



Gaming is exploding! A framework to examine the influence of predatory monetization schemes on video game addiction in online video gaming.

A research report submitted to the Faculty of Commerce, Law and Management, University of the Witwatersrand, in partial fulfilment of the requirements for the degree of Master of Management in the field of Strategic Marketing

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DECLARATION

I, Jarryd Wassink (**482686**) declare that this research report is my own work except as indicated in the references and acknowledgements. It is submitted in partial fulfilment of the requirements for the degree of Master of Management in Strategic Marketing at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this or any other University.

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Signed at Henley on Klip, Meyerton.

On the 27th day of October 2023.

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Abstract

Purpose

The purpose of this study is to determine the relationship between behavioural characteristics associated with video game addiction in conjunction with extended play time, and in-game expenditure. The study seeks to investigate whether there is a positive relationship between individuals that display behavioural symptoms of Internet Gaming Disorder and significant amounts of expenditure within their chosen video game in-game monetization models. Additionally, the study seeks to ascertain whether these video game monetization models, especially those that utilise “surprise” mechanics such as loot boxes, can be deemed predatory or gambling in nature and in need of additional regulations to be implemented to ensure higher levels of consumer protection.

Design/Methodology/Approach

The study utilises a quantitative approach in the data collection and analysis. Through the construction and distribution of a comprehensive electronic questionnaire, data was collected to determine the significance of the specific hypotheses outlined within the conceptual framework. The study tests the significance of fifteen hypotheses. The data collected was analysed using SPSS 28 and AMOS 28 software's to test the validity and reliability of the proposed relationships outlined within the study.

Findings

The result of the study establishes a positive relationship between predatory monetization schemes and video game addiction. In the investigation of both constructs, namely predatory monetization scheme and gaming addiction, several variables were investigated with regards to the relationships they have with a specific construct, and the implications thereof. It is through the significance and acceptance of the majority of these hypothesised relationships that it can be concluded that extended engagement levels with video games that have in-game monetization models does have a positive influence on in-game expenditure.

Practical Implications

The results of the study suggest a strong and positive relationship between predatory monetization schemes and gaming addiction. This relationship suggests that prolonged exposure and engagement does in fact translate to excessive in-game spending. This further compound an

already volatile situation in that an individual suffering from video game addiction experiences a deterioration of both their physical and mental well-being and are now exposed to the added risk of financial harm. The situation becomes even more concerning when considering that a large portion of the player base is comprised of minors.

Originality/Value

The study established a significant and positive relationship between predatory monetization schemes found within many online video games and video game addiction. The results further suggest that prolonged engagement levels within these video games that have in-game monetization schemes increases the likelihood of spending real-world money on these predatory monetization schemes. There are limited consumer protection frameworks for video game monetization schemes. Therefore, the implementation of more stringent and socially responsible regulations concerning specific video gaming monetization schemes could offer greater consumer protection amongst players of such video games. Since not all mechanics found within video game monetization schemes can be considered as being similar to gambling, this may prove difficult for policy makers to impose gambling regulations to these products. However, in the interests of consumer protection, policy makers and social marketers do need to work on minimizing or removing predatory characteristics found within numerous video game monetization schemes, especially for the benefit of at-risk video gamers. The study outlines the risks these predatory monetization schemes pose to problem gamers and suggests that legislation and regulation at a government level within South Africa needs to be implemented to ensure higher levels of consumer protection against such unethical marketing practices.

Keywords: Social Marketing, Internet Gaming disorder, On-line Video games, Video Game Addiction, Money, Predatory monetization, Problematic video game use; Gaming addiction treatment.

Chapter 1: Overview of the Study

1.1 Introduction

In recent years, the video gaming industry has begun to incorporate monetization schemes into their products. This has been achieved through the inclusion of in-game purchasing options that have become contributors to and facilitators of the development of online video game addiction amongst vulnerable users (King and Delfabbro, 2018). It is therefore not surprising that video game addiction has become a topic of increased research interest (Abbasi, Rehman, Afaq, Rafeh, Hlavacs, Mamun, and Shah, 2021; 45; Wanpen, Itsarapong, Gornnum, and Yunibhand, 2021).

Numerous studies conducted in video game addiction have found that excessive engagement levels increase the probability of players developing and displaying symptoms of video game addiction (Griffiths, 2008; Wan and Chiou, 2006). Gamers, Social Marketing Practitioners and Scholars hold different views on what is regarded as excessive video gaming time, with extreme cases oscillating between 8-10 hours in one sitting, 32 hours, and some 60 hours (Sato, Drennan and Lings, 2017; Griffiths, 2010). It is estimated that there are 3.24 billion video gamers globally (Statista, 2021), and, as of the end of 2021, the global video gaming industry was estimated to be valued at approximately \$195 billion (USD) and is expected to increase to approximately \$220 billion (USD) by the end of 2022 (Grand View Research, 2021). Despite the forecasted growth, there are approximately 3-4% video game addicts globally, which is an estimated 10 million video game addicts around the world (Wanpen et al., 2021). The encouragement of users to engage with video games more frequently and for prolonged periods of time with the goal of facilitating higher levels of in-game purchasing is becoming more recurrent (King and Delfabbro, 2018).

However, through increased engagement levels, the probability of negative psychological effects is significantly increased. These symptoms may include loneliness, depression, and social anxiety (Chan and Rabinowitz, 2006), behavioural addiction (Sato et al., 2017), spending more than one can afford (Gach, 2017), and borrowing or stealing money for in-game purchases (King and Delfabbro, 2018). The World Health Organization (WHO) (2023) describes video gaming disorder as a sequence of behavioural characteristics that can result in impaired impulse control over engagement levels with video games, resulting in greater priority assigned to video game engagement, so much so that the action of playing video games is prioritized over other interests

and activities. This often results in negative consequences that can prove detrimental to users who display such behavioural characteristics (World Health Organization, 2020). It is imperative that the negative consequences of problem video gaming be communicated in order to drive awareness and to encourage help-seeking.

1.2 Background of the Study

The first academic reference of what would become to be accepted as what is now known as Internet Gaming Disorder (IGD) was first mentioned by Soper and Miller (1983). During their observations, conducted with school counsellors, it was noted that the disorder was like any other behavioural addiction, which includes compulsive behaviour involvement, being in a friend group that consists of other like-minded addicts, and a lack of interest in other activities that do not involve video games (Griffiths, Kuss and King, 2012).

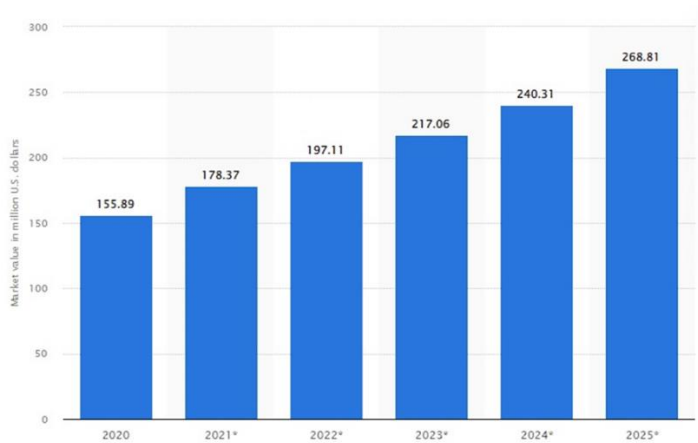
With the significant advancements in technology over the past two decades, video gaming has become far more sophisticated, attractive, and accessible to most people. Video games have become a world-wide phenomenon and have been elevated to the most popular forms of entertainment globally. However, with the risks of excessive engagement levels amongst users, often result in the development of IGD, comes further concerns in the form of in-game monetization schemes found within a large number of these video gaming titles.

These in-game monetization schemes are expertly designed to facilitate spending amongst their users through various psychological tactics that will be discussed further within this study. These methodically designed systems are created with the primary purpose of encouraging in-game spending amongst users. The dangers arise when you introduce these systems to individuals who may already display behavioural characteristics associated with IGD and now require financial input to better progress or compete within their chosen video game.

1.3 Context of the Study

The video gaming industry is the largest and most popular form of entertainment globally. It is forecasted that the global video gaming industry will produce a global revenue of US\$365 billion (Statista, 2022) in 2023, equating to an annual growth of 7.1%.

Figure 1. Global video game market value from 2022 to 2025.



Source: (Statista, 2023)

The largest market segment within the video game industry is that of mobile gaming, making up an estimated 61% of the total video gaming market globally (GlobeNewswire, 2022).

These revenues can be separated into three core segments, namely Hardware, Software, and In-game purchasing. According to SuperData's, in-game purchases made up a staggering 88% of 2020's digital games industry total revenues (Tweak Town, 2021). Therefore, it can be deduced that the initial sales of specific video game titles (software) are only the tip of the iceberg with regards to revenue. The base price of many online video games is merely the starting point in terms of expenditure with numerous monetization schemes present within them that often influence progression and reward structures. The bulk of many of these video game titles come in the form of in-game purchasing options that encourage users to make regular purchases in order to obtain highly sought after items (cosmetics, experience boosters etc.) and/or to achieve and maintain competitiveness within a chosen video game. This monetization scheme often incorporates tactics such as fear of missing out (FOMO), first-time purchase discount offers, content creator/influencer endorsements etc.

This becomes problematic when considering that numerous users begin to develop behavioural characteristics associated with IGD. This is further compounded by the fact that numerous video game titles offer in-game purchasing options using real-world money that can have a direct impact on a players' ability to progress and/or compete within their chosen video game. When you begin to expose users that are displaying problematic gaming behavioural characteristics to real-world

money purchasing options that can directly impact on their ability to progress (whether that be content-gating or significantly speed-ups) and compete within their chosen video game, the probability of negative consequences is increased significantly.

1.4 Theoretical Grounding of the Study

1.4.1 The Components Model of Addiction

The Components Model of Addiction was developed by well-known behavioural psychologist Mark Griffiths in 2005, which was a modified version of Brown's theory of Common Components of Addiction (Brown, 1993). This model applies more specifically to behavioural addiction as it can be used to identify signifiers within an individuals' behaviour that are indicative of behavioural addiction. Addictive behaviour can be defined as a repetitive habit pattern that increases the risk of disease and/or associated personal and social problems (Marlatt, Baer, Donovan, and Kivlahan, 1988).

However, the conceptualization of addiction is a topic that has been heavily debated over many decades. Within its original classification, addiction was primarily associated with substance abuse such as drug ingestion (Griffiths, 2005). However, research has begun to include behavioural characteristics that can be seen as indicative of displaying addictive features. These behaviours often involve the subjective experience of impaired impulse control that persists irrespective of the individual's conscious efforts to abstain from the problem activity (Griffiths, 2005).

Through the development of the Components of Addiction Model (modified from Brown, 1993), Griffiths (2005) proposes a six-stage model that will assist in the better identification and treatment of behavioural addictions. These stages include salience, mood modification, tolerance, withdrawal, conflict and relapse. Griffiths (2008) contends that any behaviour, such as (e.g., video game playing) that fulfils these six criteria is operationally defined as an addiction.

