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Msc Creative Computing

**Beyond the screen: Exploring gaming and its impact on
internet use and personal well-being**

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Abstract

The study aims to investigate Internet addiction while playing video games. It will analyze how narrative elements and gameplay affect an individual's behaviour and well-being. Since the rise of digital platforms has made video games an integral part of most people's lives, there is a growing concern about the issue.

To better understand internet addiction, I designed a game to prompt players to contemplate the issue and motivate them to adopt positive actions. Through the collection of questionnaire data assessing players' behaviours, emotions, and behaviours well-being, it was observed that the Game's gameplay and narrative components impacted personal well-being, and the behaviour research approach not only encouraged players to reflect on the concept of addiction but also inspired them to make constructive changes in their personal lives. These findings open intriguing avenues for comprehending the intricate nature of internet addiction and exploring how games can serve as a medium to communicate beneficial messages and enhance personal well-being.

The outcomes of this thesis are not only significant for the realm of game design but also present novel perspectives and opportunities for research in mental health and well-being. By utilizing games as a medium, this research demonstrates the potential to delve into internet addiction, prompting individuals to introspect on their behaviour and behaviour healthier and happier lifestyles.

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1. Introduction

1.1 Context and Inspiration for the Study

In the contemporary digital landscape, our ability to connect globally, access vast information, and indulge in immersive virtual experiences has become remarkably accessible. However, this technological wave, while bringing convenience, has also given rise to notable mental health challenges, prominently manifesting as Internet and gaming addiction. A comprehensive understanding of the nature and implications of these challenges is imperative for effectively navigating the complexities of the digital era.

1.2 Research questions and objectives

The primary objective of this paper is to scrutinize facets of Internet addiction, gaming addiction, gaming narratives, and individual well-being, unravelling their interconnected dynamics. This exploration aims to deepen our comprehension of how the digital age influences mental health and seeks insights into maintaining equilibrium in this era.

To begin, a thorough examination of Internet addiction will be conducted, considering its widespread impact on socialization, work, and entertainment. This investigation will encompass the definition of Internet addiction, its causative factors, and the adverse effects it imposes on psychological and social functioning (Woodward, 2021).

Subsequently, the focus will shift to gaming addiction, particularly video game addiction. While video games offer captivating entertainment, some individuals grapple with excessive immersion in the virtual realm, resulting in losing control. This segment will analyze the signs of gaming addiction, its root causes, and the ramifications it poses on mental health.

An integral element to be examined within gaming is the role of game narratives. Game narratives have become a powerful medium of emotional expression, evolving beyond mere entertainment, captivating players on a deep and dramatic level. Through compelling case studies, the paper will illustrate how games strategically employ narrative elements to elicit emotional resonance and foster profound player engagement.

The investigation will focus on the pivotal concept of personal happiness. Personal well-being, defined as an individual's subjective perception of their quality of life, is influenced by diverse factors such as social relationships, job satisfaction, physical health, and recreational

activities. This section will delve into the impact of video games on personal well-being, exploring how gaming can serve as a means of relaxation and stress reduction.

By delving into these multifaceted issues, the study aims to provide nuanced insights into the challenges and opportunities of the digital age. Furthermore, it seeks to delineate strategies for maintaining a harmonious physical and mental health balance in pursuing technological conveniences. This endeavour is integral to individual quality of life and has profound societal implications.

2. Literature Review

In the contemporary fabric of society, the Internet and video games have seamlessly woven themselves into the daily lives of individuals. However, alongside their surging popularity, the simultaneous rise of mental health issues, notably Internet addiction and gaming addiction, has become evident. This chapter explores these concerns, meticulously examining their interconnections across various dimensions, encompassing Internet addiction, gaming addiction, gaming narratives, and personal well-being.

2.1 Understanding Internet Addiction: Concepts and Impact

Internet addiction is characterized by spending excessive time online, encroaching upon other crucial aspects of life, such as social interactions, professional responsibilities, and overall well-being. The manifestation of Internet Addiction Disorder (IAD) can lead to neurological challenges, psychological disorders, and social distress, all of which can significantly impede an individual's life. Research in *Am J Drug Alcohol Abuse* shows (Weinstein and Lejoyeux, 2010) that the prevalence of Internet addiction is approximately 1.5% to 8.2% in different regions (Weinstein and Lejoyeux, 2010).

