



The Emotional Impact of Video Games on Players

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Abstract. Video games have evolved into a globally pervasive cultural phenomenon, and their multifaceted emotional impacts on players have become a focal point of inquiry across psychology, human-computer interaction, and related academic fields. This study conducts a systematic exploration of the bidirectional emotional influence mechanisms of video games, grounding its analysis in three theoretical frameworks: the immersive experience theory, self-determination theory, and cognitive core theory. It further dissects the emotional design logic of video games from four interwoven dimensions: interactive feedback cycles, narrative engagement, social interaction dynamics, and multi sensory aesthetic expression. The findings reveal that video games function as a dynamic emotional system, where players' active participation constitutes the core mechanism driving emotional impacts. This insight is pivotal for guiding the healthy development of game culture and maximizing players' positive emotional engagement with video games.

Keywords: Video games; Emotional impact; Interactive media; Game design; Emotion regulation.

1 Introduction

With the rapid advancement of digital technology, video games have transcended their original role as a form of entertainment to become a profound cultural force that exerts significant psychological and emotional influences on modern individuals. According to the latest global digital entertainment industry report, the number of global video game players has exceeded 3.5 billion, accounting for nearly half of the world's total population [1]. For many people, gaming serves as a valuable way to unwind and recover from the stress of work and daily life. However, the negative emotional experiences some players encounter during gameplay have also drawn widespread attention. In 2019, the World Health Organization officially included gaming disorder in the International Classification of Diseases, sparking public discourse on the potential harms of excessive gaming [2]. Conversely, a growing body of empirical research has demonstrated that moderate gaming can effectively alleviate stress, foster social awareness, and even hold therapeutic potential for individuals with depressive symptoms [2].

What sets video games apart from traditional media such as film and literature is their inherent interactivity. Unlike passive media consumers, game players are not merely

recipients of emotional content but active participants and co-creators of the emotional experiences within the game world. Through real-time operational feedback, diverse decision-making options, and dynamic progress systems, video games forge a unique emotional interaction dynamic, evoking intense positive emotions like the joy of accomplishment and negative feelings such as frustration from failure. A thorough understanding of the emotional influence mechanisms of video games not only advances theoretical research in media studies but also provides practical guidance for optimizing game design, offering evidence-based mental health support for players, and informing educational practices that leverage game-based learning.

2 Theoretical foundations and conceptual framework

2.1 Multi-level analysis of emotional experience

Emotional reactions to interactive entertainment can be deconstructed into three distinct, progressive levels, each characterized by unique temporal and experiential features:

Immediate, high-intensity psycho physiological reactions triggered by specific game stimuli, such as the sudden sense of shock from an unexpected in-game event. Persistent moods or feelings that endure throughout a gaming session, such as a constant sense of tension during a challenging puzzle game or a state of calm in a casual exploration game. Complex, reflective emotions tied to the artistic expression and meaning-making of video games, including the contemplation after completing a game's storyline or a profound sense of awe toward a game's meticulously crafted fictional world.

The valence-arousal model, a core framework in contemporary affective psychology, provides a robust analytical tool for measuring these diverse emotional experiences. It situates emotional states along two axes—pleasure (valence) and activation (arousal)—enabling a systematic quantification and comparison of players' affective responses to gaming.

2.2 Core theoretical perspectives

The concept of immersive experience, first proposed by Csikszentmihalyi, describes a psychological state that arises when the challenge of a task aligns perfectly with an individual's skill level [3]. In the context of video games, this optimal experience is manifested in four key characteristics: intense concentration that distorts the perception of time; a seamless fusion of action and consciousness, where gameplay feels intuitive and effortless; immediate and clear feedback from the game system that guides subsequent actions; and a profound sense of satisfaction and intrinsic fulfillment derived from the activity itself.

2.3 Self-determination theory and psychological need satisfaction

Deci and Ryan's self-determination theory posits that all individuals possess three innate, fundamental psychological needs that drive human behavior and well-being [4]:

Autonomy: The desire to make voluntary choices and exercise control over one's actions;

Competence: The need to develop skills, master challenges, and experience a sense of efficacy;

Relatedness: The longing to form meaningful social connections and feel a sense of belonging with others.

Thoughtful game design can intentionally satisfy these three psychological needs, and this satisfaction is a primary source of the positive emotional experiences that players derive from video games [5]. When games offer players meaningful choices, appropriately challenging objectives, and opportunities for social interaction, they create an environment that fosters sustained engagement and positive affect.

3 The emotional design logic of video games

Video games' unique capacity to shape players' emotions stems from their integrated design of interactive and experiential elements. This section explores the core design dimensions that construct players' emotional trajectories: interactive feedback loops, narrative engagement, social interaction, and multisensory aesthetics.