1.4.2 Internet Gaming Disorder

Within video gaming, the notion, referred to as Internet Gaming Disorder, was first suggested by Soper and Miller (1983) through their observations as student counsellors, claiming the disorder displayed similar characteristics to that of other behavioural disorders in that individuals displayed compulsive and persistent engagement with the problem activity, which resulted in a loss of interest in other activities.

Internet Gaming Disorder is currently classified as a unique mental disorder according to the American Psychiatric Association (APA) (American Psychiatric Association, 2022). In accordance with a study conducted by King and Delfabbro (2018), gambling, and more specifically slot-machine gambling, displays similar mechanics to that of Loot Boxes monetization models found within numerous AAA title video games. This can be seen as being highly problematic in that the video gaming industry is currently the largest form of entertainment media globally, with an estimated 21 percent of the global population being under that age of 18 years old (DataProt, 2022). Additionally, the accessibility and reach of such a medium, compounded by a severe lack of regulation within most countries, gives reason for concern when considering the high engagement levels and associated risks involved thereof. Accessibility and lack of regulation means that predatory in-game monetization schemes are a major cause for concern.

1.4.3 Use and Gratification Theory

Use and Gratification Theory (UGT) was developed by Katz and Blumler (1974) to better understand why people use certain types of media, what needs do they have to use them, and what gratifications do they get from using them (Kasirye, 2022). Within its current form, the theory relies on two specific assumptions regarding media:

- 1) Consumers are active participants within the types of media and content they choose to engage with.
- 2) Consumers possess a higher degree of awareness with regards to the types of media they choose to engage with.

The theory therefore acknowledges that consumers possess a high degree of autonomy within the types of media they choose to engage with. Katz and Blumler (1974) expand upon this theory through the inclusion of specific needs that influence consumer decision-making regarding media:

- Affective needs – this relates to an individual’s need to feel pleasure and satisfaction. This involves the emotional response an individual has within their engagement of a specific media source.
- Cognitive needs – these needs are based on the premise that consumers choose to engage with certain forms of media based on the validity of the information provided. These needs are grounded upon a consumer’s perception of truth and fact within the types of information acquired.

- Interactive needs – this relates to an individual’s need for personal upliftment. This need is based upon the premise that consumers seek out personal validation and internal satisfaction of oneself.
- Integration needs – these needs are based upon the premise that individuals require social interactions and connectedness. Currently, there are numerous forms of media that facilitate social interactions amongst users. The choice of which forms of social media an individual chooses to utilize within their social interactions is heavily determined by personal interests, comfort of use and the other members that are a part of specific social media platforms.
- Escapism needs – these needs often involve an individual’s decision to engage with a specific form of media to escape from the unpleasant realities they are currently facing.

1.4.4 Unified Theory of Acceptance and Use of Technology

The Unified Theory of Acceptance and Use of Technology (UTAUT) examines the acceptance of technology, determined by the effects of performance expectancy, effort expectancy, social influence and facilitating conditions (Marikyan and Papagiannidis, 2021). The UTAUT model was developed by Venkatesh, Morris, Davis, and Davis (2003) as a response to better understand the determinants that influence technology adoption. The theory suggests that the actual use of technology is determined by behavioural intention (Marikyan and Papagiannidis, 2021). The model argues that the probability of technology adoption amongst consumers is determined by the positive relationships between four key constructs:

- 1) Performance expectancy.
- 2) Effort expectancy.
- 3) Social influence.
- 4) Facilitating conditions.

These constructs are moderated by age, gender, experience, and voluntariness of use (Venkatesh et al., 2003).

In relation to the video game industry, a study by Williamson, Lemos, Mariano and Souza (2019) illustrated that habit and social influence are important determinants within consumers’ intentions to use online video games. Using the UTAUT model, a greater understanding into the determinants

that influence intentions of gaming can be established. It is through this that a more comprehensive analysis of consumer behaviour regarding video games and the factors that influence engagement can be identified and understood.

1.4.5 UTAUT 2 Theory (Unified Theory of Acceptance and Use of Technology extended)

The UTAUT model was originally developed to explain technology acceptance and use amongst employees of various organizations. However, since the implementation of this model, it was identified that there was a critical need to extend this model to include a better means by which to examine technology acceptance and adoption amongst consumers. Against this backdrop, the study of the boundary conditions and extensions to UTAUT in a consumer context represents an opportunity to make an important theoretical contribution (Tong, Venkatesh and Xu, 2012).

It was thereby that the UTAUT2 model was developed and introduced. This model, through the inclusion of additional constructs, examines technology acceptance and adoption within a consumer use context. These additional constructs include:

- 1) Hedonic Motivation – this applies to the emotional response that is elicited through shopping. The primary emotional responses that drive consumer engagement are enjoyment and pleasure.
- 2) Price Value – this examines the perceived benefits consumers associate with using and engaging with specific technologies, and how these benefits are perceived as being greater than the monetary expense.
- 3) Habit – this examines the extent to which individuals tend to perform behaviours automatically due to learning (Venkatesh et al., 2012). This is viewed because of repetition whereby users develop habitual behaviour. Through the development of such habits, users may often perform such actions with limited cognitive awareness, resulting in a subconscious performance of these specific actions.

1.4.6 Self-Determination Theory

Self-Determinant Theory of Motivation (SDT) was founded and developed by Richard Ryan and Edward Deci (2000; 2017), two American psychologists who specialised in social psychology. The theory is based around the premise that suggests that all humans have three basic psychological needs - autonomy, competence, and relatedness - that underlie growth and development (University of Rochester, 2022).

- Autonomy refers to the feeling an individual has whereby their decisions are perceived to have a large degree of choice and willingness within their behaviour. The adverse if this is when individuals feel forced and controlled within their decision-making and accompanying behaviour.
- Competence is related to the mastery of an activity that often results in higher degrees of efficiency and effectiveness.
- Relatedness refers to the sense of belonging and the need to feel connected and included.

In a recent study by Mills, Milyavskaya, Mettler and Heath (2018), the application of these theoretical concepts are used to create a better understanding regarding the push to engage in video games (Mills et al., 2018). Using this framework, the study contributes to creating a better understanding of Internet Gaming Disorder and found that game need satisfaction was a major contributor. The study found that the interaction between gaming need satisfaction and daily need frustration resulted in a positive relationship to that of problem video game use, and by extension Internet Gaming Disorder (Mills et al., 2018). Furthermore, these predictors were found to have a positive relationship with the time an individual spends playing a particular game. This, in turn, resulted in a positive relationship between engagement levels (time spent playing) and the development of Internet Gaming Disorder.

1.5 Problem Statement

In the majority of modern-day video games, the existence of predatory monetization schemes is prevalent. This, in conjunction with the increase of Internet Gaming Disorders in problem gamers, creates a phenomenon that not only exacerbates the potential for physiological harm, but also the potential for financial harm. Many of the design elements found within most modern-day video games have been identified as possessing features that further facilitate video game addiction (Wanpen et al., 2021). This important innovation in video gaming has fuelled the rise of business models referred to as “digital purchase options or micro-transactions” within online video gaming. These types of games allow the users to download and play the game at no initial cost (*free-to-play*), however, a large majority of these models utilize aggressive and sophisticated monetization marketing strategies to entice players to participate within these in-game monetary transactions (King and Delfabbro, 2018; Civelek et al. 2018). These purchasing options are often tied to in-game progress, access to specific in-game content, and specific in-game items that influence the

competitive capabilities of players. This concept is often referred to as ‘*Pay-to-Win*’ and involves the use of real-world money to make in-game purchases of digital content that affords the player a competitive advantage over other players who do not participate within these monetization schemes (King and Delfabbro, 2018). However, within recent years, these digital purchasing options have made their way into many AAA gaming titles, whereby the consumer (player) has to pay an initial fee to purchase the video game, and thereafter there are additional in-game monetization options that are present within the game that consists of various micro-transactions such as cosmetics, player convenience (the ability to level-up faster, purchase content that would otherwise take a long time to achieve in-game, etc.), character boosts (allowing players to bypass the time required to level a character up, which can take multiple hours, by one simple purchase just to name a few. This becomes even more problematic when certain of these AAA video game titles include *loot box* mechanics within their in-game purchasing options. These monetization schemes (loot boxes) possess similar mechanics to that of slot-machine gambling and therefore bring into question the ethicality of such schemes in driving high levels of engagement within video games.

With the significant increase of monetization schemes within most modern-day video games, including numerous AAA titles, the amount of in-game purchasing has escalated substantially. The materialization of virtual content within video games, termed ‘micro-transactions’, that can be purchased using real-world money, has further compounded these in-game transactions (King and Delfabbro, 2018). These in-game purchasing options are referred to as predatory monetization schemes. “Predatory monetization schemes in video games are purchasing systems that disguise or withhold the long-term cost of the activity until players are already financially and psychologically committed” (King and Delfabbro, 2018:1). Micro-transactions allow users to purchase additional digital content such as item skins, in-game currency, powerups and levels (King and Delfabbro, 2018).

Research has found individuals spending exorbitant amounts of real-world money on these micro-transactions, with many individuals diagnosed with Internet Gaming Disorder (IGD) having reported large amounts of debt due to their excessive interactions with these monetization schemes (King and Delfabbro, 2018). It should be noted that this group of individuals often make up a small percentage of the entire video game population, however their expenditure within specific games

can be so exorbitant that they are referred to as ‘whales’. ‘Whales’ are players that spend hundreds, thousands, and sometimes hundreds of thousands of real-world currencies within these specific games. These in-game monetization schemes draw direct comparisons to that of gambling and further increase the risk of individuals diagnosed with IGD to incur financial harm and in-turn compound their already existing negative psychological state. These schemes could be harmful to at-risk video gamers, since such predatory monetization schemes can be understood with reference to the concept of ‘entrapment’ (i.e., the belief that one has invested too much to quit) (Zendle and Cairns, 2018). These monetization schemes can encourage users to purchase virtual items using real-world money that they often cannot afford using credit facilities such as credit cards. This is further exacerbated by sophisticated artificial intelligence (AI) technologies that can track player preferences and purchasing behaviours in order to customize purchasing options specifically to individual users. Through this, game developers can maximize the probability of user engagement with these monetization schemes (King and Delfabbro, 2018). This could be detrimental to at-risk gamers.

The free-to-play gaming model found within a large majority of mobile video games base their monetization mechanics on the premise that players are reluctant to invest in a video game that may not maintain their interest. Therefore, these developers allow players to initially play their video game for free, thereby capturing their interest and thereafter introducing in-game purchasing options that help the player progress and/or compete more efficiently. These gaming models are designed to capture players’ interest through rewards systems found within initial periods of play, which become less rewarding as playtime increases. It is through this decrease in rewards over time that players are then exposed to these in-game purchasing options that allows them to fast-track their progress by spending real-world money.