The causative factors behind Internet addiction are intricate and diverse, encompassing psychological needs, social pressures, and issues related to avoidance and self-control. While the Internet can fulfill individuals' psychological needs, offering sensations and a sense of fulfillment and identity, prolonged addiction can manifest adverse effects on physical health, including sleep disturbances, eating disorders, anxiety, and depression (Zayed & MD, 2023). This underscores the societal significance of delving into this issue through a comprehensive study.

2.2 Understanding Game Addiction: Concepts and Ramifications

Gaming addiction, characterized as a psychological disorder, manifests as an inability to regulate gaming behaviour. Through dopamine stimulation, video games engage players and, with excessive indulgence, may even alter brain structure (Adair, 2018).

Indicators of gaming addiction encompass a loss of control over gaming, withdrawal symptoms, an escalating need for more gaming time, and a forsaking of other interests and social relationships. Those grappling with addiction may face adverse consequences such as mental health issues, mood swings, and depression, as highlighted in research by the

Cleveland Clinic (2022). This aspect underscores the critical need for a nuanced understanding of the impact of gaming addiction on individuals' mental health.

2.3 Significance of Game Narratives

Within video games, narratives assume a pivotal role, enhancing the gaming experience and immersing players more profoundly in the virtual worlds they inhabit. Game developers employ characters, plotlines, dialogues, music, and gameplay to craft immersive experiences that delve into themes and emotions, creating a sense of player involvement in the unfolding story (Stargame, 2018).

Several noteworthy examples underscore how games artfully employ narrative elements to construct compelling and emotional stories:

"The Last of Us" follows the journey of smuggler Joel and teenage girl Ellie as they navigate a post-apocalyptic world. The Game intricately weaves transitions, dialogues, and gameplay to accentuate a nuanced story encompassing themes of love, loss, and moral dilemmas.



Figure 1: Game "*THE LAST OF US*"

"Life is Strange": Centered around teenager Max, endowed with the ability to manipulate time, the Game explores her relationship with her friend Chloe. Player choices wield significant influence over the story's conclusion and character relationships, prompting contemplation on the consequences of one's actions.



Figure 2: Game "LIFE IS STRANGE"

"Detroit: Become Human": The complex relationship between humans and androids is explored in a high-tech future world. The Game puts the character's fate and moral decision-making into the hands of the player. Players must make different choices based on the Game's plot, which may lead to different endings.



Figure 3: Game "DETROIT BECOME HUMAN"

These exemplary games vividly illustrate how narrative elements serve as potent tools, evoking emotional resonance and fostering profound player engagement (Porokh, 2023). They transcend mere entertainment, emerging as powerful mediums for emotional expression, tackling intricate themes, moral difficulties, and the complexities of the human condition. Through these games, players cease to be passive spectators; instead, they assume the roles of creators and decision-makers within the story, adding layers of depth and complexity to the narrative fabric of gaming.

2.4 The relationship between personal well-being and gaming

Personal well-being encapsulates individuals' holistic feelings about the quality of their lives, encompassing physical, mental, emotional, and social health factors. Strategies to nurture personal well-being involve fostering close social relationships, engaging in regular social interactions, pursuing fulfilling work, exercising, participating in enjoyable activities, setting and achieving goals, and maintaining a positive and optimistic outlook (Better Health Channel, 2020). While moderate video game play has been associated with mood stabilization and stress reduction (Jones et al., 2014), excessive gaming can potentially exert a negative impact on personal well-being.

The case of the game "Sea of Solitude" vividly illustrates how the Game evokes emotions in players, triggering them to think about relationships, thereby improving personal well-being. Players take on the role of a lonely teenage girl named Kai, whose experiences allow us to experience loneliness and the value of relationships deeply, and this emotional resonance helps to enhance personal well-being.

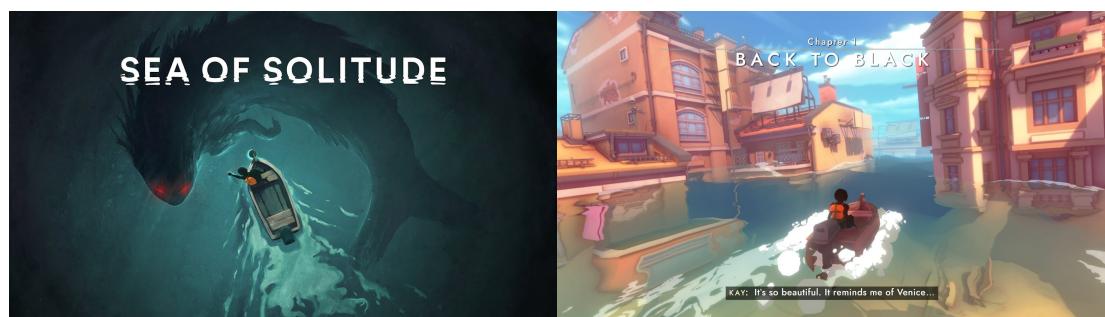


Figure 4: Game "SEA OF SOLITUDE"

Currently, internet addiction, gaming addiction, gaming narrative, and personal well-being are essential topics widely studied (Johannes, Vuorre and Przybylski, 2021). By delving deeper into these issues and exploring their relationships, we can improve our understanding of the impact of the Internet and video games on individuals and find ways to strike a balance.