3.1 Core interactive feedback loops and reinforcement systems

The most fundamental emotional impact of video games stems from the operation-feedback-reinforcement cycle, a core interactive system that shapes immediate player responses. Three key design elements underpin this cycle:

Modern video games deliver millisecond-level feedback to player operations. For example, precise parrying in *Sekiro: Shadows Die Twice* triggers instant audiovisual cues that activate the brain's reward system, generating an immediate sense of satisfaction and accomplishment [3].

Experience bars, achievement badges, and unlockable content transform abstract in-game progress into tangible, visual markers, providing players with a clear sense of advancement. Variable ratio reinforcement mechanisms—such as random loot drops in role-playing games—sustain player anticipation and motivation by creating an unpredictable yet rewarding feedback cycle [5].

Games with dynamic difficulty systems adapt to players' skill levels in real time, ensuring that the challenge remains balanced with competence. This design keeps players in a state of immersive experience, avoiding the frustration of overly difficult content and the boredom of overly simple gameplay [3].

3.2 Narrative engagement: emotional resonance and moral agency

Narrative-driven video games enhance emotional experience by inviting players to engage with compelling stories and exercise moral agency. Three key narrative design strategies contribute to this emotional depth:

Role-playing games enable players to project their own emotions onto in-game characters, and customized character creation—such as the player-driven character development in *Cyberpunk 2077*—fosters a stronger sense of self-identification and emotional investment than pre-defined, static characters [6].

Games like *Detroit: Become Human* present players with complex moral choices whose consequences directly shape the game's narrative. These choices elicit profound moral emotions, such as guilt from a regretful decision or pride from an altruistic one—emotional layers that are difficult to replicate in traditional linear narratives [6].

Masterful narrative games, such as *To the Moon*, craft a deliberate emotional rhythm that alternates between sorrow and hope, guiding players through a complete and immersive emotional cycle that culminates in a meaningful affective experience [6].

3.3 Social dimension: cooperation, competition, and virtual belonging

Multiplayer video games construct a unique emotional ecology through social interaction, where players' emotions are mutually shaped by their interactions with others [7]. This social dimension manifests in three key forms:

Co-op games like *It Takes Two* require players to collaborate closely to achieve shared goals. The joy of collective victory strengthens social bonds and fosters a sense of camaraderie among players, enhancing positive emotional experiences [7].

Competitive multiplayer games such as *League of Legends* offer an intense sense of accomplishment from winning, but they also can trigger negative emotions—including frustration, disappointment, and even social embarrassment—from losing, which is a primary cause of gaming-induced anger [8].

Massively multiplayer online games (MMORPGs) create a strong sense of belonging through guilds, team cooperation, and mutual assistance. For many players, this virtual belonging compensates for feelings of loneliness in real life, fulfilling their psychological need for relatedness [7].

3.4 Multisensory aesthetics: cross-modal emotional stimulation

Video games leverage multisensory design elements—sound, vision, and tactile feedback—to create a holistic emotional experience, guiding players' affective states through cross-modal stimulation [1].

In *The Legend of Zelda: Breath of the Wild*, the game's musical score adapts dynamically to the player's in-game actions and environment, from the serene melodies of open exploration to the tense orchestration of combat, effectively directing and shaping the player's emotional state [6].

The minimalist, geometric visual design of *Monument Valley* creates a calm, meditative atmosphere that alleviates stress and fosters a state of peaceful contemplation in players [6].

Modern game controllers use precise vibration modulation to convert tactile information into emotional cues—for example, the subtle rumble of a character's

heartbeat or the sharp jolt of an in-game collision—enhancing players’ sense of immersion and emotional connection to the game world [1].

4 Bidirectional emotional impacts of video games

Video games exert a dual influence on players’ emotional lives, eliciting a rich array of positive emotional experiences while also posing potential risks of negative affect. This section examines both dimensions of these emotional impacts and their underlying psychological mechanisms.

4.1 Positive emotional experiences

Video games’ achievement systems break down large, daunting goals into small, attainable milestones, providing continuous positive feedback for player progress. The pride and sense of mastery derived from overcoming in-game challenges can transfer to real-life contexts, enhancing psychological resilience and self-efficacy [2].

Action games like *Hades* feature a carefully calibrated difficulty curve and a quick retry system that consistently place players in a state of flow [3]. This immersive state diverts attention from real-life stressors, making gaming an effective and healthy way to regulate stress and negative mood for many players [2].