These monetization schemes have begun to be more and more prevalent in a number of AAA video game developer titles. These video games often involve consumers (players) having to purchase the product at a specified price prior to the player being able to play the game. However, like that of the free-to-play models, these video game titles include in-game purchasing options often in the form of micro-transactions. Micro-transactions are additional purchases after the player has already purchased the base game (Uddin, 2021). These monetization schemes are designed to elicit instant gratification through the provision or, in the case of loot box mechanics, the possibility to

gain desirable in-game content that will aid in player progress, vanity and customization, or competitive advantage. According to a study by Uddin (2021), it was identified that there are numerous micro-transaction models found within many modern-day video game titles, namely:

- In-game item micro-transaction model – this encompasses mainly gameplay relevant virtual items that are attainable in exchange for real-life currency.
- Virtual currency micro-transaction model – this involves the purchasing of virtual currency unique to a specific video game title using real-world money that allows the player to purchase other virtual items using this virtual currency. These virtual currencies come in varying forms, but all serve the same purpose of creating an additional cognitive barrier between real-money expenditure and the value thereof with the digital items being purchased within these in-game monetization schemes. What this serves as is a facilitator of attachment between the real cost of an in-game item by first converting a consumer's real-world currency into virtual currency, disassociating the value of the digital item being purchased away from real-world value and towards a virtually constructed value.
- Expiration micro-transaction model – this involves the purchasing of specific items within a game that has limited time durations and are often associated with increased progress within the specific game. These virtual items can be purchased using real-world money to help speed up progression, however, there is a limited duration that these items are active within the game, and once expired the player will need to purchase more.

In a study conducted by Erik Allison (2017), it was found that most players simply wait or walk away from the game when progress is frustrated by a lack of resources or a long wait. However, the small percentage of players that engage with these in-game monetization schemes, approximately 1.9% of the total player base, account for nearly half of the total revenue accrued (Swrve, 2016). This segment of the play base is referred to as “whales” and are players that spend large amounts of real-world money on in-game purchasing options within a particular video game title.

Loot boxes are the most prevalent in-game monetization scheme and, unlike other micro-transaction models that allow the player to purchase a specific digital item(s) of their choosing, loot boxes are in-game containers that contain randomized digital content that possess varying degrees of in-game value. Much like slot machine gambling mechanics, loot boxes are based on

“luck” as the player has a chance of acquiring highly coveted in-game items, however more often than not they will receive mundane items that hold little to no in-game value. These loot box monetization schemes often encompass other micro-transaction monetization schemes such as virtual currency as a means of purchase and better facilitate spend amongst players.

One major issue that arises from this is that a large core audience of the video game industry is comprised of minors. This, in conjunction with little to no regulations in place to monitor and control these monetization schemes, can result in rather significant and negative consequences. Let us refer to a real-world example of this:

A father, at the end of the month, checks his credit card bill and is surprised to find an amount of R5000 has been charged to his account by Electronic Arts. His first reaction is to think that this must be a mistake but goes to discuss the matter with his wife in case she may know more about this. The father finds his wife preparing dinner in the kitchen, with his twelve-year-old son sitting at the dining table. He begins to ask his wife about this irregular transaction that has gone through his account, when in the corner of his eye he sees his son quickly get up and scurry off to his room. The father then realized that this charge may not have been a mistake after all. The father found out that the charges were due to his son purchasing “Fifa Points”, a virtual currency found within the online video game franchise “Fifa”. His son had purchased these “Fifa Points” in order to acquire “Packs”, from within loot boxes, in order to try and get new football players for his virtual team.

When initially purchasing the game for his son, the father had provided his credit card details to facilitate the purchase. However, he was unaware that his credit card details were saved, and this allowed his son to make purchases without his knowledge. His son, who played online with and against his friends, was constantly competing to try and get better players so that he can be more competitive. Additionally, there are regular promotions that are launched that introduce new and better players into the game. This caused the son to purchase more and more “Packs” in the hope of acquiring these new players that will not only make him more competitive within the game but will also provide him with a level of prestige amongst his friends that also play.

The frightening thing about this situation is that it is not unique, and many minors fall victim to these in-game monetization schemes (Wood, 2020). Even more concerning is the fact that research has revealed that loot boxes can be a gateway to problem gambling (Uddin, 2021), and that minors are especially susceptible to the development of behavioural characteristics associated with problem gambling (Drummond and Sauer, 2018).

This is further exacerbated by the fact that, within most countries, there are little to no regulations that govern these predatory practices found within these monetization models. Whilst this brings into question the ethical nature of such practices when used against adults, the use of such methods that are marketed towards children surpasses the realms of ethics and becomes a legal issue (Allison, 2017).

There are limited social marketing interventions that drive awareness of help-services that are available for at-risk video gamers. Empirical evidence has revealed that messages of positive consequences acquired after help-seeking should be communicated in order to generate enduring behavioural change (King and Delfabbro, 2018; Sato et al., 2017). Previous scholars have established at-risk individuals acquiring professional help have an increase in self-esteem and initiate a higher probability towards regaining control over their impulses regarding problem video gaming. By seeking out professional help, at-risk video gamers identified the benefits such services can provide in improving their self-esteem, impulse control, and general well-being which resulted in a positive impact on these individuals' social influence (De Vos, Ilicic, Quester and Crouch., 2020). The perceived benefits of such professional service assistance greatly impact on at-risk individuals' motives to seek help within the identification and treatment of such disorders. The need for regulatory actions to be implemented towards the governance of these monetization schemes has become an important issue that needs to be addressed given the size and scope of the global video gaming industry (King and Delfabbro, 2018). Further research is required to gain a greater understanding of the gap between excessive in-game spending behaviour amongst certain individuals and individuals who may experience harm as a result of excessive engagement levels with video games.

1.6 Research Objectives

The following objectives are adopted for the study:

- To establish the effects in-game monetization schemes and the use of predatory marketing tactics have in enticing users into engaging with in-game spend.
- To examine the potential negative effects these predatory monetization schemes may have on users, especially those that display behavioural characteristics associated with video game addiction.
- To determine whether there is a positive relationship between video game addiction and excessive in-game spending amongst problem gamers.

1.7 Research Questions

- To what extent do predatory monetization schemes influence video game addiction in online video gaming?
- Is there is a positive relationship between video game addiction and excessive in-game spending?
- Do these predatory monetization schemes infringe upon consumer protection laws within South Africa, especially considering that a large part of target demographic comprises of minors?

Purpose of the Study

The purpose of this study is to determine the relationship between behavioural characteristics associated with video game addiction in conjunction with extended play time, and in-game expenditure. The study seeks to investigate whether there is a positive relationship between individuals that display behavioural symptoms of Internet Gaming Disorder and significant amounts of expenditure within their chosen video game in-game monetization models? Additionally, the study seeks to ascertain whether these video game monetization models, especially those that utilize “surprise” mechanics such as loot boxes, can be deemed predatory or gambling in nature and in need of additional regulations to be implemented to ensure higher levels of consumer protection?

1.8 Contribution of the Study

The contribution of the study is to further expand upon the notion that certain in-game monetization models found within video games can be classified as predatory and unethical. The study seeks to bring into question current regulations regarding these monetization models and whether or not they are sufficient in providing adequate consumer protection. This is further compounded by the fact that a large number of these consumers are minors who generally do not possess adequate cognitive capacities to make informed and rational decisions regarding these purchases.

Additionally, the study seeks to identify a positive relationship between video game addiction and significant in-game expenditure. Internet Gaming Disorder is a mental health concern that has emerged within recent years. With the massive influx of video games into modern-day society, so much so that it has become the largest form of entertainment, the risks of individuals developing behavioural characteristics associated with video game addiction is compounded significantly. When you exacerbate this with the fact that many AAA video game titles have in-game monetization models present within them, with many providing players with the ability to differentiate, assimilate and/or achieve a competitive advantage over other players, we can begin to identify the risks involved.

1.9 Delimitation of the Study

This study focuses on active video game players across various video game sourced through the online forums' website Reddit as well as through the University of the Witwatersrand students. The participants include only adults (eighteen years and older) and sources information from both male and female video gamers.

1.10 Definition of Key Terms

Terminology	Explanation
FOMO	Fear of missing out – a feeling of anxiety or stress a person feels when they feel that they are missing out on something important or enjoyable.
Gaming intention	The gamer's intention behind why individuals play video games.

Internet gaming disorder	Gamers display compulsive and persistent engagement with the problem activity, which results in a loss of interest in other activities.
Loot boxes	Loot boxes are in-game containers that contain randomized digital content that possesses varying degrees of value.
Micro-transactions	This relates to the purchase of gameplay relevant virtual items in exchange for real-life currency.
Predatory Monetization Schemes	Are schemes which involve in-game purchasing systems that disguise or withhold the true long-term of the activity until players are psychologically and/or committed.

Source: Self-developed based on the literature review.

Chapter 2: Literature Review

2.1 Introduction

This section the models and theories used within the development of the integrated framework of this study are discussed. Studies into video game monetization is a topic that is relatively new and therefore literature on the subject is relatively scarce. However, studies into this topic have found that there is a strong similarity between gambling, and more specifically slot-machine gambling, and specific video game monetization models/mechanics. This, compounded by the issue and prevalence of video game addiction, creates a risky and potentially harmful business model that can result in negative repercussions to consumers (players), both physically as well as their financial well-being. The conceptualisation of the proposed framework was derived from social marketing, psychology, sociology, and consumer behaviour theories. These theories include, the Components Model of Addiction, the Internet Gaming Disorder Theory, as well as the Uses and Gratifications Theory.

2.2 Video Gaming Industry

The video gaming industry is currently the largest form of entertainment globally, with an estimated 3.09 billion users worldwide (Exploding Topics, 2023). The annual revenue of the video gaming industry as of the end of 2023 is projected to reach US\$365.60 billion (Statista, 2023). The largest segment is that of mobile video gaming with an estimated market value of US\$315.90 billion as of 2023 (Statista, 2023).

2.3 Theoretical Grounding of the Study

Within the following section, five theoretical groundings of the study discussed in relation to the constructs that are present and relate to the study. These theories include The Components Model of Addiction; Internet Gaming Disorder; Use and Gratification Theory; Unified Theory of Acceptance and Use Technology 2; Self-Determination Theory.

2.3.1 Theory 1 – The Components Model of Addiction

Addictive behaviour can be defined as a repetitive habit pattern that increases the risk of disease and/or associated personal and social problems (Marlatt, Baer, Donovan, and Kivlahan, 1988). However, the conceptualization of addiction is a topic that has been heavily debated over the past decade. Within its original classification, addiction was primarily associated with substance abuse

such as drug ingestion (Griffiths, 2005). However, research has begun to include behavioural characteristics that can be seen as indicative of displaying addictive features. These behaviours often involve the subjective experience of impaired impulse control that persists irrespective of the individual's conscious efforts to abstain from the problem activity (Griffiths, 2005).