3. Methodology

In this section, I explore how game design can be used to elicit thoughts about Internet addiction and individual welfare and explore the role of games in these areas. These methods help analyze and provide insight into the complexity of these phenomena and how game design can convey beneficial messages and enhance personal well-being. This approach facilitates an in-depth exploration of the complexity of these phenomena and elucidates how game design can effectively give practical notes while improving emotional well-being.

3.1 Game Production as a Research Tool

Informed by Haraway's observation that knowledge, perceptions, and attitudes are dynamic and influenced by our context and identity (STS Fall 2020, 2020), I adopted a game-making approach to advance my research on internet addiction. Beyond their entertainment value, games serve as valuable tools for analysis, increasing participant motivation and facilitating a nuanced understanding of complex topics (Conduct Science, 2020). Games, as more than mere entertainment, can convey metaphors, emotions, and sentiments, rendering them powerful instruments for exploring social policy issues (Phelps, 2020).

Drawing inspiration from Hazel Arroyo's 'Lunch in Paradise,' I will develop an interactive game on internet addiction using the Unity 3D engine. This engine, renowned for creating popular video games and interactive media projects, will enable the incorporation of core characteristics of internet addiction, such as dependency, impulse control, time spent, and real-life impact. The Game aims to convey the potential consequences of internet addiction and stimulate profound reflection among players.

3.2 Questionnaire Design

Employing questionnaires as a structured and standardized data collection tool (Lindemann, 2022), this research will utilize a questionnaire to gather data on player behaviour, emotions, and well-being, unravelling the intricate relationships between Internet addiction, gaming addiction, gaming narratives, and personal well-being.

The questionnaire (see Appendix: Questionnaire) is divided into the following sections:

Emotional Experiences and Personal Well-Being: This section asks players to share the emotions they experienced in the Game, such as pleasure, anxiety, and guilt, as well as

personal well-being before and after the Game. This helps us understand the emotional response of players in the Game and determine whether the Game impacts their well-being.

Internet and Game Addiction: This section will examine the phenomenon of Internet and game addiction, investigating the time commitment, self-control level, and dependency of players in online games. At the same time, we will ask them if they have neglected essential tasks and responsibilities in their daily lives because they are addicted to games.

Game Narrative: The following sections will explore game narratives. Players were asked to share the impact the story in the Game has had on their emotions and thoughts. I'll explore whether game narratives provoke them to think deeply or resonate with specific social or ethical issues and whether they can encourage people to think about real-life social problems.

This questionnaire aims to obtain quantitative data on the relationship between internet addiction, gaming addiction, gaming narrative, and personal well-being for in-depth analysis and insight. The questionnaire is designed to comprehensively understand participants' perspectives and experiences and better understand the interrelationships between these complex topics.

3.3 Participant observation

Participant observation is a method in which researchers directly observe participants' behaviours, interactions, and practices by immersing themselves in a specific social environment or group to understand better gameplay, narrative, and the relationship between internet addiction and individual welfare. Sometimes, participants may not accurately record their behaviour, so participant observation provides more accurate data (George, 2023).

I would choose a diverse team of participants, including classmates, friends, and fellow gaming buddies who differ in their gaming experience and risk of internet addiction. These participants will be invited to be observed during the Game, and their emotional responses, behaviours, and interactions will be recorded.

Particular attention will be paid to participants' emotional expressions, body language, and verbalizations during gameplay. Through participant observation, a richer understanding will be gained regarding the impact of game elements on emotions and behaviours, shedding light on their connection to internet addiction and personal well-being.

These diverse research methods, including game production, questionnaires, and participant observation, will work collaboratively to comprehensively elucidate the complex relationship between internet addiction, gaming addiction, gaming narratives, and personal well-being. The integration of these methods offers the potential for conveying beneficial messages and enhancing well-being.

