

The impact of freemium models on PC games.

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Abstract

The freemium business model, initially popular in mobile gaming, has gained significant traction in the PC gaming arena during the last few years. This study explores the increasing prevalence of freemium models, i.e., free-to-play games with in-game monetization, in PC games and investigates how players' perceived value plays a crucial role in determining the appeal of these games.

The research focuses on examining how players' perceived value influences the appeal of freemium PC games, concentrating on continued use intention (retention) and in-game purchases (monetization). The paper introduces a modified PERVAL framework, drawing inspiration from Hamari (2020), which includes four dimensions: emotional value, social value, economic value, and enjoyment.

Through surveys and data analysis, the study uncovers insightful findings. It reveals that emotional and social values play a positive role in shaping players' intentions to keep playing and invest in in-game purchases. While economic value is linked to playing intentions, it doesn't directly impact the purchase of premium content. Moreover, enjoyment is positively associated with playing intentions but exhibits a negative relationship with the acquisition of in-game items. The study underscores the importance of perceived value, particularly emotional value, in influencing player engagement and generating revenue in the context of freemium PC games.

Keywords: Freemium model, PC games, PERVAL

Synopsis

Background

In recent decades, there has been a surge in the release of new mobile games featuring freemium business models, allowing players to access and enjoy games without an initial payment, with the monetization taking place through in-game transactions. However, it's only recently that this model has gained widespread adoption in PC and console games.

Problem

In freemium games, players' perceived value defines their willingness to start playing (acquisition), keep playing (retention), and ultimately spend money on these games (monetization). Previous research, such as studies by Van Osselaer, Norton, and Weber (2013) and Zhang, Deng, and Sun (2018), have explored the impact of freemium models on revenue and player engagement in PC games. However, studies have yet to investigate how the players' perceived value impacts the desirability of freemium PC games.

Research Question

The thesis revolves around the following research question: "How does players' perceived value impact the desirability of freemium PC games?"

Method

To explore how players' perceived value affects the desirability of freemium PC games, with a focus on its impact on continued use intention (i.e., retention) and in-game purchases (e.g., monetization), this paper introduces a modified version of the PERVAL framework. Inspired by Hamari (2020), our framework encompasses four dimensions: emotional value, social value, economic value, and enjoyment. The thesis employs surveys and data analysis to investigate the relationship between players' perceived value and the freemium model in PC games.

Result

When delving into the impact of perceived values dimensions, such as emotional, social, economic, and enjoyment values, on retention and monetization, noteworthy findings emerge. The findings suggest that perceived emotional and social value positively influenced users' intentions to continue playing and make in-game purchases. Both emotional and social value were observed to have a positive impact on retention and monetization. Additionally, while economic value was associated with playing intentions, it did not directly impact the intention to purchase premium content. Enjoyment was positively linked to playing intentions but demonstrated a negative relationship with purchasing in-game premium items, possibly due to concerns about unfair advantages.

Discussion

The current study provides additional insights compared to previous research on freemium models, emphasizing the role of players' perceived value, especially emotional value, in higher engagement and revenue in freemium PC games. It suggests that freemium games success is not solely dependent on advanced features but hinges on creating an emotionally engaging experience. Social value, especially in online multiplayer games, positively predicts premium item purchases and contributes to long-term player commitment. However, the study reveals a nuanced pattern in economic value, indicating a weaker connection between economic value and the intention to buy premium content in PC games, potentially due to higher price points. Enjoyment value enhances user retention but paradoxically reduces the inclination to purchase premium content, with distinctions between PC and mobile gaming contexts.

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1 Introduction

1.1 Background

Within the gaming industry, developers and publishers adopt two primary business models to generate revenue. The more traditional approach, the premium model, treats a game as a retail product. In this model, players must purchase the game at a fixed price to gain access to it, similar to purchasing any other retail product.

In the premium model, developers incur substantial distribution and logistics costs when bringing a game to market. Moreover, publishers invested significant time and resources in prolonged marketing campaigns to persuade retailers and other stakeholders to stock and promote their titles before the launch window.

However, most video game transactions have recently migrated to online platforms, where players can download games through digital marketplaces or streaming services. This shift in the industry landscape has facilitated the emergence of new business models, such as the freemium model, which grants players free access to the game while monetizing through selling in-game items.

The freemium business model has gained traction in the software industry by providing a product for free to as many users as possible and charging only for premium upgrades and functionalities. However, the feasibility of this model depends on the size of distribution costs. In contrast to the traditional retail model, where a game is monetized through a fixed price, the freemium model focuses on maximizing a player's lifetime value (LTV) through marketing and monetization efforts. LTV measures the total revenue generated by a player during their gaming lifetime. This model emphasizes long-term customer retention rather than short-term profits, as players do not pay upfront to install the game. Instead, monetization occurs through premium functionalities, such as in-game items, which can be purchased to enhance the gaming experience.

As mentioned by E.Gibson, M.Griffiths, F.Calado, and A.Harris (2021), the most common freemium monetization structures are in-game microtransactions in the form of "virtual currency (i.e., a currency that can only be used in the specific video game in which it is purchased. It is commonly used to buy cosmetic items or extra videogame 'lives'), skins (i.e., cosmetic items to change the look of avatars or in-game items), battle passes (i.e., tiered level systems, where each level achieved rewards the player, with levels getting increasingly hard to achieve as the player 'ranks' up.) and loot boxes (i.e., a virtual box or chest that is opened to reveal a random pick of in-game items or currency)" (pg 2).

The freemium business model offers a core service for free while generating revenue through advertising or selling additional content and functionalities. Its primary goal is to attract a large customer base through free access, with a smaller group of users paying for premium content. This model enables price discrimination and has been widely adopted in the games sector, particularly in mobile games, to cover costs and combat piracy.

Unlike traditional retail or subscription models, the freemium model captures value from paying and non-paying customers, where for the first group the value is generated through monetary revenue whereas for the second group it translates into engagement and larger awareness for the game due to the higher player base.

The most significant implication of the freemium business model lies in the shift it brings to the paradigm of service design. While retail and subscription models do not necessitate further payments beyond a flat fee, freemium services are designed to entice users to make additional purchases. As a result, marketing and advertising efforts focus not only on the initial appeal of the service but also on service design strategies aimed at enticing users to buy premium content and additional services (Hamari & Lehdonvirta, 2010; Hamari, Alha, et al., 2017; Heimo et al., 2018; Wagner et al., 2014). This characteristic makes the freemium model an intriguing subject of study in the fields of information systems and service marketing.

The freemium business model has a well-established presence in the mobile gaming industry, catering to a significantly broader audience by offering games as a service.

Mobile users often seek out simple and casual games to occupy their free time sporadically throughout the day (Heier, 2015). Consequently, most mobile games prioritize accessibility, simplicity, and ease of learning rather than delving into intricate lore, complex designs, or high-concept gameplay. Due to their streamlined nature, mobile games typically do not require large development teams or extensive years of development, resulting in relatively lower costs.

Due to the immense popularity of freemium mobile games, certain titles within this category are played by millions of people worldwide daily. This widespread player base presents additional revenue-generating avenues beyond selling in-game items. One such opportunity is through the monetization of in-app advertisements. By incorporating advertisements within the game experience, developers can tap into a lucrative revenue stream while keeping the game accessible to players at no direct cost.