The development of the Components of Addiction Model (modified from Brown, 1993), Griffiths (2005) proposes a six-stage model that assists in the better identification and treatment of behavioural addiction. These stages include salience, mood modification, tolerance, withdrawal, conflict, and relapse. Griffiths (2008) contends that any behaviour, such as (e.g., video game playing) that which fulfils these six criteria is operationally defined as an addiction.

In accordance with this model, addictive behaviours can be identified as consisting of six key constructs:

1. Salience – this refers to a behaviour that takes precedence over all other activities within the individuals' life. This behaviour is often identified as preoccupancy and dependency upon this specific activity.
2. Mood modification – this refers to an individual's apparent alteration in mood to display heightened levels of engagement for the purpose of escape and/or arousal.
3. Tolerance – this refers to the perceived need an individual has to increase the frequency and duration by which they engage with the specific activity (e.g., playing video games) in order to achieve the desired result.
4. Withdrawal – these are symptoms that materialize within an individual, both physiologically and psychologically, as a result of discontinuation with the specific activity.
5. Conflict – this specific behavioural characteristic can be projected both inwardly towards oneself and outwardly towards the people that are close to the individual. This behaviour is thought to materialize due to an individual's continued engagement with a specific activity that is indicative of addiction.
6. Relapse – this refers to an individual reverting back to high levels of engagement with a specific activity after attempting to reduce or terminate engagement levels.

It is argued that for a behaviour or substance to be conceptualized as an addiction, all the above components need to be demonstrated (Kim and Hodgins, 2018).

2.3.2 Theory 2 – Internet Gaming Disorder

In video gaming, the notion referred to as Internet Gaming Disorder was first suggested by Soper and Miller (1983) through their observations as student counsellors, claiming the disorder displayed similar characteristics to that of other behavioural disorders in that individuals displayed compulsive and persistent engagement with the problem activity, which resulted in a loss of interest in other activities. Internet Gaming Disorder is currently classified as a unique mental disorder according to the American Psychiatric Association (APA) (American Psychiatric Association, 2022). In accordance with a study conducted by King and Delfabbro (2018), gambling, and more specifically slot-machine gambling, displays similar mechanics to that of Loot Boxes monetization models found within numerous AAA title video games. This can be seen as being highly problematic in that the video gaming industry is currently the largest form of entertainment media globally, with an estimated 21 percent of the global population being under that age of 18 years old (DataProt, 2022). Additionally, the accessibility and reach of such a medium, compounded by a severe lack of regulation within most countries, gives reason for concern when considering the high engagement levels and associated risks involved thereof.

Internet Gaming Disorder (IGD) is defined as a pattern of gaming behaviour characterized by impaired control over engagement with video games, increasing priority given to video games over other activities to the extent that engagement with video games takes precedence over other interests and daily activities (World Health Organization, 2023). In accordance with the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) published by the APA, there are nine constructs that are present within the diagnoses of an individual with IGD. These constructs are as follows:

1. High preoccupation with video gaming – this involves increased engagement levels and compulsive behaviour regarding engagement with video games.
2. Withdrawal symptoms – these are negative physiological and psychological responses and individual displays and experiences due to the termination or lessening of engagement with video gaming.
3. Increased tolerance to video gaming – this involves the need for an individual to increase engagement levels with video games in order to achieve the desired psychological response as previously experienced.

4. Unsuccessful attempts to reduce or terminate engagement with video gaming – this involves an individual returning to previous levels of engagement with video games as a result of relapse. This is a result of unsuccessful abstinence or reduction in engagement levels with video gaming.
5. Loss of interest in other activities – this is where an individual becomes so fixated with video gaming that external activities begin to be perceived as hindrances with regards to their engagement time with video games.
6. Excessive video gaming despite negative consequences - these are negative physiological and psychological consequences that materialize as a result of excessive levels of engagement with video gaming.
7. Deception of video gaming activities towards others – this involves an individual deceiving the people around them regarding their engagement levels with video gaming so as not to create concern and potential interventions that may compromise their ability to continue their current engagement with video gaming.
8. Use of video gaming as a means of escape from a negative mood - this involves an individual using and engaging with video gaming as a means of coping with external stressors. This can be seen as a form of escapism in that individual uses video gaming as a means to distract them from other issues.
9. Compromising relationships, educational and career opportunities – this is a result of excessive engagement levels with video gaming so-much-so that personal relationships and external responsibilities become secondary to playing video games.

2.3.3 Theory 3 - Use and Gratification Theory

Use and Gratification Theory (UGT) was developed by Katz and Blumler (1974) to better understand the reason behind people's motivations to engage with specific media types, the needs facilitating the use of such media, and how these media types satisfy these needs (Kasirye, 2022)? In its current form, the theory is reliant upon two specific suppositions with regards to media engagement:

1. Consumers are active participants in their choices to engage with specific media sources.
2. Consumers possess a higher degree of awareness with regards to the media types they decide to engage with.

The theory therefore acknowledges that consumers possess a high degree of autonomy with regards to the specific media types that they decide to engage with. Katz and Blumler (1974) expand upon this theory through the inclusion of specific needs that influence consumer decision-making regarding media, in this case online video gaming, which are affective needs, cognitive needs, interactive needs, integration needs, and escapism needs.

Relating specifically to video game engagement, the Video Game Uses and Gratification (VGUG) scale was developed to assess various motivations for playing video games (Bonny and Castaneda, 2022). The VGUG scale is comprised of six motivation constructs, namely:

1. Arousal – this involves engagement with video games as a form of stimulation. Through playing video games, the player experiences a perceived positive psychological response. It is through this positive response that the player is encouraged to continue playing.
2. Challenge – this involves video game play that provides a player with an objective(s) they wish to pursue and achieve. This provides the player with a sense of accomplishment and positively reinforces their engagement with video games.
3. Competition – this involves a player evaluating their skill within a specific video game against other real-world players. The incentivisation to not only be perceived as highly skilled, but furthermore ascertaining credibility and validation through their peers is often what drives this motivation.
4. Diversion – This is a form of escapism through an individual immersing themselves within the virtual reality of video games.
5. Fantasy - This allows the player to detach themselves from their real-life identity by establishing an entirely new persona through their online identity.
6. Social interaction – this refers to the social aspects found within most online video games. These features allow individuals to play and interact with other people, often creating select groups whereby these individuals establish a sense of belonging and inclusion.

Furthermore, it has been found that there is a positive relationship between engagement levels with video games and specific VGUG scales (Sherry et al., 2006). Therefore, the time spent playing video games, and more specifically online video games, has a direct impact on these motivational factors.

2.3.4 Theory 4 – Unified Theory of Acceptance and Use Technology 2

The original UTAUT model was established in 2003 by Venkatesh, Morris, Davis and Davis as a means by which to adequately determine and explain technology acceptance and utilization amongst employees of various organizations. Due to the major technological advancements since the implementation of the UTAUT model, there was the identification for the amendment of the model to include additional factors that can be used to examine technological acceptance and utilization amongst online consumers. Through these major advancements in technology, there has been a significant increase in online users and, in turn, online consumers. As of 2023, it is estimated that there are 2.64 billion online consumers worldwide which equates to 33.3% of the global population (Oberlo, 2023).

Therefore, in 2012, the UTAUT model was extended to better examine technology acceptance and adoption amongst consumers. This model includes an additional three constructs which facilitates a better understanding of technology acceptance and utilization amongst consumers. These constructs include:

1. Hedonic Motivation.
2. Price Value.
3. Habit.

It is through the inclusion of these additional constructs that researchers are able to gain greater insight into factors that influence technology acceptance and use amongst online consumers.

2.3.5 Theory 5 – Self-Determination Theory

Social-Determination Theory (SDT) was developed by Richard Ryan and Edward Deci (2003) as a way to better understand human motivation through the interrogation of specific factors that directly impact upon these motivations. SDT can be defined as an approach to human motivation and personality that uses traditional empirical methods while employing an organismic metatheory that highlights the importance of humans evolved inner resources for personality development and behavioural self-regulation (Ryan, Kuhl, and Deci, 1997). The theory identifies three psychological needs that are deemed essential within the facilitation of optimal psychological functionality that stimulate growth and integration, thereby achieving and maintaining healthy social development and well-being. These needs are as follows:

1. Competence.
2. Relatedness.
3. Autonomy.

SDT investigates human motivation from two key perspectives, namely intrinsic motivation, and extrinsic motivation. Intrinsic motivation refers to an individual's self-reflective capabilities that determine their inherent tendency to assimilate, master, display spontaneous interest, and explore, even in the absence of reward (Deci et al., 2003). It is important to note this notion of reward, as this can be considered a driving factor within an individual's motivation. However, it is argued that, even though intrinsic motivation can be considered inherent, it is necessary to support and maintain in order to achieve a healthy propensity of motivation.

This then introduces the notion on extrinsic motivation and the potential impact it may have upon individuals' motivational propensity. Even though it is argued that we as human beings are born with an inherent degree of intrinsic motivation, it is necessary to cultivate this motivation through support from external factors. These external factors are referred to as extrinsic motivations and can be seen as external influences (motivation) that have a direct impact on an individual's intrinsic motivation. Deci et al. (2003) argues that environmental factors can either facilitate or undermine intrinsic motivation.

This then brings us back to the three psychological needs that are essential within an individual's psychological growth and overall mental well-being. When these needs are met, an individual is more likely to be intrinsically motivated. However, let's look at each of these specific needs and their impact upon individuals' motivational capacities:

1. Competence – when an individual shows an elevated degree of competency within an activity that they participate in, which is often identified and reinforced through acknowledgement and/or comparison with others, they are more likely to maintain a high level of intrinsic motivation towards that activity.
2. Relatedness – it is hypothesized within SDT that intrinsic motivation is more likely to flourish under conditions whereby an individual experiences a sense of security and relatedness (Deci et al., 2003). This involves the encouragement and validation of others within the activities individuals perform. It is through this that individual's intrinsic motivation is supported and in turn improved.

3. Autonomy – this can be seen as an individual’s ability to understand and interpret the goals and values associated with a specific activity in order to gauge the alignment with the individual’s own goals and values. SDT argues that the higher the degree of autonomy, the higher the probability of internalization of a specific activity (extrinsic motivation). Through this internalization of an extrinsic motivation, the higher probability that these specific activities will shift towards an intrinsic motivation.

However, it is important to note that extrinsic rewards can undermine intrinsic motivation (Deci et al., 2003). This has a direct impact on an individual’s autonomy as the reward becomes the driving factors within an individual’s motivation. The implications thereof are often negative as there is diminished autonomy. Therefore, in order for an extrinsic motivation to be internalized and integrated, the social conditions associated with a specific activity need to be supportive of the three psychological factors outlined within SDT. It is only through the satisfaction of all three of these psychological needs that integration can be achieved, thereby facilitating, and maintaining a psychological well-being.