3.4 Methodological limitations

While employing a variety of research methods to explore the intricate relationship between internet addiction, gaming addiction, gaming narratives, and personal well-being, it's essential to acknowledge and address certain limitations:

Ambiguity in Game Making: Using games as a research tool introduces potential ambiguity in results. Game success is influenced by player experience, emotional response, and game design intricacies, leading to subjective differences in result assessment.

Social Expectations in Questionnaires: Participants may be swayed by social expectations when completing questionnaires, providing responses that align with societal norms rather than authentic experiences.

Subjective Bias in Participant Observation: Researchers may introduce their perspectives and biases during participant observation, increasing the risk of research bias. While objective recording methods are employed, caution is needed to mitigate potential subjective biases.

These limitations necessitate careful interpretation and extrapolation of findings. An integrative approach, synthesizing multiple methods, is crucial to mitigate the potential impact of these limitations on the study's validity and reliability.

4. The practice: Making with addictive technologies

4.1 Game description

The primary objective in developing this Game was to craft an interactive experience that captivates players and stimulates thoughtful reflection on the intricate relationship between internet addiction and personal well-being. The play unfolds through two distinct scenarios, each representing contrasting situations. Through the dynamic transformation of these scenarios and the interchange of characters, the Game aims to prompt players to contemplate the delicate balance between excessive internet use and real-world engagement.

The Dark City Scenario:

A lonely robot navigates a desolate cityscape in this evocative setting, characterized by isolation. The player must strategically avoid the attention of other robots to remain undetected. Throughout this scene, encounters with dying human characters underscore the potential consequences of excessive internet use. The game narrative aims to draw attention to the hazards of internet addiction and the overlooked possibilities that the real world holds.



Figure 5: The dark scene



Figure 6: The words spoken by the protagonist in the dark scene



Figure 7: The dying human



Figure 8: The words spoken by the dying human

The Bright City Scenario:

Contrasting sharply with the first scene, this scenario presents a vibrant cityscape with blue skies, flowers, grass, and bustling human activity. Transitioning from a robot to an actual human, the player symbolically explores the significance of personal happiness and harmonious coexistence with the environment. This shift signifies liberation from internet overuse, achieving inner balance by immersing oneself in a world rich with nature and human interaction.



Figure 9: The bright scene



Figure 10: The words spoken by the protagonist in the bright scene

Gameplay:

Players control character movement using the WASD keys and adjust perspective through mouse interactions. The primary goal is to locate the exit in the first scene, prompting a shift to the second city. Challenges arise as robots patrol the first scene, requiring players to avoid detection to progress. Discovery by robots results in Game over, adding an element of excitement to the experience.

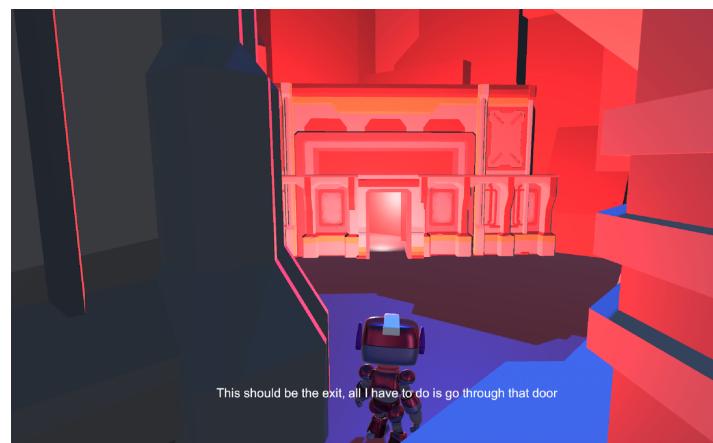


Figure 11: Exit in the dark scene

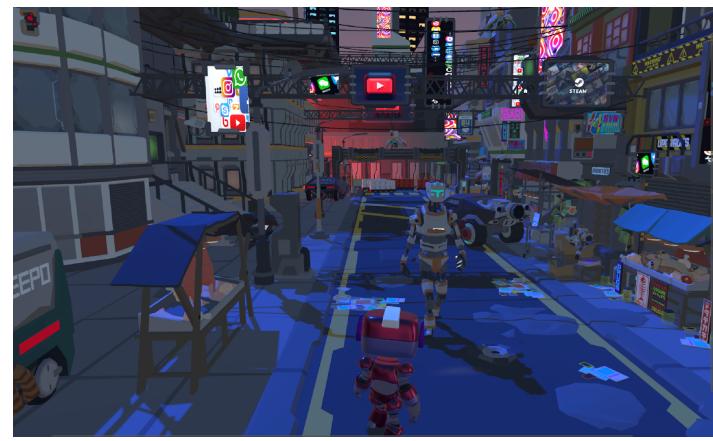


Figure 12: Robots in the dark scene



Figure 13: Game over panel

Aesthetic Decisions:

Aesthetic choices play a pivotal role in shaping the player's emotional journey. In the "Dark City of Science," dim lighting, howling wind, and heartbeat sounds create a lonely and tense atmosphere. In contrast, the "Beautiful Cityscape" features bright environments, bird sounds, and vibrant ambient noises to convey a visually stunning positive atmosphere. These deliberate aesthetic decisions deepen the player's emotional connection to the Game's overarching theme.



Figure 14: Dark City scenario



Figure 15: Bright City scenario

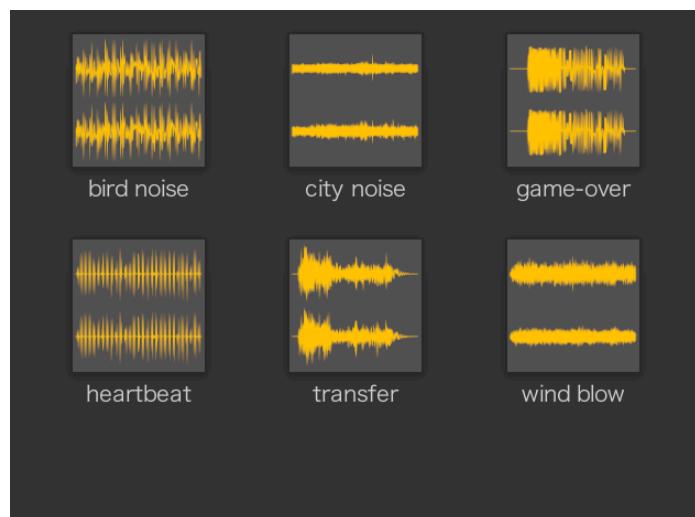


Figure 16: The audio I use

4.2 Problems and Challenges

During the game production process, there were a few problems and challenges that I encountered.

First, to ensure a balanced gaming experience, I decided to make the Game more narrative-focused rather than over-reliant on difficulty. The challenge with this decision is maintaining the Game's appeal without losing depth and thoughtfulness. Lowering the Game's difficulty could result in the player passing the level too quickly, so I needed to find an ideal balance between narrative and challenge to ensure the player had a satisfying and thought-provoking experience in the Game.

Another critical challenge is technical issues, including model building and coding. Although the Unity 3D engine provides powerful tools, I inevitably encountered technical complexities during the game development. Solving these problems requires deep technical understanding and creative solutions. To overcome these challenges, I proactively consulted online resources, participated in community discussions, and sought professional support to ensure that the technical aspects of the Game were of a high-quality standard.

These questions and challenges allowed me to grow and learn in game production and research and better understand the various trials that may arise during game development.

4.3 Dissemination of Games

Spreading the Game will be the next step in the research. The Game was sent to participants via WeChat, Email, Netdisk, and corresponding questionnaires (see Appendix: Questionnaire). These questionnaires will serve as valuable tools for data collection, offering insights into the Game's impact on participants. Recording players' emotional responses and interactions will provide a deeper understanding of their experiences and the Game's effects.

This hands-on process offers a fresh perspective on social issues and contributes to a deeper understanding of the intricate relationship between internet addiction and personal well-being. The subsequent analysis and conclusions will delve further into the potential impact of gaming, shedding light on how it can offer novel perspectives for comprehending and addressing social problems.

5. Results, Analysis and Discussion

5.1 Results of participant observations

In the aftermath of the game experiment, valuable data on participants' behaviours and reactions were collected, providing crucial insights into the Game's impact. Key observations include:

Cognitive Changes: After observation, I noticed some participants, especially one of my classmates, experienced significant mental changes during the Game. In the first scene, The Dark City of Science, he shows concern that internet addiction can lead to loneliness and social isolation. This concern is especially evident when he interacts with characters on the verge of death, as their cries draw his attention to the issue.

Behavioural Changes: The results in the questionnaire showed that some participants would subjectively reduce the time they use the Internet, but despite the Game's positive impact on participants' cognition and emotions, I also observed that some participants' actual behaviour did not change significantly. This shows that although games can trigger thinking, for people with severe Internet addiction, behavioural changes may take longer or other interventions, such as limiting Internet use, seeking professional treatment, developing other interests, etc. (Paglia, 2020).