The freemium model has gained significant traction in the mobile sector and has evolved over the years, as demonstrated by previous research. One notable advantage of incorporating more free elements into mobile games is their increased attractiveness to users. By providing substantial free content, these games address consumers' concerns about potentially investing their money in a game that may need to meet their expectations.

PC games differ from the mobile segment in several aspects. Firstly, PC games are more time-restrictive, as they often require dedicated blocks of time for gameplay. In contrast, mobile games provide the flexibility for players to connect and enjoy the game even while on the go. Secondly, developing games for PC platforms involves more sophisticated tools and processes. This typically translates to more extensive development teams and longer development cycles than mobile games. The complexity of designing and optimizing games for these platforms necessitates additional resources and expertise to deliver high-quality experiences. Thirdly, publishing a game for iOS or Android platforms is comparatively straightforward, whereas the process becomes more complex for PC and consoles platforms. Releasing a game on PC and consoles involves navigating various certifications, ratings, and publishing agreements.

In recent years, however, many game studios have successfully adopted the freemium model in PC and console gaming. The freemium model has facilitated access to PC and console games, enabling the emergence of successful titles in the industry.

1.2 Research problem

When investigating existing research on freemium PC games, a notable contribution to the field comes from Michael W. Van Osselaer, Michael J. Norton, and Elke U. Weber in their 2013 paper. The authors dedicated their study to examining the effectiveness of different freemium monetization strategies in online PC games. In a controlled experiment involving 2,000 participants, they evaluated three freemium models: a premium model, a free-to-play model with in-app purchases, and a hybrid model that combines both. According to Van Osselaer, Norton, and Weber (2013), the results of the study indicate that the hybrid model stands out as the most effective strategy, demonstrating a significant increase in revenue compared to the other two models.

A similar study was conducted by S. Zhang, D. J. Deng, and T. Sun (2018) focusing on PC games, where the performance of three monetization models—free-to-play, pay-to-play, and freemium—was examined. The freemium model, integrating free access with optional in-app purchases, demonstrated superior outcomes in revenue and player engagement compared to both free-to-play and pay-to-play models. This model attracted a larger player base and incentivized more in-app purchases, suggesting its potential as a promising monetization strategy for online PC games.

Previous research has demonstrated that freemium models (i.e., free-to-play games with in-app purchases) have a positive impact on boosting revenue for online PC games. Nevertheless, limited research has been conducted to investigate how the players' perceived value impacts the desirability of freemium PC games.

Perceived value refers to individuals' subjective assessment of the worth or benefit they receive from a product or service. In freemium games, players' perceived value is crucial since it defines their willingness to start playing, keep playing, and ultimately spend money on these games.

Free-to-play games present lower entry barriers for players to start playing, which means a wider potential audience. Understanding what contributes to players' perceived value allows publishers to optimize their go-to-market and user acquisition campaigns.

Secondly, securing that players keep playing the game for months and years means maintaining or increasing its perceived value. Freemium elements such as the battle pass, weekly/daily challenges, and social interactions aim to enhance the gaming experience and keep players engaged. Therefore, investigating the impact of such elements on the player's perceived value is crucial.

On top of that, freemium games rely on a mix of free access and in-game transactions. The highest is the perceived value of a game and the more willing the player is to invest in enhancing the experience. A few examples are cosmetic items, such as skins and weapon blueprints, and consumables, such as XP boost. Understanding what contributes to perceived value allows developers to refine monetization strategies.

Therefore, understanding the perceived value across acquisition, retention, and monetization, and how to increase it eventually, is a powerful tool to determine a freemium game's success.

One notable study by Juho Hamari, Nicolai Hanner, and Jonna Koivisto (2020) has made significant contributions in this area. This study investigated the association between perceived value dimensions, such as enjoyment, quality, economic value, and social value, of freemium mobile games and their impact on users' intentions to continue using freemium mobile games and to purchase additional premium content.

Nevertheless, the results of the study should be treated isolated and only considered within the mobile gaming helm and it is not applicable for PC games. PC and mobile games should be treated as entirely distinct products, given their numerous disparities across various levels, including:

- **User Experience and Interaction:** Mobile and PC games often have disparate user interfaces and interaction mechanisms. Mobile games are typically played on touchscreen devices with smaller screens, while PC games are experienced on larger screens with keyboard and mouse controls. These differences could influence how users engage with freemium elements, potentially affecting their perceived value.
- **Monetization Strategies:** The way freemium models are integrated can differ between mobile and PC games. In-game purchases might be presented differently, and the ease of making purchases can vary. For instance, the purchasing process might be more streamlined on mobile platforms due to integrated payment systems, potentially impacting users' willingness to spend.
- **Play Patterns and Session Lengths:** Mobile gaming often involves shorter play sessions, given the portable nature of the devices. In contrast, PC gaming might allow for longer and more immersive sessions. This could influence how users perceive the value of freemium offerings; shorter sessions might emphasize quick rewards, while longer sessions could highlight extended gameplay opportunities.
- **Visual and Technical Quality:** PC games tend to have higher graphical and technical capabilities due to the increased hardware potential. This might result in differing perceptions of quality and enjoyment compared to mobile games, potentially impacting how users assess the value of freemium content.
- **Social Dynamics:** The social nature of gaming can differ between platforms. Mobile games might leverage social media integration more extensively, while PC games might foster more intricate online communities. These differences can influence the social value perceived by users and subsequently affect their intentions to engage with freemium services.
- **Context of Use:** Mobile gaming often occurs in diverse settings, including commuting or short breaks, while PC gaming is often associated with dedicated gaming sessions. These contextual differences can influence how users view the economic value of freemium offerings, especially concerning time-related benefits.

Considering the novelty of freemium games on PC, which has gained increased popularity in more recent years, it is noteworthy that, unlike their more established presence on mobile platforms, there is a scarcity of research specifically dedicated to freemium PC games. Each platform has unique characteristics, player expectations, and user experiences, which may influence perceived value and user intentions differently.

1.3 Aim and Research Question

Past studies have shown that freemium models, i.e., free-to-play games with in-app purchases, positively contribute to increasing revenue for online PC games. However, there has been limited exploration into how the players' perceived value affects the attractiveness of freemium PC games.

While prior research has covered this topic in the realm of mobile games, this study aims to fill in current gaps by considering the distinctive characteristics of players on both PC and mobile platforms. It seeks to conduct a thorough analysis of the intricate relationship between perceived values, including the emotional, enjoyment, quality, economic, and social aspects, all within the framework of the freemium model.

In short, this research aims to answer the following question: How does the players' perceived value impacts the desirability of freemium PC games?

By applying same methodology as Hamari (2020) this research will focus on measuring the impact of the impacts of freemium elements on the player's perceived value impact of players' perceived value impacts the desirability of freemium PC games, measuring mainly the impacts on continued use intention (i.e. retention) and in-game purchases (e.g., monetization)

An empirical survey study was conducted, incorporating a substantial sample size of 1260 participants. Our research is specifically tailored to the landscape of free-to-play online PC games, a domain that extensively employs the freemium model.

1.4 Delimitations of the study

This study operates within the boundaries of several inherent limitations. Firstly, our data collection methodology relied on an online survey distributed across community platforms such as Reddit, Steam Community, Discord, and PlayStation community forums, centred around twenty widely recognized PC games.

Consequently, it's important to acknowledge that the survey respondents might not provide a wholly representative snapshot of the broader player population. Biases within the data could emerge due to the potential exclusion of more casual players who abstain from participation in such gaming communities.