2.4 Empirical Literature

2.4.1 Predatory monetization schemes

Studies into video gaming monetization is a topic that is relatively new and therefore literature on the subject is relatively scarce. However, the limited studies into this topic have drawn a major focus upon in-game monetization and their similarities with that of gambling. One specific in-game monetization model that has drawn significant similarities to that of slot machine gambling is that of “loot boxes”. Loot boxes are items in video games that can be paid for with real-world money and contain randomized contents (Zendle and Cairns, 2018). Within a study conducted by Zendle et al. (2018), an online survey was conducted via the online website Reddit. This study was targeted towards individuals in various gaming communities who were eighteen years or older and was only available in English. Demographic details along with quantitative data of problem gambling, loot box spending, and other micro-transaction spending was collected and analysed using the following measures:

- Problem Gambling Severity Index (PGSI).
- Kruskal Wallis H Test.
- Mann-Whitney U tests.

- Bonferroni corrections.

The results of this study suggest that there is an important relationship between problem gambling and the use of loot boxes (Zendle et al., 2018). The higher the degree of problem gambling identifiers that were present within an individual, the more money that individual spent on loot box purchases.

In a study conducted into the predatory monetization schemes within video games, King and Delfabbro (2018) expanded upon this relationship between gambling and in-game monetization, specifically loot boxes. Due to the established relationship between gambling and video game monetization models, the authors propose a need for regulations of these models, specifically targeting loot boxes. The study identifies the various risk factors associated with these in-game monetization mechanics, and even goes so far as to speculate that these in-game monetization models may offer a pathway to gambling, albeit that more research is necessary to create a more conclusive relationship.

The purpose of this study was to consider some potential candidate measures adapted and modified from the literature on gambling (King et al., 2018). The study conducted a qualitative analysis divided into four main sections:

1. Game design and in-game purchasing systems.
2. Transparency and accuracy of monetization systems.
3. Consumer protection measures.
4. Consumer information and industry accountability.

Through this, the study proposes measures that should be implemented within the regulation of these video game monetization models. Due to the strong similarity these models, specifically “loot boxes”, have with slot machine gambling, this will help ensure higher degrees of consumer protection and decrease the possibility of exploitative business practices found in a large majority of these in-game monetization models. The study illustrates certain aspects of gambling regulatory frameworks that can be adapted to regulate online gaming products (King et al. 2018).

In a more recent study conducted into the exploitative monetization services within video games, King, Delfabbro, Gainsbury, Dreier, Greer and Billieux (2019) conducted a qualitative analysis of patents of potential in-game purchasing systems. The purpose of this study was to gain a greater

understanding of how these systems are designed to encourage in-game purchasing, and to identify whether these monetization models can be classified as unfair or exploitative. Through this study, a greater understanding as to the need for regulatory measure to be implemented to better ensure higher levels of consumer protection can be deduced.

The study provides a critical analysis of monetization within video games from the perspective of consumer protection, behavioural economics, and the psychology of problem gambling behaviour (King et al., 2019). Within the study the evaluation of thirteen patents was conducted and a summary of each was created using the following characteristics:

- Registration details.
- Assignee.
- Title of the patent.
- Description of features.
- Player perspective.
- Sales method.

Through this qualitative analysis and summary, the study found that there are issues relating to consumer protection (in accordance with the Australian consumer protection act) and in-game purchase options. The study illustrated some of the complexities associated with evaluating virtual goods against some consumer protection measures (King et al., 2019). The results of the study suggest that there are features present within in-game monetization models that can be considered unfair towards consumers. Due to this, the study suggests that regulations pertaining to these video game monetization models are necessary to increase consumer protection.

2.4.2 Fear of missing out (FOMO)

Over the past two decades, there has been rapid and significant advancements in technology. With the desktop computer becoming a mainstay within most households came an upsurge in video games. Further compounding this was the introduction of the internet which allowed for video games to be played amongst other people online. With this increase in accessibility and engagement with video games came increasing amounts of individuals (players) that began to display behavioural characteristics associated with addiction (Li, Griffiths, Mei and Niu, 2021).

These concerns were the catalyst within the IGD model by which individuals suffering from varying degrees of video game addiction can be diagnosed and treated accordingly.

However, certain studies have begun to investigate the notion of “fear of missing out” (FOMO) within video games, which has already been positively associated with excessive social media use (Li et al., 2021). Through the implementation of the Interaction of Person-Affect-Cognition-Execution (I-PACE) model, which is used to describe psychological and neurobiological processes of addictive behaviour (Brand, Wegmann, Stark, Muller, Wolfling, Robbins and Potenza, 2019), the establishment of FOMO association with impulsivity and IGD was better understood. Li et al. (2021) argues that there is a strong relationship between FOMO and anxiety, with anxiety being an established predictor for IGD. Additionally, a further argument is made that FOMO may be a stimulus for impulsivity, especially within consumption activities.

Self-Determination Theory (SDT) investigates human motivations through the identification and satisfaction of three psychological needs, namely competence (Harter, 1978; White, 1963), relatedness (Baumeister and Leary, 1995; Reis, 1994), and autonomy (deCharms, 1968; Deci, 1975). This theory argues that a person’s environment has a significant role upon their motivational behaviour. These types of motivations are referred to as extrinsic motivation (Deci and Ryan, 2000) and are motivations brought on by external influences that may have a direct impact on individuals’ motivations. Deci et al. (2000) argues that the lower the degree of autonomy present within an extrinsically motivated activity, the more these behaviours are done in order to comply and satisfy external demands/contingencies. However, issues may arise when extrinsic rewards begin to undermine intrinsic motivation, thereby creating a degree of dissatisfaction of one or all the psychological needs outlined. This dissatisfaction may result in numerous negative consequences, both physiologically and psychologically. Ryan, Plant and O’Malley (1995) argue that conflict between these basic psychological needs facilitate conditions for alienation and psychopathology. According to a study by Kim, Lee and Kim (2020), FOMO is an extrinsic motivation.

Impulsivity is considered as a consequence of neuropsychological impairments in executive functions and attention processes (Şalvarlı and Griffiths, 2019). The issue that arises from this psychological impairment is that this has a direct impact on an individual’s autonomy, which is one of the basic psychological needs that is necessary to be satisfied in order to achieve and

maintain integrity and well-being. This becomes concerning within the strong relation of FOMO to that of impulsivity. In fact, within the study conducted by Li et al (2021), a positive relationship between FOMO and impulsivity was established. Similarly, it was further established that higher degrees of FOMO often result in increased impulsive behaviour. With both an increased experience of FOMO in conjunction with greater impulsivity, the probability of the development of IGD behavioural characteristics are increased.

2.4.3 Online impulse buying

With the ever-increasing expansion in online purchasing options, coupled with a major shift within consumers purchasing behaviours towards online, creates an environment where people are able to buy almost anything they want with just a click of a mouse button. However, with such ease of access comes issues pertaining to customers' purchasing behaviours. There are numerous facets of online purchasing behaviour that have become concerning and in need of greater attention.

In a study conducted by Karbasivar and Yarahmadi (2011) they seek to evaluate the effective factors that influence consumer impulse buying behaviour. The research sought out to examine four external factors and their roles within impulse buying behaviour, namely:

1. Window display.
2. Credit card.
3. Promotional activities.
4. Consumer impulse buying behaviour.

Within its findings, the study proves that there are positive relationships between these four factors and they all play a significant role within the facilitation of impulse buying behaviour within consumers. But what is impulse buying and why is it so concerning?

Impulse buying can be defined as a purchasing behaviour that occurs when a consumer experiences a sudden, often powerful, and persistent urge to buy something immediately (Karbasivar et al., 2011). This type of purchase behaviour is driven by an emotional response whereby the urge to buy within the consumer over-rides the potential consequences thereof. This can become highly problematic in that consumers can, through the use of credit facilities such as credit card, purchase items using borrowed funds where the consumer does not possess the financial capabilities to repay

thereafter. Rook and Hock (1987), albeit prior to online purchasing became an option, identified five elements present within impulsive buying behaviour:

1. Spontaneous desire to act.
2. A state of psychological disequilibrium.
3. The onset of psychological conflicts.
4. A reduction in cognitive evaluation.
5. A heightened disregard for consequences.

These elements can be applied to online impulsive buying as, even though the means by which people consume/purchase has changed, the fundamental behaviour has not. In fact, it can be argued that this has only become more of an issue due to the ease of access these online purchasing options provide.

Badgaiyan and Verma (2014) expand upon this notion of impulse buying by introducing their nine situational variables model that can be used to explore the affects they have on impulse buying behaviour. These nine situational variables are as follows:

1. Money availability.
2. Economic well-being.
3. Family influence.
4. Time availability.
5. Credit card use.
6. Sales promotions.
7. Store environment.
8. Friendly store employees.
9. Store music (ambience).

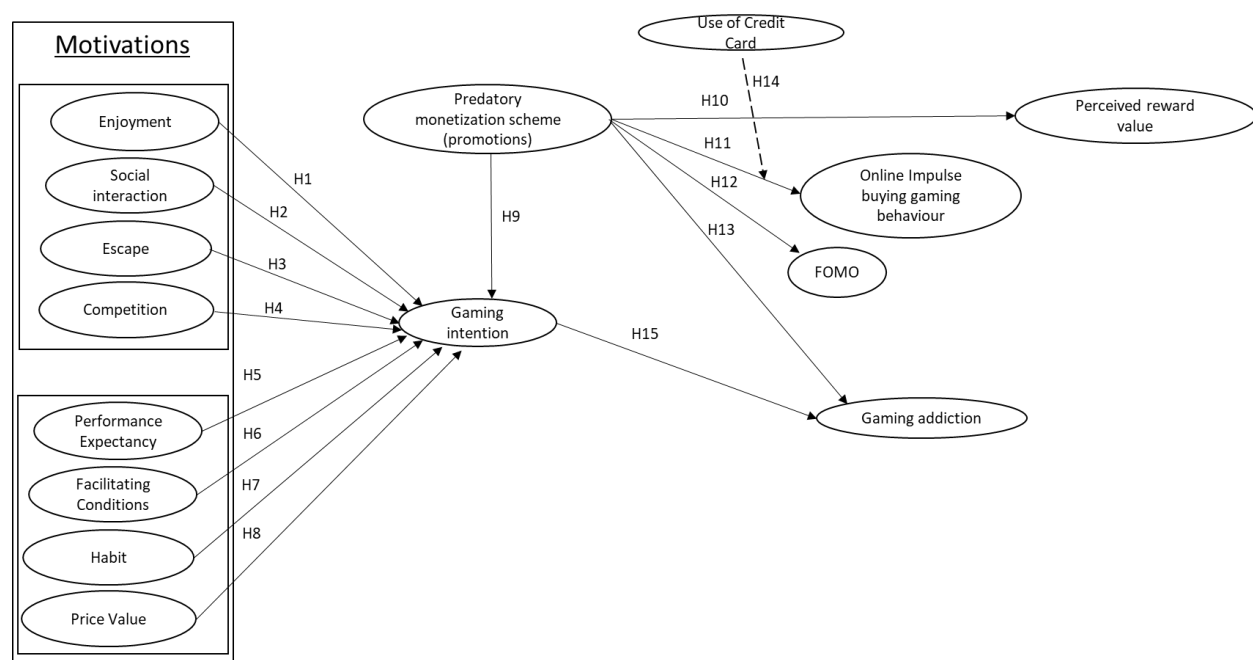
Variables six through nine relate directly to in-store, however these can be adapted to online environments as the tactics used within the facilitation of sales are similar, if not more aggressive.