5.2 Results of the questionnaire survey

Supplementing participant observations, data obtained through questionnaires provided a comprehensive understanding of the Game's impact. Key findings include:

According to the questionnaire results, participants are more concerned about the impact of Internet use on their social interactions and well-being. Some participants stated that after completing the Game, they would be willing to reduce their time online to better integrate into real-life social and natural environments.

Although not all participants expressed an immediate desire to change their behaviour, the Game provided them with deep thoughts and inspirations that may inspire them to take positive actions to improve their Internet usage habits in the future.

5.3 Discussion and Implications

The Game successfully changed participants' perceptions of the possible negative consequences of excessive Internet use. This cognitive change manifests itself not only in concerns about social isolation but also in reflections on Internet addiction. The emotional design in the Game plays a vital role by creating a dim and desperate atmosphere in the dark Science City scene, inducing feelings of anxiety and loneliness while creating a positive atmosphere in the beautiful city scene, evoking joy and hope. These emotional experiences deepen the understanding of the Game's themes.

5.4 Conclusions and Future Perspectives

According to our findings, games can trigger people to think about Internet addiction and real-life balance issues. The Game allowed participants to change their perspective on the possible adverse effects of Internet addiction while focusing more on potential loneliness, social isolation, and disconnection from the real world. In addition, the emotional design in the Game also plays an important role. The vibrant atmosphere in different scenes can induce emotions such as anxiety, loneliness, joy and hope, further deepening the game theme's understanding.

While gaming will not immediately change everyone's behaviour, as such changes may require more time and external support, this study provides a basis for further research into the issue of Internet addiction. These include ways to improve games to increase educational effectiveness and combine them with other interventions to promote positive behaviour change.

This study reveals the great potential of games as educational tools, guiding game designers to promote better thinking, cognitive change, and positive behavioural change. Additionally, research highlights the possibility of combining games with other intervention methods to address social issues. This sets the stage for future research to delve into critical social issues such as internet addiction and how tools such as educational games can be better used to induce cognitive changes and behavioural changes.

With in-depth research on the potential of educational games, we can more effectively use technology to solve society's complex problems and provide individuals with the support to promote thoughtful and positive change.

6. Conclusion

By researching a self-developed educational game, this study aimed to explore the issue of Internet addiction and games' potential impact on individual well-being and behaviour. Through literature review, experiments, and surveys, I conducted an in-depth analysis of this complex issue and derived some critical findings.

In several of the studies I summarized, I highlighted the detrimental effects that Internet addiction can have on people's social interactions. This includes reduced opportunities for face-to-face physical socialization increased social isolation, and can lead to mental health issues such as anxiety and depression.

Second, I highlight educational games as a tool that prompts thinking. Collect data on play behaviour, emotions, and happiness through experiments and surveys. Research shows that game design and narrative elements can evoke cognitive changes and emotional experiences. The Game successfully induced changes in players' perceptions of the possible adverse effects of excessive Internet use, deepening their understanding of the relationship between Internet addiction and personal well-being.

This study presents a comprehensive research approach to exploring the relationship between Internet addiction and personal well-being. While active behaviour change may take more extended and external support, the study highlights educational games as a promising tool. Future research can use more methods to further delve into the relationship between Internet addiction and personal well-being to understand this issue more comprehensively. This study provides valuable insights into our understanding of the problem of Internet addiction, highlighting the potential of games as a cognitive enhancement, thought provocation and influence on individual behaviour to play a positive role in solving social problems.

Appendix: Questionnaire

I used the following questionnaires to investigate internet addiction, gaming narratives and personal well-being.

Part I: Emotional Experience and Personal Happiness

- Do you often feel pleasure while playing games?
- Do you feel anxious or nervous when playing games?
- Do you feel guilty while playing the Game?
- Do you feel happier after completing the Game?
- Do you feel that playing games positively impacts your mental health?

Section 2: Internet and Gaming Addiction

- How much time, on average, do you spend online in a week?
- Do you find it difficult to control the amount of time you spend on the Internet or gaming?
- Do you feel dependent on the Internet?
- Have you ever neglected essential tasks or responsibilities in your daily life because of your internet use?

Section 3: Game Narrative

- Did the Game's narrative elements provoke you to consider specific social or ethical issues?
- Did the Game's plot and characters resonate with you emotionally?
- Do you think game narratives have a positive impact on your well-being?

Thank you for participating in the survey.

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