature. Players can freely choose the order of quests and discover hidden quests. They can also encounter dynamic skirmishes. The NPC's reaction to the player's actions in the open world also enhances the sense of immersion to a certain extent. Consider The Witcher 3's open world design and the large number of side quests. Despite the game's substantial content, freedom can undermine the narrative urgency, especially if the player prioritizes side quests over the main story. The large number of side quests can also be exhausting for the player.

3.2. 13 Sentinels: Aegis Rim

13 Sentinels: Aegis Rim developed by Vanillaware and published by Atlus is known for its innovative non-linear narrative design. The game intertwines the stories of 13 protagonists, each of whom presents a unique perspective and timeline within a sci-fi narrative that includes time travel, parallel worlds, and mecha battles. The game is divided into different chapters, with the recollection chapter offering a visual novel-like gameplay experience, where players can explore the characters' backstories and fragments of the narrative. The collapse chapter unfolds story-based strategic battles. And in the exploration chapter, the story's development can be reviewed by repeatedly reading event logs and mystery files. It can throw different suspense based on the same timeline for every attempt by the player. At the same time, it avoids useless information when the character story lines overlap. The nonlinear progression system allows players to freely choose which character stories to explore, gradually revealing how individual arcs connect to form a larger apocalyptic narrative. The game's fractal narrative design (smaller stories reflecting and informing larger narratives) enhances cognitive complexity. Each character's personal chapter contains micro-stories that reflect themes such as fate, identity, and survival. At the same time, they are arranged in a nonlinear order, encouraging players to assemble the story fragments like a puzzle [8-10]. In games, the timeline visualization in the exploration chapter provides a way for players to understand the story. Compared to complete fragmentation, it also provides players with a certain degree of active participation. The need for active processing and comprehensive information deepens the sense of cognitive immersion, transforming the player into a narrative investigator rather than a passive consumer. On the other hand, in terms of emotional immersion. With 13 different protagonists offering diverse character motivations, betrayal and love to existential dread, players can experience a range of emotional perspectives. Events witnessed by the player from one perspective may gain a different understanding when revisited through another. Interactive dialog in the game is very limited, but it does allow players to shape their own character relationships. In terms of interactive immersion, While the overall narrative converges toward a central resolution, 13 Sentinels allows the player to choose the prioritized character branching stories to read the full story in a different order. Despite its strengths, 13 Sentinels faces certain design challenges inherent in nonlinear narratives. For example, in some forums and video sites (psnine, bilibili), some players will say that the fragmented timeline and character richness is overwhelming. One player posted a thread asking what order to play the game in to best understand the plot. In addition, while the player chooses the order of the storyline, the main plot events remain fixed. In conslosion, 13 Sentinels: Aegis Rim demonstrates how non-linear narratives can be combined with multi-character perspectives, fractal narrative structures, and player-driven exploration to deeply enhance cognitive, emotional, and interactive immersion. Fractal narrative structures encourage active cognitive engagement, but require explicit in-game tools like timelines, analytic modes to avoid player confusion. Multi-character perspectives promote emotional immersion by presenting different viewpoints and personal stakes. Player agency through discontinuous story exploration enhances interactive immersion while maintaining narrative coherence.

3.3. Challnges

Advances in non-linear narrative design in video games have significantly expanded the possibilities of storytelling. However, as these narratives become more complex, they may also encounter new challenges. Games like 13 Sentinels: Aegis Rim, with their intricate, multi-layered

narratives, may be fascinating to some players but may leave others feeling lost. For example, casual gamers who don't want to delve into the plot may be put off by high cognitive demands, limiting the game's broader appeal. Methods may therefore need to be developed to balance narrative complexity and accessibility, ensuring that rich stories are told without alienating non-hardcore audiences. Besides, many non-linear games promote player freedom, but limit true narrative agency, as different choices within the game still lead to similar outcomes. As a result, Players may be frustrated when choices lack meaningful consequences, reducing interactive immersion. Meanwhile, the result of such choices may also lead to players not taking their choices seriously, affecting long-term engagement and immersion. Another challenge is narrative fragmentation and pacing issues. Nonlinear games often struggle with narrative pacing, especially in open-world environments (The Witcher 3). While many games have very detailed and interesting side quests designed to be as interesting as some of the main storylines. However, they are mostly used to fill in areas not covered by the main storyline. The consequence of this is that disjointed storytelling weakens emotional engagement and reduces the urgency of the narrative, and players may forget the main plot points, which can detract from the overall story. The more serious challenge in this regard lies in games like Dark Souls. Putting a lot of plot design into the descriptions of the game's props gives the player the freedom to interpret the plot though. However, overly fragmented plot design also tends to make it necessary for the player to supplement the discussion of their interpretation of the plot elsewhere, for example on video platforms. Two other challenges are cultural differences and development costs. Influence on player dynamics, development time and ability to produce high quality narratives.

4. Conclusion

As technology evolves, future game production may be able to take advantage of some emerging technologies. For example, incorporating ai technology and machine learning into the game's story instead of just expanding the world like No man’s sky. Gaming may also not be limited to computers, and development or optimization for the use of VR and AR can also help in enhancing player immersion. In terms of game development, authors can also consider quest reminders to propel the player towards the main storyline without restricting freedom. In addition, creators may also be able to use more economical authoring tools to reduce the cost of making games. the unreal engine is a current example of a tool that can reduce the workload of creators to some extent. In conclusion, this study summarizes other research and explores the impact of nonlinear narrative design on player immersion, focusing on how various narrative mechanisms affect cognitive, affective, and interactive dimensions. Cognitive immersion is fostered through complex branching paths, multiple character perspectives, and temporal changes that require players to actively process fragmented storylines and make meaningful choices. Emotional immersion is enhanced when the narrative presents morally ambiguous decisions, deep character relationships, and empathy with the player. At the same time, interactive immersion in terms of player agency, world responsiveness, and personalized exploration allows players to shape their narrative journeys. Despite these advantages, current challenges (including narrative fragmentation, the illusion of choice, high development costs, and cultural variability) pose significant barriers to realizing the full potential of nonlinear narratives. Game creators need to try to address these issues to realize the future potential of nonlinear narratives in games.

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