2.5 Conceptual Model and Hypotheses Development

2.5.1 Conceptual Framework

The conceptual model (Figure 2) proposes that predatory monetization schemes could influence the relationship between video gaming motivations and intention. The model also suggests that predatory monetization schemes could influence various outcomes which could lead to video gaming addiction and as a result lead to negative outcomes. The constructs of the study's proposed conceptual model in Figure 1 will be adapted/adopted as follows: Enjoyment, Social Interaction, Escape, Competition (Kasirye, 2022); Performance Expectancy, Facilitating Conditions, Habit, Price Value (Venkatesh, 2012); Gaming intention (Venkatesh et al., 2003); Predatory monetization scheme (Badgaiyan and Verma, 2015); FOMO, Online impulse buying gaming behaviour, Perceived reward value (Ryan and Deci, 2000, 2017); Gaming addiction (Soper and Miller, 1983); Use of credit card (Badgaiyan and Verma, 2015); Loneliness, Depression, Social anxiety, Self-esteem (Griffiths, 2005).

Figure 2: Conceptual Model



Source: Own construction: 2023

2.5.2 Hypothesis Development

2.5.2.1 Motivations and gaming intention

Gaming intention is a major factor within the analysis of this study. The intentions behind why individuals play video games are important in order to gain a greater understanding into these various motivations and the impact they have. In accordance with constructs deriving from both the Uses and Gratification Theory (Katz et al., 1974) and the UTAUT 2 model (Venkatesh et al., 2012), this study will further validate the relationships between various motivational factors that influence gaming intention.

Uses and Gratification Theory constructs.

H1: Enjoyment and Gaming Intention

H2: Social interaction and Gaming Intention

H3: Escapism and Gaming Intention

H4: Competition and Gaming Intention

UTAUT 2 constructs

H5: Performance expectancy and Gaming Intention

H6: Facilitating conditions and Gaming Intention

H7: Habit and Gaming Intention

H8: Price value and Gaming Intention

2.5.2.2 Gaming intention and predatory monetization schemes

Gaming intention is a complex and multifaceted construct that can be influenced by numerous factors that can be seen as facilitators of video game play. However, irrespective of the particular factors influencing an individual's intention to engage with video games, the end result is the same. In accordance with the UTAUT model (Venkatesh et al., 2003), behavioural intention is referred to the strength of intention to perform a behaviour (activity) has a direct influence on the likelihood of an individual performing that behaviour (activity). Therefore, when applied to video game engagement, the stronger the behavioural (gaming) intention to engage with video games, the higher the probability of that engagement.

Video games, unlike other forms of entertainment media, are inherently more immersive because of their interactivity which allows players to actively shape their own experiences (Digital, Culture, Media and Sport—House of Commons, 2019). The issue that arises from this is that the potential for abuse through the introduction of monetization schemes found within a large number of video games is substantial. Within a study by Zendle and Petrovskaya (2021) the identification of the convergence of video games and gambling is a very real possibility. This is due to the immersive nature of video games, coupled with intentional design elements found within some games that actively encourage spending. Compound this with the technological capabilities of information asymmetry present with a large number of these video game systems, and what results is a very concerning and potentially exploitative situation for consumers of these products.

Moreover, when considering that gaming intention has a positive influence on engagement levels within video games, we can begin to identify the possible issues that may arise from this. When gaming intention is high, the probability of engagement is increased which in-turn increases individuals' exposure levels to these monetization schemes. With these increased levels of exposure to these monetization schemes within some video games, the higher the probability of engagement with these in-game purchasing options.

The adverse can also be seen as true in that, through certain offerings found within these monetization schemes, players are afforded certain advantages within these specific games. These advantages can come in different forms, but all allow a player to achieve an advantage over other players that do not participate within these monetization schemes. Through these advantages, gaming intention is increased as the player is incentivised to engage with the particular game(s) more often and for longer durations. Therefore, from this the following hypothesis statement can be deduced:

H9: Predatory monetization schemes have a positive influence on gaming intention.

2.5.2.3 Predatory monetization and perceived rewards

Predatory monetization can be referred to as schemes which involve in-game purchasing systems that disguise or withhold the true long-term cost of the activity until players are psychologically and/or financially committed (Zendle et al., 2021). These monetization schemes often involve the purchase of in-game items which involve “surprise mechanics” much like electronic gambling machines. These mechanics are referred to as “loot boxes” and can be defined as in-game reward

systems that can be purchased repeatedly with real-world money to obtain a random selection of virtual items (King and Delfabbro, 2018). These systems involve the use of real-world money to purchase a virtual container that contains a random selection of virtual items that are unknown to the consumer (player). These mechanics introduce a high degree of chance within the player's ability to acquire a virtual item(s) that possess in-game value. It is through these "luck" mechanics that consumers (players) are persistently trying to acquire sought-after virtual items, much like consumers that spend real money on slot machines in hopes of winning.

The concerning aspect of these loot boxes is that they are often void of any government-imposed regulations, unlike gambling. However, they share very similar characteristics to that of slot-machine gambling mechanics and are often targeted towards minors. Therefore, the following hypothesis statement can be deduced:

H10: Predatory monetization schemes have a positive relationship with perceived rewards.

2.5.2.4 Predatory monetization schemes and online impulse buying

Impulse buying behaviour is often associated with a loss of cognitive willpower by the consumer. This is not to say that the consumer is not aware of or able to engage on a cognitive level, but rather that the impulse to buy/spend overcomes their cognitive willpower (Karbasivar et al., 2011). Rook and Fisher (1995) argue that impulse buying is stimulus driven, and increased exposure to certain external stimuli increases the likelihood of impulse buying (Lyer, 1989). Deci et al. (2000) argue that autonomy is one of three essential psychological needs that must be satisfied in order to achieve and maintain personal well-being. Therefore, through a diminishment of autonomy associated with impulse buying behaviour, individuals will also experience a decline within their personal well-being, be it psychologically, physiologically, or both.

Therefore, due to the interactive nature of video games, compounded by in-game monetization schemes found within a number of these video game titles, the probability of prolonged exposure to such stimuli is greatly increased. It is through this prolonged and often continuous exposure to such stimuli, in this case in-game monetization schemes, that the following hypothesis statement can be derived:

H11: There is positive relationship between predatory monetization schemes and online impulse buying behaviour.

2.5.2.5 Predatory monetization schemes and FOMO

Much like that of impulsive buying behaviour, FOMO also pertains to a loss of autonomy that leads towards impulsivity as a consequence of neuropsychological impairments (Li et al., 2020). FOMO can be described as a pervasive apprehension that others might be having rewarding experiences from which one is absent (Przybylski, Murayama, DeHaan and Gladwell, 2013). Therefore, there is a positive relationship between impulsive buying behaviour and FOMO in that both involve the loss of autonomy within consumers' decision-making.

Predatory monetization schemes often utilize manipulative marketing strategies in order to encourage spending amongst consumers. These tactics often involve the engagement of what is referred to as “fast thinking” (Kahneman, 2011), whereby the cognitive state of thinking is bypassed, and varying degrees of impulsivity is introduced into consumers purchasing decision-making. It is through this introduction of impulsivity brought on by various marketing tactics, one of which is the facilitation of FOMO, that consumers begin to display impulsive buying behaviours. It is through this that the following hypothesis statement can be inferred:

H12: There is a positive relationship between predatory monetization schemes and FOMO.

2.5.2.6 Predatory monetization schemes and gaming addiction

Video game addiction is a mental health disorder that is now classified as a unique mental disorder according to the American Psychiatric Association (APA) (American Psychiatric Association, 2022). The disorder is seen as following similar behavioural characteristics to that of other addictive personality disorders, in that individuals display symptoms of compulsivity and continue engagement which results in a loss of autonomy and overall personal well-being. IGD is defined as a pattern of gaming behaviour characterized by impaired control over engagement with video games, increasing priority given to video games over other activities to the extent that engagement with video games takes precedence over other interests and daily activities (World Health Organization, 2023). Much like that of impulse buying behaviour and FOMO, gaming addiction involves a loss in autonomy whereby the player places a significant emphasis on the problem activities, so much so that it negatively affects other areas within the individual's life which results in a loss of personal well-being.

Through the positive relationships established between predatory monetization schemes, impulsive buying behaviour and FOMO, and how these factors often result in a loss of autonomy

within the consumer, we can begin to establish a link between predatory monetization and gaming addiction. It is argued that individuals' that display behavioural characteristics associated with gaming addiction, with one of the diagnosing constructs in accordance with IGD model is high preoccupancy with video games. This involves increased engagement levels and compulsivity with regards to video gaming activities. This can become highly problematic when the video game(s) being played by an individual who is suffering from gaming addiction have predatory monetization schemes present within them. It has already been established that, through the loss in autonomy, an individual suffering from gaming disorder will experience increased engagement and compulsivity towards their chosen video games. When you introduce predatory monetization schemes into a situation that is already detrimental to an individual's personal well-being, the issue is only further compounded. It has been established that increased exposure to external stimuli, in this case predatory monetization schemes within video games, increases the probability of engagement with these stimuli. Within an already volatile and problematic situation that is negatively affecting the individual's personal well-being (gaming addiction), by introducing an external stimulus (predatory monetization schemes), especially one regarding real-world money, is creating a boiling pot that can result in significant problems.

Therefore, the following hypothesis statement can be deduced:

H13: There is a positive relationship between predatory monetization schemes and gaming addiction.

2.5.2.7 Use of Credit Card as a moderator for Predatory Monetization Scheme and Online Impulse Buying

In accordance with the theory of reasoned action, human social behaviour follows reasonably and often spontaneously from the information or beliefs people possess about the behaviour under consideration (Fishbein and Ajzen, 1975). The theory suggests that people are usually quite systematic and reasonable within their use and interpretation of accessible information. However, there has been criticism directed towards this theory within its incapacities to account for impulsive and spontaneous behaviours (Hale, Householder & Greene, 2002).

As discussed in a preceding section, online impulse buying is often attributed to diminished autonomy within consumers buying behaviour. This loss of autonomy is seen to be influenced by substantial exposure to external stimuli which in turn have a positive influence upon the induction

of impulsivity within consumer buying behaviour (Lyer, 1989). Badgaiyan and Verma (2014) argue that money availability has a positive impact upon impulse buying behaviour, whereby money availability is considered a facilitator for impulsive buying behaviour. Additionally, Badgaiyan et al. (2014) expands upon this by suggesting that the use of credit card has a positive impact upon impulsive buying behaviour. Through the access to credit facilities such as credit cards, consumers are provided access to monetary funds that they may not actually possess. It is through this access to money that consumers are provided the ability to purchase goods/services that they may not otherwise be able to afford. In accordance with Badgaiyan et al. (2014), money availability is considered a facilitator for impulsive buying behaviour and impulse buying. Therefore, credit cards provide consumers access to money that they may not usually have, providing them with the ability to make purchases they would otherwise not be able to afford. Soman (2001) suggests that those who used credit cards usually made extra purchases and also tended to spend over their means.