Moreover, a potential for response bias looms, as individuals might have engaged with the survey on multiple occasions, thereby potentially exerting an influence on the study's findings. Additionally, it's worth noting that the survey did not enforce the necessity of answering all questions, possibly resulting in instances of incomplete data collection. These limitations are pivotal to understanding the scope and applicability of the study's outcomes.

2 Scientific Base

2.1 Perceived Value

Perceived value refers to the subjective assessment or judgment that individuals make regarding the worth or benefit they believe they receive from a product, service, or experience. It is a subjective and personal evaluation based on an individual's perceptions, preferences, and expectations. Perceived value is not solely determined by objective factors such as price or functional features but also includes emotional and psychological elements.

Various researchers have explored the definitions and significance of perceived values, as evidenced in studies by Kim, Chan, and Gupta (2007), Sánchez-Fernández and Iniesta-Bonillo (2007), Sweeney and Soutar (2001), Sheth, Newman, and Gross (1991), and Zeithaml (1988). These studies have recognized the importance of customer perceived value for businesses, such as its role in fostering customer loyalty (Parasuraman & Grewal, 2000) and long-term business success (Sweeney & Soutar, 2001).

To gain a comprehensive understanding of customer perceived values, researchers have employed various approaches over the years. Initially, early conceptualizations of customer perceived value emphasized the economic value of products and services, viewing it as the ratio of quality and price (Sánchez-Fernández & Iniesta-Bonillo, 2007; Sweeney & Soutar, 2001). However, these early perspectives oversimplified customer value by reducing it to a unidimensional concept (Sánchez-Fernández & Iniesta-Bonillo, 2007).

Sheth et al. (1991) introduced a multidimensional approach to explain consumer choice, which encompassed utilitarian and hedonic components. Building upon this framework, Sweeney and Soutar (2001) further developed the conceptual perceived value framework (PERVAL) for general consumer value assessment. PERVAL comprises four dimensions: emotional, social, quality, and economic, facilitating a deeper understanding of how consumers form value perceptions and how perceived value influences their behavior. Over the years, numerous empirical studies have utilized the PERVAL framework, with varying emphases and focuses, solidifying the four dimensions as core measures of perceived value.

However, certain limitations have been identified with the PERVAL model. One critique is its inherent simplification of the multidimensional nature of perceived value. By focusing primarily on predefined dimensions, the model may overlook or inadequately capture other factors that influence consumers' perceptions of value, such as emotional or social considerations. Additionally, the reliance on quantitative data may limit researchers' ability to capture the full richness and complexity of consumer experiences and preferences, particularly when free-text responses are not incorporated. Moreover, the PERVAL model's applicability may vary across different product categories or industries, as the importance of specific dimensions of perceived value can differ significantly.

The PERVAL framework has gained significant traction in recent years for studying products across various industries, including the gaming industry. In a study conducted by Hsiao Chen (2015), the framework was employed to enhance comprehension of the impact of values on

loyalty among all players and the purchasing intentions of both paying and non-paying users in mobile games.

Within the PERVAL-model, emotional value pertains to the affective states and emotions evoked by the utilization of a product or service (Sweeney & Soutar, 2001). In previous literature, this emotional value has often been operationalized as enjoyment, which is widely recognized as a primary motivator for engaging with hedonically oriented systems (Guo & Barnes, 2011; Van der Heijden, 2004). Systems of this nature, exemplified by games, are known to stimulate intrinsic motivations as individuals interact with them for entertainment, pleasure, and enjoyment (Deci & Ryan, 1985; Malone, 1981).

Similarly, numerous studies conducted within the gaming context have consistently identified enjoyment as a potent driver of game engagement and intentions to play (Hamari & Keronen, 2017a; Hamari, 2015, 2017b; Koo, 2009; Lee, 2009; Park & Kim, 2013; Yoon et al., 2013).

2.2 Hypothesis

In order to investigate the impact of players' perceived value impacts the desirability of freemium PC games, measuring mainly the impacts on continued use intention (i.e. retention) and in-game purchases (e.g., monetization), this paper presents a modified iteration of the PERVAL framework, similar to Hamari (2020), including the four dimensions, emotional value, social value, economic value, and enjoyment.

To explore the influence of four distinct dimensions on retention and monetization, six hypotheses were formulated, with two hypotheses dedicated to each dimension. These hypotheses primarily investigated the correlation between perceived value within each dimension and its subsequent effects on both continued use intention and in-game purchasing behavior.

Emotional Value

This research focuses on the affective state of perceived emotional value (or playfulness), which encompasses the emotional experienced by individuals while playing the game or interacting with others through the mobile game service. According to previous studies, emotional value in the context of mobile games pertains to the satisfaction derived from the emotions or affective states evoked during gameplay (Lu and Hsiao, 2010). Previous studies have also revealed a positive correlation between emotional or playfulness and the intention to use mobile services (Kim et al., 2009; Wei and Lu, 2014).

Given that users experience a greater sense of playfulness in a game, it is reasonable to assume that their level of engagement in playing the game would increase, as well as their inclination to make payments for it. Based on this premise, we put forth the following hypotheses.

H1: Perceived emotional Value is positively associated with the continued use intention.

H2: Perceived emotional Value is positively associated with in-game purchases.

Social Value

The concept of social value can manifest in various ways. Although many games inherently provide social experiences through multiplayer functionality, the construction of social value in these games extends beyond mere interaction.

The term "social value" in the context of mobile games refers to the satisfaction obtained from the game's ability to enhance an individual's social self-concept (Lu and Hsiao, 2010). This social value is expressed through a sense of connectedness in mobile games (Zhao and Lu, 2012). Connectedness, in this context, refers to an individual's perception of being linked to others while playing a mobile game, fostering social interactions and a feeling of closeness (Zhao and Lu, 2012). Scholars have emphasized the importance of social connectedness in online social services (Grieve et al., 2013).

The same principle applies to online free-to-play PC games. These games effectively lower the entry barrier since they are free-to-play, allowing players to easily engage with friends and generating a strong word-of-mouth effect. Furthermore, freemium PC games, which are primarily online multiplayer games, enhance customization options and self-expression to a greater extent compared to paid games, as their monetization models revolve around cosmetic items.

H3: Perceived social value is positively associated with the continued use intention.

H4: Perceived social value is positively associated with the in-game purchases.

Economic Value

While the entry price in the freemium model is practically zero, it does not mean that using the service comes without any cost. The freemium model allows for more dynamic pricing, allowing developers to adjust the "price" of the in-game items based on individual users' willingness to spend. For example, many developers make decisions about the items showcased to players and their corresponding prices using players' telemetry data.

The economic value of freemium PC games can encompass another form of value such as rewards. Within the scope of this study, rewards pertain to the benefits acquired or experienced during gameplay. In numerous freemium games, as players make progress, they obtain higher virtual rewards, such as game points or virtual currency/products. These rewards contribute to improved gameplay and can enhance both the perceived value of the game and player retention. Previous empirical research has established perceived value as a significant factor influencing customer loyalty in both retailing and online services (Yang and Peterson, 2004). Consequently, we propose the following hypotheses.

H5: Perceived economic value is positively associated with the continued use intention.

H6: Perceived economic value is positively associated with in-game purchases.