Art games such as *Journey* use minimalist storytelling and grand, evocative landscapes to elicit a profound sense of awe—a complex emotion that blends wonder and pleasure. These aesthetic experiences enrich players’ emotional lives and foster a sense of transcendence [6,9].

During periods of social isolation, games like *Animal Crossing: New Horizons* provided a low-pressure virtual space for social interaction, enabling players to maintain meaningful connections with others. This virtual sociality fulfills the need for relatedness and creates a sense of emotional support and security [2,7].

4.2 Potential negative emotional risks

Perceived unfairness in gameplay—such as lag or unbalanced mechanics—and repeated failure can trigger intense negative emotions accompanied by physiological arousal, such as increased heart rate and irritability. Research shows that one in five players experiences such gaming-induced anger at least once a month [8].

Excessive gaming can lead to compensatory emotional dependence, where players rely on games as their sole means of emotion regulation. This dependence erodes the ability to experience and regulate emotions in real-life contexts, leading to emotional numbing and reduced psychological flexibility [2,8].

Prolonged exposure to moral decision-making in video games can lead to moral decision fatigue, reducing players’ cognitive and emotional investment in moral choices. In extreme cases, this can result in mild moral desensitization and a temporary decline in empathic responses to real-life moral situations [6,9].

Competitive ranking systems, cosmetic item gachas, and social pressure to “keep up” with other players can trigger excessive social comparison. This comparison fosters feelings of inadequacy, consumption pressure, and self-doubt, contributing to gaming-related anxiety [7,8].

5 Dialectical interplay of positive and negative emotions in gaming

Emotional experiences in video games are not binary—positive and negative emotions often intersect and interdepend, creating a complex affective landscape where negative emotions can sometimes enhance positive experiential value [6]. This dialectical interplay is evident in three key forms:

Hardcore games like the *Dark Souls* series feature extreme difficulty and frequent failure, yet these challenging experiences amplify the joy and sense of accomplishment of overcoming obstacles. Moderate stress from gameplay triggers the release of dopamine, a neurotransmitter associated with reward and pleasure, linking negative emotional states to positive outcomes [2,3].

Horror games leverage the concept of “safe distance”—the knowledge that the virtual danger is not real—to enable players to experience the physiological arousal of fear without actual threat. This arousal translates into a sense of excitement and thrill, creating a unique and enjoyable emotional experience [6].

Games like *The Last of Us* elicit profound feelings of sorrow and grief through their narrative and character development. This painful emotional experience deepens the game’s thematic meaning, fostering reflective thinking and creating a more memorable and meaningful affective experience that has both aesthetic and cognitive value [6,9].

A player’s emotional experience of a video game is not determined solely by game design; it is shaped by the interaction of individual, contextual, and temporal factors. This section identifies three key moderating variables that influence the nature and intensity of players’ emotional responses.

Players’ inherent psychological characteristics shape their emotional reactions to gaming [5,8]: Individuals with high neuroticism are more prone to gaming-induced anger and frustration, while extraverts tend to derive more pleasure from social gaming, and open-minded individuals are more likely to appreciate the aesthetic and creative aspects of art games [8].

Achievement-oriented players focus on in-game goals and mastery, social-oriented players prioritize interaction with others, and immersion-oriented players seek to escape into the game world. These different motivations lead to distinct emotional responses to the same game design [5,7].

Age, gender, and cultural background influence how players perceive and experience game emotions. For example, younger players may have a higher tolerance for in-game

failure, while cultural norms shape attitudes toward competition and social interaction in gaming [1,7].

The gaming context and specific design features of the game system also moderate emotional experiences [1,2]: Open-world games allow for diverse player choices, leading to individual differences in emotional experience; competitive games feature intense emotional fluctuations, with extreme highs from winning and lows from losing; narrative games have a relatively preset emotional curve guided by the game's storyline [1,2].

Moderate, short-term gaming sessions boost positive emotions and reduce stress, while prolonged, excessive immersion can lead to emotional fatigue and reduced well-being. Gaming with friends or family elicits more positive emotions than solitary gaming, due to the social reinforcement of shared experiences [2,3].

The culture of a game's player community shapes emotional experiences—friendly, supportive communities like that of *Final Fantasy XIV* mitigate negative emotions and foster a sense of belonging, while toxic, aggressive communities amplify frustration and gaming anger [7,8].

The duration and frequency of gaming also shape emotional experiences, with distinct emotional trajectories for short-term and long-term play [3,7]:

Emotional experiences follow a typical three-phase trajectory: a “warm-up” phase of initial engagement and mild arousal, an immersive phase of intense concentration and peak emotional experience, and a fatigue phase where attention wanes and emotional intensity declines [3,5].