When combining this access to money (use of credit card) with the predatory monetization schemes found within many online video game titles, the probability of impulsive buying is increased significantly amongst consumers who engage with these in-game purchasing options.

H14: Use of Credit Card moderates the relationship between Predatory Monetization Scheme and Online Impulse Buying.

2.5.2.8 Gaming intentions and gaming addiction

Gaming intention can be viewed as the motivation behind why an individual engages with video games. Motivation can range from wholesome, whereby individuals engage with video games on a recreational level as a form of controlled entertainment, all the way to highly problematic, whereby individuals' display compulsivity within their behaviour towards video game play which results in diminished autonomy and a loss in personal well-being.

When looking at gaming addiction and its definition, it becomes apparent that the behavioural characteristics associated with this disorder display high levels of compulsivity that sometimes borders upon obsession. Video games become the primary focus within individuals suffering from gaming addiction, so-much-so that other activities within their lives take a backseat to playing video games. The act of playing video games becomes habitual, whereby the player develops a positive view towards video game engagement and an associated behavioural intention (Venkatesh

et al., 2012). This intention is then stored within the conscious mind of the player, making it easier to access the more an individual engages with it. This is further reinforced by repeat performance of a behaviour/activity which produces habituation and behaviour can be activated directly by stimulus cues (Ouellette and Wood 1998; Ronis et al. 1989; Verplanken et al., 1998).

This then brings us back to gaming addiction and the compulsivity associated with these behavioural characteristics. This compulsivity has a direct impact upon an individual's intent to engage with video games due to the habitual nature that has been developed. These gaming intentions, though often are understood to be detrimental by the player, override cognitive thought and are driven by emotional responses whereby the urge to play video games veto the potential ramifications of these behavioural actions. Therefore, the following hypothesis can be formulated in accordance with the relevant literature:

H15: There is a positive relationship between gaming intentions and gaming addiction.

Chapter 3: Research Methodology

3.1 Introduction

The postulation for the proposed conceptual model was derived from theories grounded in the fields of social marketing, psychology, sociology, and consumer behaviour. During the development of the conceptual framework, extensive research was conducted through the revision of secondary sources in the form of accredited journal articles. The primary database used within the acquisition of information was Google Scholar, and the keywords used within the search process was video gaming, video game addiction, predatory monetization, loot boxes; problem gambling, micro-transactions, and free-to-play. This facilitated the acquisition of literature that is relevant to the study and aided in the development of the proposed conceptual model.

In this chapter, a detailed synopsis of the research methodology that is utilised within this research report is examined and explained in order to answer the research questions that have been proposed. According to Sarantakos (1998), methodology can be defined as the theoretical principles and framework that defines the guidelines of how the research is to be conducted in accordance with a specific paradigm(s). Sarantakos (1998) further expands upon this by stating that the aim of a methodology is to interpret and explain the rules of a paradigm so as to make it more understandable and, in doing so, illustrate how certain complexities within the world can be more easily explained. It is therefore imperative an appropriate and relevant methodology is selected and utilized to best answer the proposed research questions outlined within a specific study.

This chapter outlines the agenda of this study through the definition and explanation of the research paradigms, research design, research procedures and the limitations of the study. Furthermore, within this chapter, the implementation of validity and reliability measures are applied in order to test the hypotheses pertaining to the research questions posed within this study. Three objectives are outlined within this chapter, namely:

1. The identification and description of the research strategy, the research design and the procedures and methods utilized.
2. The description of the reliability and validity measures applied within this study in order to ascertain credibility of the study.

3. Outline and discuss the limitations within the research process and methods utilized.

3.2 Research Paradigm

According to Cohen, Manion and Morrison (2013), a research paradigm refers to the philosophical intent or motivation for conducting a study. This definition stems from the premise that the research paradigm ultimately guides the choice of research strategy and how data will be collected and analysed (Collis and Hussey, 2009).

There are three primary research paradigms that have been identified within the process of transforming information from a state of belief to that which is known. These three primary philosophies are that of positivism, constructivism, and realist (Wainwright, 1997). These philosophies comprise of three approaches, namely quantitative, qualitative, and the mixed method approach.

Positivism

Positivists believe that reality is stable and can be observed and described from an objective viewpoint (Levin, 1988). This research methodology is built upon the premise of verification of prior-hypotheses through the establishment of relationships between specific variables by means of specific measures. The results of these measures are used to inform, validate, and advance specific hypothesis through quantitative approaches. This involves the testing of relationships between independent and dependant variables to deduce whether a hypothesis can be accepted. A primary goal of the positivist approach is to generate positive relationships between specific variables in order to better predict and control the outcomes of the phenomenon in question (Park, Konge and Artino, 2020).

Constructivism

Constructionism focuses on the firm belief that there is in practice neither objective reality nor objective truth. On the contrary, reality is constructed. According to this view, meaning is not fixed, ready to be discovered – as objectivist propose – but meaning emerges out of people's interaction with the world. "Meanings do not exist before a mind engages them. There is no meaning without mind" (Cooper, 1998; pg. 8-9).

Realism

The premise of this research paradigm is to observe phenomena void of sensory interference that is available to the means of the researcher and theoretical opinions. Realism infers that the analysis that is conducted through scientific investigation essentially signifies real objects within a natural world/environment (Bryman, 2012).

Below is a table that details the key features of each of the three paradigms:

Table 1: Three paradigms

Positivist	Constructivist	Realist
The study is free from the researcher's bias.	The researchers interact directly with the respondents to obtain data.	It comprises multifaceted perceptions about an independent reality.
Knowledge is discovered and confirmed using exact observations.	Knowledge is verified through the meanings ascribed to the phenomenon.	Cognizant of the values of human systems.
Facts are established by deconstructing the phenomenon into different components for ease of assessments.	Inquiry changes both researcher and subject.	Social conditioning plays a pivotal role in people's acquisition of knowledge.

It advocates that researchers must be unbiased and emotionally detached from the research subjects.	Knowledge is context and time dependent.	It advocates the use of the approach that is appropriate for the research topic and level of existing knowledge pertaining to it.
It has relevance to quantitative studies.	It has relevance to qualitative studies.	The research topic must be the determining factor.

Source: (Krauss, 2005)

In this study, this positivist research philosophy has been used to test and validate specific hypothesis. Using a quantitative approach, and more specifically structural equation modelling (SEM), relationships between specific variables will be established. SEM is a set of statistical techniques used to measure and analyse the relationships of observed and latent variables (BMC, 2010). Positivism contends that reality is tentative, and propositions used to explain the nature of reality can either be confirmed or falsified by sample data (Bell, Harley and Bryman, 2022). Through the use of a positivist research philosophy, the study tested the hypothesized relationships outlined within the conceptual model.

Expanding upon this, inductive and deductive approaches are utilized to further this research paradigm. The deductive approach involves the formulation of specific hypothesis based upon previous literature of the topic. Thereafter, this study attempts to test these hypotheses to establish whether each relationship can be accepted. Positivism adheres to the view that the social world may be understood in an objective way through dissociation from personal biases within the analysis. In this study, a deductive approach was utilized to complement the positivist research philosophy used within the research component of this study.

3.3 Research Strategy

According to Johannesson and Perjons (2014), a research strategy guides a researcher in planning, executing, and monitoring the study. It can be seen as the way in which the researcher decides to carry out the research process and involves a variety of techniques and processes within the collection, analysis and interpretation of data pertaining to the study (Creswell, 2013). There are

three primary research strategies that can be deployed within the collection and analysis of data, namely, quantitative, qualitative, and mixed-method approach.

Quantitative/rationalistic and qualitative/naturalistic approaches differ substantially at the paradigm level (Hameed, 2020), with quantitative research placing a major emphasis on numerical values within the collection and analysis of data compared to qualitative research being more holistic within the collection of data, focusing on smaller but more intimate sample sizes.

Below is a table illustrating the key differences between quantitative and qualitative research methods:

Table 2: Quantitative vs qualitative research methods

Subject	Quantitative	Qualitative
Reality	Tangible, fragmentable	Multiple, holistic, intangible
Researcher-subject relationship	Independent	Interrelated
Nature of truth statements	Context-free generalizations	Context-specific hypotheses
Explanation of action	Real causes, manipulable	Interactive, non-manipulable
Relation of values to inquiry	Value-free	Value-bound

Source: Hameed, 2020

The mixed method approach is when researchers collect and analyse both quantitative and qualitative data within the same study (Becker, Bryman and Ferguson, 2012).

3.3.1 Data Collection Methods

There are numerous methods, both within quantitative and qualitative research, by which the collection of data is conducted. Below is a brief synopsis of the various methods made available to researchers:

Focus Groups: this entails the researcher asking a series of questions to a group of participants (between five and fifteen people), usually overseen by a moderator, pertaining to the specific research topic being investigated. A major emphasis is placed upon the group discussion whereby the creation of a joint meaning is established and investigated (Becker, Bryman and Ferguson, 2012).

Interviews: this involves a person, namely the interviewer, asking a series of questions relating to the research topic being investigated. Interviews can be conducted in three forms, namely structured, unstructured, and semi-structured.

A structured interview follows an interview guide that covers the exact wording and sequence of all questions to be asked (Wagner, Kawulich and Garner, 2012). In this instance, all respondents are asked similar questions, following the same order using a formal interview schedule (Becker, Bryman and Ferguson, 2012).

Semi-structured interviews follow a similar structure to that of structured interviews in that they follow an interview guide, however there is a degree of flexibility that is afforded to matters outside the bounds of this structure but that are still relevant to the study (Becker, Bryman and Ferguson, 2012).

Structured observation: this is the “method of watching what is happening in a social setting that is highly organised and follows systematic rules for observation and documentation” (Neuman, 2014, p.374). To ensure efficiency within the results, an observation guide is employed to ensure data collection is organized and relevant to the specific phenomena being investigated.

Questionnaire: this is a document comprised of a series of questions that are distributed to respondents in order to acquire structured numerical data. This data can be managed in the absence of the researcher and is relatively simple to analyse (Becker et al., 2012). Within the issuance of the questionnaire, it is imperative that meticulous attention is placed upon the structure and content of the document (questionnaire design) as this is likely to affect validity and reliability of the results (Wagner et al., 2012).

3.3.2 Research strategy for the current study

In this study, the utilization of a quantitative research approach is employed.