Enjoyment Value

Nowadays, an increasing number of individuals seek online multiplayer PC games to fulfill personal needs for excitement and happiness. If users find greater enjoyment in an online game, they are more likely to continue playing with a positive mindset, and they may even exhibit

stronger motivations such as loyalty and willingness to make in-game purchases (Colwell, 2007; Wei and Lu, 2014).

When analysing the freemium pricing model, it is anticipated that games will experience a higher number of installations. However, the relationship between this factor and player retention within the game is not straightforward. Given the correlation between the growth of the gaming industry and the increasing number of new free-to-play games being released, one would expect a positive association between enjoyment and the intention to continue using these games as well as the acquisition of in-game items.

H7: Perceived enjoyment is positively associated with the continued use intention.

H8: Perceived enjoyment is positively associated with in-game purchases.

3 Method

3.1 Research Strategy

This study aims to explore the impact of players' perceived value impacts the desirability of freemium PC games. To achieve this objective, it was necessary to identify and implement an appropriate research strategy. Various research approaches were considered, each possessing its own strengths and limitations.

The survey approach was chosen as the most suitable method for this study. Surveys offer an efficient means of data collection and enable both descriptive and exploratory analyses. Additionally, they facilitate a large participant pool while requiring relatively low response time.

To ensure the survey comprehensively covered all relevant topics, an extensive literature review was conducted. This review identified several key areas to be addressed in the survey, including gameplay frequency and duration, types of games played, attitudes towards freemium games, and factors influencing game purchases.

The survey was designed to collect both quantitative and qualitative data. Closed-ended questions were employed to gather quantitative data, while open-ended questions were utilized to capture qualitative data and allow for additional insights.

The survey was administered online, with invitations shared through various social media platforms such as Reddit, Steam Community, Discord, and PlayStation community forums. Choosing these platforms for data collection offers several advantages. Reddit, being one of the largest online communities, provides access to a vast and diverse pool of gamers who actively engage in discussions and share insights on various gaming topics. The Steam Community, as a hub for PC gamers, offers a direct line to a significant portion of the gaming population, especially those invested in PC gaming and digital distribution platforms. Lastly, PlayStation community forums cater specifically to PlayStation console gamers, ensuring targeted outreach to a segment of the gaming population with distinct preferences and experiences.

The survey remained open for a duration of four weeks, during which responses were collected. In order to ensure a representative sample of the target population, efforts were made to reach a diverse and broad audience. This involved sharing the survey across ten different gaming communities with varying genres, including action, shooters, role-playing, and sandbox games.

Upon the conclusion of the survey period, the collected data underwent analysis utilizing a combination of descriptive and inferential statistics, as well as thematic analysis of the open-ended responses. Descriptive statistics were employed to summarize and describe the quantitative data, while inferential statistics were utilized to test hypotheses and draw conclusions about the population.

The survey responses analysed in this study contained minimal to no free-text, a circumstance deemed appropriate for the research objectives. This decision aligns with the utilization of the PERVAL model, a structured framework employed for comprehending consumer perceptions

of value. Within this model, the incorporation of free-text responses is often limited or non-existent due to its reliance on quantifiable data, such as ratings pertaining to dimensions like price, quality, and utility. Respondents typically provide ratings using scales or Likert-type items, generating numerical data conducive to statistical analysis.

Alternative approaches were also considered, including: (i) Grounded Theory, which would have involved conducting an exploratory analysis based on time-series industry KPIs data. This approach would have facilitated a comprehensive understanding of how the gaming industry would appear today in the absence of freemium games and the significant implications associated with this model. However, the unavailability of publicly accessible information in this domain rendered this approach unfeasible. (ii) The phenomenology approach was also taken into consideration, which would have entailed conducting extensive interviews with numerous PC players to gain insights into their perceptions and experiences concerning free-to-play games. This approach would have provided detailed perspectives on the real-life experiences of PC gamers. However, resource limitations, including limited availability of suitable candidates and time constraints, made this approach impractical.

3.2 Data Collection

This study has decided to use a web-based questionnaire to collect data, as suggested by M. Dreier, K. Wölfling, E. Duven, S. Giralt, M.E. Beutel, and K.W. Müller (2016). The questionnaire-based data collection method was chosen due to its low cost in terms of time and money and its convenience to the targeted audience. Most video game players spend a considerable amount of time on the internet and are aware of the existence of such questionnaires. Other formats such as face-to-face interviews, phone call surveys, and live streaming questions and answers were discarded due to lack of time and financial capabilities to conduct them. Overall, the web-based questionnaire-based data collection method was deemed the most effective for this study, as it allowed for the collection of data from a diverse group of respondents in a cost-effective and efficient manner. The questions were designed to capture the necessary information to answer the research questions while taking into account the gaming industry's specific jargon and concepts.

The data collection process for this study involved an online survey administered through a range of social media platforms, including Reddit, Steam Community, Discord, and PlayStation community forums. The survey link was shared across these platforms, with a succinct introduction to the research and inviting individuals to participate. To enhance the inclusivity and diversity of the sample, particular efforts were made to target a wide range of communities representing different genres of games, such as action, shooters, role-playing, and sandbox.

The survey remained open for four weeks, allowing ample time to collect responses from interested participants. The decision to leverage social media as the primary distribution channel for the questionnaire was motivated by players' significant presence and active involvement within these online communities. Players often demonstrate enthusiasm for engaging with academic research about the gaming industry, making social media an ideal avenue for reaching a broad audience and eliciting their valuable insights and perspectives.

Before commencing the survey, respondents were asked about their familiarity with free-to-play games. If participants indicated a lack of familiarity, the survey concluded at that stage, and the individual was excluded from further participation. This step ensured that the

subsequent data collection focused exclusively on individuals with relevant knowledge and experience in the subject matter. By employing this approach, the study aimed to maintain the sample's integrity and ensure that the insights gathered accurately represented the target population.

3.3 Sampling

The methodology used in this research aimed to gather data from a population that is difficult to achieve entirely in online forums - video game players born before 2006 (e.g., players with more than eighteen years old). To overcome this challenge, representative sampling was defined as the data collection strategy. The purpose of representative sampling is to draw insights from a smaller sample of the population and apply these insights to the overall population.

To minimize biased responses from mobile players, the sampling was limited to PC and Console players. This selection criterion was based on the assumption that these groups of players have a more significant impact on the gaming industry's revenue, which aligns with the research's focus. The web-based questionnaire was published in specific gaming communities with a large base of followers. This approach allowed for the collection of responses from a specific population of video game players, which increases the data's relevance and accuracy.

To analyse the data, this research applied cluster sampling, a method that separates the population into smaller groups based on specific characteristics. In this study, freemium and premium players were used as the two main groups.

The purpose of this approach was to identify common characteristics within each group and drive potential key takeaways from the analysis. However, this method may lead to potential sampling biases and systematic errors. For example, free-to-play players who agreed to answer the questionnaire may be more engaged and, therefore, not represent the population accurately.

Lastly, this research adhered to the three main criteria of questionnaire research outlined by Denscombe (2014). First, the collected information was used for analysis. Second, the questionnaire consisted of a written list of questions. Finally, the information was collected from respondents by directly asking them questions. By meeting these criteria, the study ensured that the collected data was relevant and accurate, contributing to the study's overall validity.

3.4 Research Ethics

In addition to the principles elucidated by Denscombe (2014) regarding research practices, it is imperative to emphasize the ethical conduct of the study. The researcher meticulously adhered to ethical principles and guidelines to ensure the collection of unbiased and unmanipulated data. Moreover, paramount importance was placed on safeguarding the confidentiality and anonymity of the participants.