Over time, the motivation for gaming shifts from novelty-seeking to achievement, and eventually to burnout or stable social engagement. In the long term, social interaction and habitual play become the primary drivers of continued engagement, replacing the initial emotional excitement from the game itself [7,10].

6 Implications

The insights from this study into the emotional influence mechanisms of video games have practical implications for game design, education, mental health, and player education [2,6]:

Game design: Emotion-driven design principles—such as dynamic difficulty adjustment, positive reinforcement systems, and ethical narrative design—can be used to create games that foster positive emotional experiences while minimizing negative emotional risks [3,6].

Education: Gamification of learning can leverage the motivational power of video games to enhance student engagement and learning outcomes. Additionally, video games can be designed to develop emotional intelligence and empathy, by placing students in simulated social and moral situations that require perspective-taking [2,9].

Mental health: Serious games—games designed for a purpose beyond entertainment—can be used for emotion regulation, stress reduction, and cognitive rehabilitation. They offer a low-stigma, engaging tool for mental health intervention, particularly for individuals with anxiety, depression, or social isolation [2,6].

Player education: Cultivating game literacy—including the ability to recognize emotional triggers in gaming, regulate gaming behavior, and critically evaluate game design—enables players to maximize positive emotional experiences and avoid the negative risks of excessive gaming [1,8].

This study has several methodological limitations that warrant attention in future research [2,5]:

Most existing research relies on self-reported emotional data, which is prone to bias; laboratory-based gaming studies lack the ecological validity of natural gaming contexts; and there is a scarcity of long-term longitudinal research on the lasting emotional impacts of video games [5].

Game designers and developers face ethical dilemmas in emotion-driven design—such as the potential for over-manipulating players' emotions through addictive reinforcement mechanisms. Additionally, the collection of players' emotional data raises privacy concerns, requiring robust data protection measures [1,8]. The commercial interests of the gaming industry must be balanced with the ethical responsibility to protect players' emotional well-being.

Building on the findings of this study, future research on video games and emotional experience can explore five key directions [1,2]:

Neuroscientific research: Using neuroimaging techniques to identify biological biomarkers of gaming-induced emotional states, such as changes in brain activity associated with flow states or gaming anger, to advance a mechanistic understanding of game emotions [1,2].

Longitudinal studies: Conducting long-term longitudinal research to track the dynamic changes in players' emotional experiences over time, and to examine the long-term impacts of video games on emotional regulation and mental health [2,5].

Cross-cultural research: Conducting cross-cultural comparative studies to explore how cultural norms, values, and social practices shape players' emotional experiences of video games, informing the design of culturally inclusive games [1,7].

Artificial intelligence applications: Integrating embodied emotional computing into game design, using AI to recognize players' real-time emotional states and adapt game content dynamically to foster positive emotional experiences [1,6].

New technology research: Exploring the emotional immersion potential of emerging technologies such as virtual reality (VR), augmented reality (AR), and brain-computer interfaces (BCIs), which create more immersive and interactive gaming experiences and new forms of emotional engagement [1,6].

7 Conclusion

Video games, as a defining interactive medium of the digital age, exert a multi-dimensional, multi-level, and highly dynamic influence on players' emotional lives. Through interactive feedback loops, narrative engagement, social interaction, and multisensory aesthetics, video games create emotional depth and complexity that are unparalleled by traditional media. This influence is inherently bidirectional: video games can foster profound positive emotional experiences—including immersion, a sense of accomplishment, and social integration—but they also pose potential risks of negative emotions, such as anger, addiction, and moral desensitization.

The core findings of this study are fourfold:

The emotional impact of video games is rooted in active player interaction—emotions are not passively received but co-created by the player and the game system. Positive and negative emotions in gaming are not mutually exclusive; meaningful negative emotional experiences can enhance the aesthetic and experiential value of gaming, creating a more complex and fulfilling affective experience. Moderating role of individual and design factors: Players' emotional experiences are shaped by the interaction of individual psychological traits, game system design, and gaming context—there is no one-size-fits-all emotional impact of video games.

Moderation as the key to healthy gaming: Moderate gaming can serve as an effective tool for emotion regulation and well-being, but the commercial over-manipulation of players' emotions through addictive design mechanisms must be vigilantly avoided. For players, cultivating game literacy is essential to harnessing the positive emotional value of video games. For game creators and the broader society, there is a collective responsibility to build a responsible gaming ecology that balances commercial interests with player well-being, designing games that foster positive emotional experiences and support healthy gaming behavior. As a dynamic and evolving emotional system, video games hold immense potential to enrich human emotional lives, and future research and practice must explore this potential in a thoughtful, ethical, and evidence-based manner.

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