The questionnaire started with a clear and concise description of the research's purpose and objectives to guarantee voluntary participation based on informed consent. Participants were explicitly informed that the collected data would be used solely for research purposes, with no collection of personal information such as names, addresses, email addresses, or IP addresses. Participants were also allowed to skip any question they felt uncomfortable answering, ensuring their autonomy and comfort throughout the research process.

In order to protect the anonymity of the participants, the researcher implemented several stringent measures. Firstly, the questionnaire abstained from requesting identifying information, ensuring no direct linkage between individual responses and specific participants could be established. Secondly, the data collection and analysis were meticulously designed to prevent any traceability of individual responses.

The research team adopted robust security protocols to store the data securely, ensuring only access was restricted to authorized personnel. Scientific integrity was of utmost concern to the researcher, who took various steps to ensure the research was conducted with the highest level of credibility.

The data collection process was standardized and followed a predetermined protocol, guaranteeing consistency and reliability in data collection. This standardization aided in producing valid and dependable results. Additionally, the researcher employed appropriate statistical methods to analyse the collected data, deriving meaningful and accurate conclusions.

Furthermore, the researcher diligently complied with all applicable laws and regulations, ensuring the research was conducted within legal frameworks. Ethical approvals were obtained from relevant authorities prior to commencing the research, affirming the researcher's commitment to upholding legal and ethical standards.

By prioritizing ethical considerations, the researcher fostered a research environment that upheld the principles of integrity, confidentiality, and respect for the participants' rights. This approach fortified the study's credibility and instilled confidence in the reliability and validity of the findings. It is through rigorous adherence to ethical practices that the research community can maintain its commitment to responsible and impactful research endeavours.

4 Results

4.1 Data Analysis

This study used a quantitative data analysis method to carefully interpret the data gathered from a web-based survey. Initially, it was conducted a descriptive analysis to organize the data systematically. Additionally, an exploratory analysis was performed to visually represent the main findings, recognizing that this approach doesn't allow for making broad conclusions. Instead, predictive analysis could be explored to anticipate scenarios in a situation without free-to-play games using freemium models, helping assess potential differences.

The dataset used in this study was extensive, covering various data types, including nominal, ordinal, and interval data. Nominal data played a crucial role in capturing and understanding the gender demographics of the participants, offering valuable insights into the sample's composition.

On the other hand, ordinal data was instrumental in categorizing and assessing the relative importance of free-to-play games in the gaming habits of the audience, providing a nuanced view of their preferences and behaviors. It's important to note that a significant portion of the collected data falls into the category of interval data, offering precise and measurable information for more detailed analysis and interpretation. This diverse dataset, encompassing multiple data types, enhances the comprehensiveness of our study and strengthens the reliability and validity of our findings.

After gathering the data, it was stored in a Google Sheet, and we considered different methods for data analysis. Initially, we thought about using a Python Development Environment, but considering the sample size and the Google Form's structure, we found it more efficient to use Google Sheets for exploratory and descriptive statistics. Furthermore, we utilized Google Data Studio for additional data visualization.

Throughout the survey period, a total of 1260 responses were collected. However, 30 cases were excluded from the analysis, as these participants reported not having engaged with free-to-play games.

To ensure the quality of the data, the remaining responses underwent outlier analysis. Outliers were identified by scrutinizing the standardized standard deviations of the variables associated with psychometric measures.

A threshold of 1.25 /-1.25 standard deviations was employed to identify cases surpassing this limit, designating them as outliers, and subsequently eliminating them from the dataset. This process resulted in the exclusion of 25 cases, thereby contributing to the robustness and reliability of the subsequent data analysis.

Table 1 Demographic information of respondents, including gender, age, employment, education, and income.

Gender	N	%	Education	N	%
Female	241	20%	Higher Education	904	75%
Male	844	70%	Secondary Level	241	20%
Prefer not to say	121	10%	Basic Education	60	5%
			No Education	0	0%
Age			Employment		
Up to 19	374	31%	Full Time Employment	603	50%
20 - 29	627	52%	Part Time Employment	241	20%
30 - 39	181	15%	Student	241	20%
40 - 49	24	2%	Unemployed	121	10%
50 - 59	0	0%	Retired	0	0%
60	0	0%			

Consistent with J. Hamari, N. Hanner, and J. Koivisto's (2020) approach, the employed survey constructs were adapted from previously published sources. The independent variables encompassed constructs derived from the Sweeney and Soutar's (2001) customer perceived value (PERVAL) scale instruments: social value, enjoyment, emotional, and economic value. These constructs were chosen due to their relevance to the research objectives and their established theoretical foundations. The dependent variables were centered around measuring participants' intentions to continue playing the game and make in-game purchase.

Table 2 Measurement instruments

Item	Construct	Source
SOC	Social Value	Sweeney and Soutar's (2001)
ENJ	Enjoyment Value	Sweeney and Soutar's (2001)
EMO	Emotional Value	Hsiao (2013)
ECO	Economic Value	Hsiao (2013)
CUI	Continued Use Intention	-
PURCH	In-Game Purchase	-

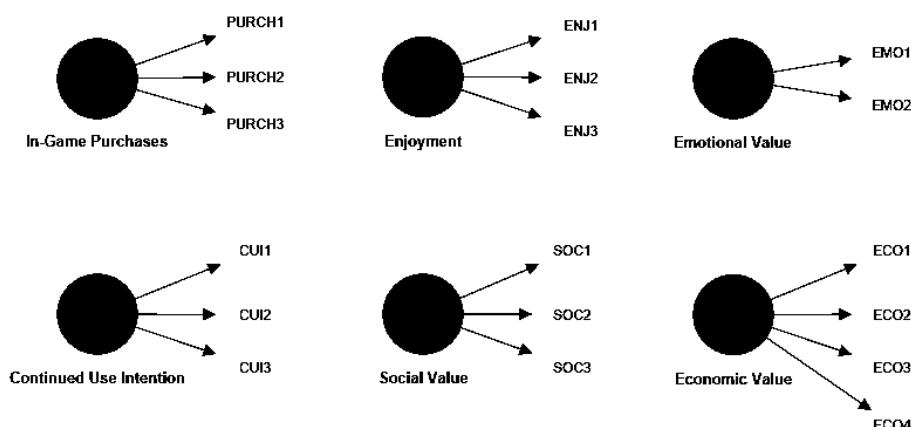
The constructs utilized in the questionnaire consisted of two to four items with each item associated to a specific question, ensuring adequate coverage of the underlying concepts.

Participants were asked to rate their agreement with these items on a seven-point Likert scale, ranging from "strongly disagree" to "strongly agree." This rating scale provided a nuanced measurement of participants' perceptions and attitudes toward the constructs under investigation.

For a comprehensive view of the questionnaire, where the finalized version is included. All items were measured on a seven-point Likert scale (strongly disagree – strongly agree).

Table 3 Seven Point Likert Scale Questions

Construct	Item	Question
In-Game Purchases	PURCH1	I believe that I will use money in PC free to play games in the future
	PURCH2	I intend to use money to buy in game cosmetic items in the near future.
	PURCH3	I plan to use money in PC free to play games during the next month.
Continued use intention	CUI1	I believe that I will keep playing PC free to play games in the future at least as much as I have played it lately
	CUI2	I intend to play PC free to play games at least as often within the next month as I have previously played it.
	CUI3	I plan to play the free to play games during the next month.
Enjoyment	ENJ1	Playing PC free to play games is enjoyable.
	ENJ2	Playing PC free to play games is exciting.
	ENJ3	Playing PC free to play games is interesting.
Social Value	SOC1	Players share their experience and feelings with others through PC free to play games.
	SOC2	My friends would think playing free to play games is a good idea.
	SOC3	Playing the free to play games on PC improves the way I am perceived
Emotional Value	EMO1	I perceive PC Free to play games to have good quality.
	EMO2	PC free to play games are well polished.
Economic Value	ECO1	All in all, in game items in free to play games offers value for money.
	ECO2	All in all, free to play games are a good service for the price
	ECO3	All in all, freemium games are cheap.
	ECO4	All in all, freemium games can be expensive.

Figure 1 Constructs and Questions

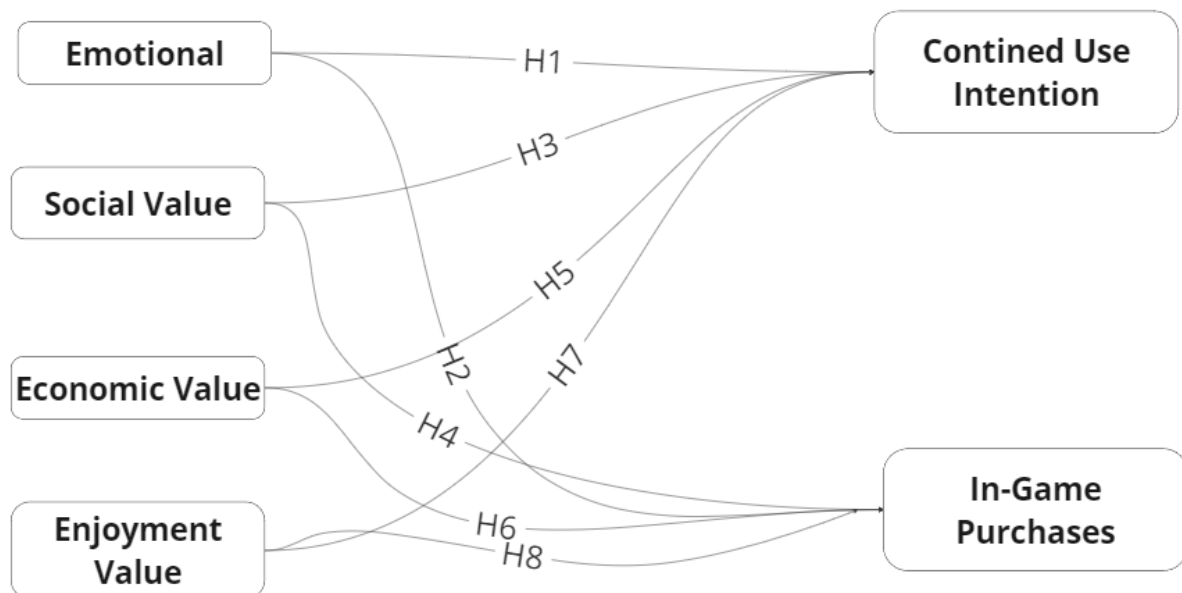
4.2 Research Model

Structural Equation Modeling (SEM) was chosen as the research model for this study owing to its versatility and applicability in analysing both experimental and non-experimental data. SEM serves as a universal tool that can be effectively employed for both cross-sectional and longitudinal data analysis. Its widespread adoption and popularity across various disciplines can be attributed to its flexibility and generalizability (Mueller & Hancock, 2018; Ullman & Bentler, 2003).

SEM is a statistical technique commonly employed to simultaneously explain multiple statistical relationships, visualize them, and validate the underlying model. Its purpose is to gain insights into the connections between latent constructs (factors) that are typically indicated by diverse measures. SEM is also referred to as latent variable analysis and covariance structure analysis. Unlike exploratory approaches, SEM follows a confirmatory approach, aiming to confirm pre-specified hypotheses and relationships within the model.

The model evaluation was performed using the component-based PLS-SEM approach implemented in SmartPLS 3. Unlike co-variance-based structural equation methods (CB-SEM), the major advantage of employing component-based PLS (PLS-SEM) estimation lies in its non-parametric nature, allowing for unrestricted assumptions about data distributions. Moreover, PLS-SEM is commonly recommended for prediction-oriented studies, such as the present investigation, while co-variance-based SEM is more suitable for assessing the goodness of fit of models with the data (Anderson & Gerbing, 1988; Chin, Marcolin, & Newsted, 2003; Marcoulides, Chin, & Saunders, 2009).

Figure 2 Research Model



The assessment of convergent validity (Table 4) involved the utilization of three metrics: average variance extracted (AVE), composite reliability (CR), and Cronbach's alpha (Alpha). Importantly, most of these convergent validity indicators surpassed the established thresholds specified in relevant literature: $AVE > 0.5$, $CR > 0.7$ (Fornell & Larcker, 1981), and Cronbach's

alpha > 0.7 (Nunnally, 1978). Economic value Cronbach's alpha (Alpha) indicator was 0.601 and therefore slightly below the threshold. Nevertheless, we can still consider it as reliable since its between 0.6 to 0.8, which its considered an acceptable range. Furthermore, since there was no missing data, imputation techniques were unnecessary. Thus, we can confidently assert that the model successfully satisfied the requirements of validity and reliability regarding convergent measures.

Table 4 Construct Reliability and Validity

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
Continued Use Intention	0.977	0.979	0.985	0.955
Economic Value	0.601	0.775	0.745	0.553
Emotional Value	0.936	0.940	0.969	0.939
Enjoyment	0.925	0.987	0.951	0.866
In-Game Purchases	0.934	0.935	0.958	0.884
Social Value	0.907	0.961	0.940	0.840

Discriminant validity was evaluated using multiple approaches. Firstly, we followed the method proposed by Fornell and Larcker (1981), comparing the square root of the average variance extracted (AVE) for each construct with the correlations between that construct and other constructs. According to Chin (1998) and Jöreskog and Sörbom (1996), the square roots of the AVEs should exceed the correlations between the corresponding construct and other constructs.

Secondly, in line with the study by Hamari, Hanner, and Koivisto (2018), we ensured that no inter-correlation between constructs exceeded 0.9. Thirdly, we confirmed that each item exhibited the highest loading with its corresponding construct, further supporting discriminant validity. All three tests provided evidence that the model met the requirements for both discriminant validity and reliability. Furthermore, the sample size of 1205 participants in our study satisfies various criteria for the minimum sample size required.

4.3 Results Analysis

Overall, the path model provided support for all hypotheses, demonstrating that the constructs effectively explain the independent variables of continued use intention and in-game purchases. The adjusted R-square values for both variables were positive and close to 1, indicating a strong explanatory power. Specifically, our constructs accounted for 77.3% of the variance in continued use intention and 93.6% of the variance in in-game purchases.

The results of the study provided support for the hypothesis regarding emotional value, indicating that a higher emotional value in a PC game is likely to result in increased engagement with the game and purchase intention. The study found a positive association between emotional value and continued use intentions (H1: 0.810). Additionally, there was a strong positive correlation between emotional value and purchase intentions (H2: 0.948).

The study's findings on PC gamers' emotional value align with similar research conducted on mobile gamers, as seen in studies by Hamari (2015) and Hsiao (2013). This study reinforces the hypothesis that a higher level of playfulness in PC games is linked to increased engagement,

suggesting that the emotional factor contributes to user engagement across various PC freemium games.

The results regarding the social value construct were consistent with our assumptions that the game's free-to-play nature lowers the entry barrier, enabling players to connect easily with friends and fostering a powerful word-of-mouth effect. Social Value exhibited a positive association with continued use intentions (H3: 0.238), and a significant association was observed with the intention to purchase more premium content (H4: 0.376)

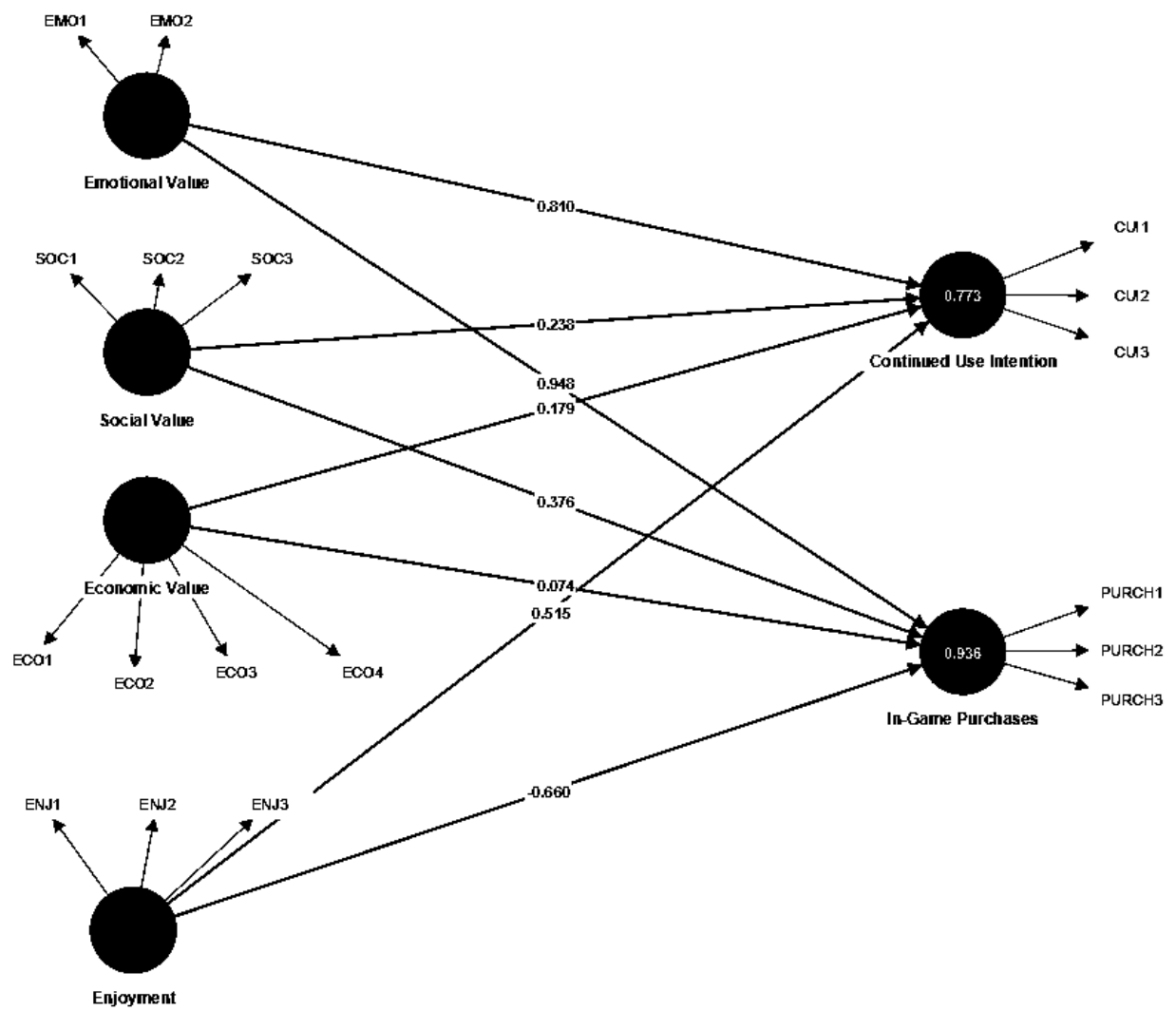
Enjoyment exhibited a positive association with playing intentions (H7: 0.515) but a negative association with the intention to purchase in-game premium items (H8: -0.660) among PC gamers. This indicates that as the level of enjoyment in the game increases, the desire to purchase additional premium items decreases. One possible explanation for this finding is that freemium players perceive certain in-game items as providing unfair advantages that significantly impact gameplay, favouring paying users rather than solely cosmetic enhancements. This perception likely contributes to a decreased intention to purchase such items, despite overall enjoyment of the game.

Economic value demonstrated a positive association with continue playing intentions (H5: 0.179). However, no significant direct association was observed with the intention to purchase more premium content (H6: 0.074). This suggests that PC gamers perceive value in terms of the benefits they gain from playing the game, such as entertainment, challenges, or rewards. However, a notable difference emerges when examining the intention to purchase more premium content. The present study found no significant direct association between economic value and the intention to purchase additional premium content among PC gamers.

In summary, the results indicated that perceived emotional and social value exerted a positive influence on users' intentions to continue playing and make in-game purchases. In simpler terms, both emotional and social value were found to positively impact retention and monetization.

Furthermore, although economic value was connected to playing intentions, it did not directly affect the intention to purchase premium content. Enjoyment showed a positive correlation with playing intentions but exhibited a negative relationship with purchasing in-game premium items, possibly stemming from concerns about unfair advantages.

Figure 3 Model Results



5 Discussion

5.1 Discussion

A thorough search for articles on the Scopus platform was conducted to establish a fair comparison between our study and existing research on perceived value in freemium models within games. Our focus was on articles featuring the terms 'freemium,' 'free-to-play,' 'gaming,' and 'games' in the title, abstract, or keywords. Following an analysis of this corpus, we selected articles that explored consumer value, perceived value, gratification, motivations, and their connections with outcome variables related to the usage of the freemium business model and the purchase of in-game premium items.

Emotional Value

As extensively discussed in existing literature, Emotional value refers to the inherent utility derived from the deep and immersive affective states and feelings evoked by the mobile game experience (Lu & Hsiao, 2010). In the context of PC games, the primary driving force behind player engagement is perceived playfulness, representing the emotional value of the gaming experience. Notably, emotional value (or playfulness) stands out as the most influential factor, exerting a powerful impact on both the intention to continue using the game and the inclination to make in-game item purchases.

This result holds significant relevance for game developers, affirming what is often considered an inherent assumption in the gaming industry. It aligns with the widely acknowledged notion that a successful game doesn't necessarily require the most advanced features, top-notch graphics, or extensive gameplay hours. Instead, the key lies in the game's perceived emotional value. As long as players find the game enjoyable, they are likely to continue playing and make in-game purchases. This insight underscores the fundamental importance of focusing on creating a fun and emotionally engaging gaming experience, which can be more influential in retaining players and driving in-game transactions than other elaborate features.

Social Value

Perceived social value emerges as a robust and positive predictor of purchase intentions for premium in-game items across an extensive body of literature. Additionally, the current study provided further insights into the connection between social value and the intention to continue playing freemium games, reinforcing existing research findings. These results align with prior research, consistently showing that the online multiplayer nature of these games, combined with their accessibility and low entry barriers, positively influences sustained engagement among players. This strengthens the idea that the social value embedded in freemium games significantly contributes to fostering long-term player commitment and involvement.

Economic Value

Previous research, including the work by Hamari, Hanner, and Koivisto (2020), consistently found that Economic value positively influences both purchasing premium content and continued usage of freemium services. However, this current study revealed a different pattern. Although Economic value was linked to the intention to keep playing, it wasn't noticed a significant connection with the intention to buy more premium content. This suggests that PC players may be less inclined to spend money on freemium games on PC compared to other platforms. This difference may be attributed to various factors specific to PC gaming and mobile gaming contexts. PC games may have higher price points for premium content compared to mobile games, making PC gamers less inclined to make additional purchases.

Enjoyment Value

Hamari, Hanner, and Koivisto (2020) and Hamari (2015) highlight the dual impact of enjoyment on consumer behavior in mobile games. On one hand, it enhances user retention and engagement with the free service. However, paradoxically, it acts as a deterrent for user monetization, as greater satisfaction with the free service reduces the inclination to purchase premium content. The present study's findings align with prior research on enjoyment value in mobile games. Both studies demonstrate a positive association between enjoyment value and playing intentions among gamers, indicating that both PC and mobile gamers perceive value in terms of the benefits derived from gameplay. However, a notable distinction arises concerning the intention to purchase premium content. In the present study, no significant direct association was found between economic value and the intention to purchase premium content among PC gamers. In contrast, Hamari's (2015) study on mobile games revealed a positive association. This difference may be attributed to factors specific to PC and mobile gaming contexts. PC games often have higher price points for premium content, potentially diminishing PC gamers' propensity to make additional purchases. Moreover, the PC gaming experience prioritizes the overall gaming experience and intrinsic value of the game, placing less emphasis on additional content purchases.

Table 5 Total Effects

	Total Effects
Economic Value - > Continued Use Intention	0.179
Economic Value - > In-Game Purchase	0.074
Emotional Value - > Continued Use Intention	0.810
Emotional Value - > In-Game Purchase	0.948
Enjoyment - > Continued Use Intention	0.515
Enjoyment - > In-Game Purchase	-0.660
Social Value - > Continued Use Intention	0.238
Social Value - > In-Game Purchase	0.376

When comparing the current study to prior research on free-to-play PC games, including studies by Van Osselaer, Norton, and Weber (2013) and Zhang, Deng, and Sun (2018), more nuanced insights emerge through an analysis of perceived values. These researchers focused on comparing the performance of freemium model's vs pay-to-play models in different targeted audiences. While the first studied players from all over the world the second focused on players from China, Taiwan and Hong Kong. Both studies concluded that freemium models, characterized by free access with optional in-app purchases, outperformed pay-to-play models in terms of revenue and player engagement. However, none explored the underlying reasons for these outcomes. With a more detailed approach like PERVAL, a better understanding of the dynamics and effects of freemium models on the consumption of PC games can be gained.

In the current study, similar outcomes were observed, but it unveiled a more detailed understanding. Upon considering players' perceived value, it was noted that freemium models typically generate higher engagement and revenue. Players, in general, display a greater willingness to continue using the game and make in-game purchases, apart from emotional value. Despite players experiencing greater enjoyment in freemium PC games, positively influencing engagement and retention, this heightened enjoyment does not necessarily translate into higher in-game purchases and, consequently, increased revenue.

It's important to highlight a key distinction in this paper compared to other studies, as it did not delve into exploring potential indirect effects. The primary focus of this research was to examine the direct relationship between perceived value—covering emotional, enjoyment, quality, economic, and social value—within the freemium model and users' intentions to sustain engagement and consumption of PC games. The goal was to comprehensively investigate the broader connection between perceived value and users' intentions to consistently engage with and consume PC games, providing insights into the multifaceted aspects that drive their ongoing involvement and overall satisfaction.

5.2 Future Research

Considering the limited extent of existing research knowledge on the freemium business model thus far, numerous opportunities for future investigations readily emerge. Expanding the current knowledge base is crucial, and thus, identifying several avenues for future research becomes imperative.

Firstly, there is a compelling need for further exploration into the intricate dynamics of the freemium business model, with a primary focus on the effects of design choices within this framework. A valuable area of inquiry involves a comparative analysis of diverse forms of premium products, investigating users' perceptions of value associated with each variant and comprehending how these perceptions influence both usage patterns and purchase intentions. Such research has the potential to offer valuable insights that can inform the design and implementation of freemium services, enabling developers to optimize their offerings to better cater to user needs and preferences.

Furthermore, an alternative avenue for future investigation lies in delving deeper into the mediating effects of personality and geographic differences amidst the various dimensions of perceived value. Exploring the intricate relationships and interactions between these factors and their influence on usage patterns and purchase intentions holds immense potential for uncovering enlightening findings. Gaining a comprehensive understanding of these mediating mechanisms can provide valuable guidance for designing and refining freemium services, facilitating a more personalized and tailored user experience that resonates with different user profiles and preferences.

6 Conclusion

This research fills current gaps in existing literature, contributing to our understanding of perceived value and its implications for players behavior in the gaming industry.

Notably, perceived economic value positively influences continued gameplay, indicating players are more likely to stay engaged with freemium games when they see them as economically valuable. However, there is no significant direct link between economic value and the intention to buy additional premium content, potentially due to higher price points for such items in PC games, impacting players' willingness to invest.

Social value emerged as a robust predictor of purchase intentions for premium in-game items, aligning with existing literature. However, the study revealed an exception to this pattern in one instance, emphasizing the importance of considering contextual factors and variable interplay when examining the relationship between social value and purchase intentions.

Moreover, the study validated the role of social value in fostering long-term player engagement, emphasizing its significance in the freemium gaming experience. Enjoyment had a dual impact, enhancing user retention but acting as a mitigating factor for user monetization. This suggests that high satisfaction from free services may reduce the inclination to purchase premium content, highlighting the nuanced relationship between enjoyment, user retention, and monetization.

In PC gaming, emotional value emerged as a prominent driver of customer engagement, significantly impacting the intention to continue using the game and the propensity to make in-game purchases. The captivating and immersive nature of emotional value fuelled players' desire for continued engagement and motivation to enhance their gaming experience.

The study highlights the differentiation between PC and mobile gaming contexts, recognizing important distinctions in the relationship between economic value and the intention to purchase additional premium content. Developers targeting the PC gaming market can adjust pricing strategies and content offerings accordingly to maximize player engagement and revenue.

Furthermore, the study underscores the critical role of social value as a strong predictor of purchase intentions for premium in-game items, emphasizing the importance of incorporating social features into game design. Developers can leverage these insights to enhance multiplayer functionality, promote community building, and implement social rewards, ultimately enhancing the overall player experience and driving monetization.

Lastly, the study emphasizes the significance of perceived emotional value in shaping the game experience and influencing player engagement and intention to purchase premium items. By creating games that evoke positive emotions, developers can significantly impact player engagement, retention, and propensity to make in-game purchases, resulting in improved player experiences and increased revenue.

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