3.3.3 Justification for using quantitative research method

A pure quantitative study is based on numerical data and is guided by specific statistical rules, focusing on inference, standardization, hypotheses testing, and statistical analysis based upon established constructs present within a study. A quantitative research methodology was selected due its reductive capabilities of simplifying a complex problem into specific constructs that can

then be tested within a more controlled setting. Within the current study, constructs are established to investigate the potential relationships between online video game addiction and predatory monetization schemes found within many current-day video game titles. Due to the complexity of the subject matter being investigated within this study, a rather detailed and extensive conceptual model comprising of a number of constructs was established in order to ensure a more concise and comprehensive analysis. Mulisa (2021) states that quantitative research is appropriate to use when a researcher is interested in problems that have been specified in a set of constructs and a baseline has been developed. Hence, why the employment of a quantitative research methodology was beneficial within this study as it provides the researcher with the ability to measure and analyse numerical data in order to test and confirm relationships between the specific constructs of the study and in-turn to establish cause and effect (Becker et al., 2012).

Quantitative research is essentially characterized by strengths such as testing hypotheses and theories, generalizable findings, measuring the cause-effect relationship, predicting one variable from others, the ability to remove confounding variables, lessening researcher bias, and its quickness (Johnson and Christensen, 2014). Allwood (2012) suggests that a researcher would use quantitative research to highlight the study's objectivity and with that, can perceive the study as unbiased. It is through this inherent degree of objectivity that the study achieves an enhanced degree of credibility and acceptance.

3.4 Research Design

Research design is concerned with the strategy that is utilized to define how, when and where data will be collected and analysed (Creswell and Poth, 2016). This strategy involves the handling of the research questions through the provision of the hypotheses outlined in this study. There are three commonly used approaches that are utilized to address this, namely quantitative, qualitative, and mixed method approach. As previously mentioned, the application of a quantitative research method was utilized to address the stipulated research questions through the proving of the hypotheses outlined within the conceptual model. A quantitative research approach is used in the acquisition and interpretation of data that assists this study in arriving to its objectives and understanding of the phenomenon under investigation through the testing and validation of the stipulated hypotheses. This method uses numerical values within its analysis to test and validate the data and hypotheses being tested.

In the collection of data, this study employed a questionnaire (survey) as the data collection instrument within a sample size of specific and pre-defined demographical segments (population). As a result, survey research might be defined as a type of field study (Saunders et al., 2007). Through this analysis, the researcher was able to determine the relative incidence, the contribution, and the interrelatedness of variables. The descriptive statistics section comprised of a multiple-choice question structure, which was divided into two groups, namely questions with a ‘yes’ or ‘no’ answers, and questions comprising of more extensive multiple choice answer options. All measurement items were assessed using a 5-point Likert scale (1 = Completely Disagree to 5 = Completely Agree) A 5-point Likert scale provides participants with sufficient options to gain an extensive understanding of the specific constructs defined within the conceptual model and their relevance to the study.

Additionally, within academic research, considerations need to be made with regards to the length of time by which the research will take place. There are two types of time horizons which are cross-sectional and longitudinal (Bryman, 2011). When research is conducted over a short period, which is the case for most survey data collection methods, the cross-sectional time horizon is used (Setia, 2016). The second means by which research may be conducted is through the longitudinal time horizon which involves the acquisition of data pertaining to a particular population and/or phenomenon over a prolonged period (Caruana, Roman, Hernández-Sánchez and Solli, 2015). Within the research design of this study, the cross-sectional time horizon was used within the acquisition of data.

3.5 Population and Sampling

3.5.1 Target Population

The target population is the entire population, or group, that a researcher is interested in researching and analysing (DJS Research, 2023). Target population was also defined as all possible participant clusters (the collective term used to describe all classes or groups) from which the sample in a study can be extracted (Bryman, 2011). This implies that this group must be large, concretely specified and used by the researcher to draw a sample and then generalise the research findings based on the selected sample (Wagner et al., 2012).

In this study, the defined target population was that of active online video game players over the age of 18 years old, and whose engagement levels with online video games (time spent playing) exceeds two hours per day.

Sampling Method

In the field of research, a sample is defined as an aggregate of items, group of people, items or objects that are drawn from a bigger population for validation and measurement to fulfil a certain narrative (Hair, Ortinau and Harrison, 2010). It is important to note that certain criteria need to be met to ensure appropriateness of the sampling method. This involves the fair and unbiased acquisition of data that ensures that scientific research requirements are met and upheld.

The two sampling methods are that of probability and non-probability sampling. Probability sampling refers to the selection of a sample from a population, when this selection is based on the principle of randomization, that is, random selection or chance (Statistics Canada, 2021). In this sampling method, members of the research population will not have an equal chance of being selected (Penrod, Preston, Cain and Starks, 2003).

Non-probability sampling is a method of selecting units from a population using a subjective (i.e. non-random) method (Statistics Canada, 2021). This sampling method is comprised of five types, namely convenience sampling, quota sampling, purposive sampling, snowball sampling, and self-selection sampling:

1. Convenience
2. Quota
3. Purposive
4. Snowball
5. Self-selection

In this study, the use of convenience sampling was used for the acquisition of data. Convenience sampling (also known as availability sampling) is a specific type of non-probability sampling method that relies on data collection from population members who are conveniently available to participate in study (Business Research Methodology, 2023). Research was conducted through the dispersal of a questionnaire across three sub-reddits via the online forums website *Reddit*, as well as through direct email via the University of the Witwatersrand's online database. Members were

then, at their discretion, able to access and complete the questionnaire, and whomever replied had their data captured and processed. Only respondents who met the qualifying criteria outlined within this study were taken into consideration. This study utilized a non-probability sampling method due to the niche nature of the phenomenon under investigation. Only respondents who are active online video game players (2 hours or more per day), and who were over the age of 18 years old were eligible to take part.

3.5.2 Sampling method for the current study

The specific sampling method deployed in the study was that of convenience sampling due to ease of access to respondents rather than because of their appropriateness. Due to the selection of respondents for the current study being based upon convenience sampling, the concern pertaining to external validity of the findings needs to be considered.

A sample frame is the list of members of the population of interest from which a probability sample is selected (Michalos, 2014). Within this study, the units of interest are as follows:

- Active video game players whose daily engagement levels with online video games exceed two hours per day.
- Over the age of 18 years old.
- Have engaged with the in-game monetization schemes (made online purchases).

In this research paper, the total population of respondents comprise of active video game players that were sourced from three specific sub-Reddits found within the online forums' website *Reddit*, as well as direct email sent through the University of the Witwatersrand's online database.

These community forums (subreddits) were as follows:

1. r/SampleSize (209 thousand members)
2. r/SurveyExchange (17.8 thousand members)
3. r/takemysurvey (14.5 thousand members)

Additionally, a direct email link to the online survey was sent out to 39 452 registered students at the University of the Witwatersrand, Johannesburg, South Africa.

3.5.3 Sampling Size

Due to the nature of the model, the number of constructs evident within a specific conceptual model will determine the required number of participants needed to obtain more conclusive results. According to Siddiqui (2013), a sample size of approximately 400 participants is required when using a model that has 10 to 15 constructs in order to perform a comprehensive analysis. The proposed population will comprise active online video game players over the age of 18 years old and whose engagement levels within a specific video game exceed two hours a day.

However, due to the niche nature of the phenomena under investigation within the study and time constraints, only 214 feasible responses were acquired and analysed.

3.6 Research Instruments

Research instruments are broadly defined as tools used in the collection of data, measurement of data and analysis of data that relates to the research subject (Bryman, 2011). These instruments are fundamental within the research philosophy that is chosen in the collection and analysis of data. As discussed previously, the research component of this study utilized a quantitative approach. The use of an online questionnaire was distributed across three sub-reddits through the online platform *Reddit*. The designated sample size was that of 400 prospective participants, with an intended sample response of approximately 200 participants. The study utilized a carefully composed questionnaire design that ensures validity, reliability, and unambiguity within the collection of data amongst its participants. This was done to ensure that the data collected can validate the research (Saunders, Lewis and Thornhill, 2007).

3.6.1 Research instrument items

There are numerous elements that need to be considered in the selection and implementation of specific scales in a questionnaire and the analysis thereof. The various forms of scales include Likert scale, Semantic differential scale, Graphic rating scaling and Side by side matrix (Summers, Wang, Abd-El-Khalick, and Said, 2019). The research conducted in this study utilized the Likert scale to assess variables that are relevant to the specific constructs found within the conceptual model. The issuance of a questionnaire that consisted of three distinct sections was provided to relevant respondents. These sections consisted of the following:

1. Screening questions which were used to acquire participants that are relevant to the study through the identification of their age and whether or not they play online video games.

2. Demographical information
3. Construct measurements

Specific research scales were implemented and modified to suite the specific subject matter under investigation. These modifications included specific contextualization of the subject matter to better address the research questions of this study. The following constructs were measured:

- Enjoyment - a four-item scale measure was constructed using past studies (Koo, 2009).
- Social Interaction - a five-item scale measure was constructed using past studies (Ghazali, Mutum and Woon, 2019).
- Escape – a five-item scale was constructed using past studies (Ghazali, Mutum &Woon, 2019).
- Competition - a four-item scale measure was constructed using past studies (Demetrovics, Urbán, Nagygyörgy, Farkas Zilahy, Mervó, Reindl, Ágoston, Kertész and Harmath, 2011).
- Performance Expectancy - a four-item scale measure was constructed using past studies (Ramírez-Correa, Rondán-Cataluña, Arenas-Gaitán and Martín-Velicia, 2019).
- Facilitating Conditions - a four-item scale measure was constructed using past studies (Ramírez-Correa, et al., 2019).
- Habit - a four-item scale measure was constructed using past studies (Ramírez-Correa, et al., 2019).
- Price Value – a three-item scale measure was constructed using past studies (Ramírez-Correa, et al., 2019).
- Predatory Monetization Schemes – a six-item measure was constructed using past studies (King, Russell, Delfabbro and Polisena, 2020).
- Perceived Reward Value - a three-item scale measure was constructed using past studies (King, Russell, Delfabbro and Polisena, 2020).
- Online Impulse Buying Gaming Behaviour – a six-item measure was constructed using past studies (Dyulgerova and Devreli, 2019).
- Use of Credit Card - a six-item measure was constructed using past studies (Israel & Jena, 2018).
- FOMO - a five-item measure was constructed using past studies (Wegmann, Oberst, Stodt and Brand, 2017).

- Gaming Addiction - a six-item measure was constructed using past studies (Jap, Tiatri, Jaya and Suteja, 2013).
- Gaming Intention - a four-item scale measure was constructed using past studies (Wu and Liu, 2007).

All scale items were measured using a five-point Likert scale ranging from “strongly disagree” (1) to “strongly agree” (5).

3.7 Data Collection

Data collection is the process of gathering and measuring information on variables of interest, in an established systematic fashion that enables one to answer stated research questions, test hypotheses, and evaluate outcomes (Northern Illinois University, 2005). In the case of this study, a questionnaire was the instrument used in the collection of data from participants on their opinions and experiences pertaining to the phenomenon being researched (Onwuegbuzie Leech and Collins, 2010). This illustrates the importance of a well-constructed and concisely worded questionnaire as the quality of the research is directly dependent upon the quality of the questionnaire. The principal reason for the issuance of a questionnaire as the primary instrument for data collection is due to its ability to be distributed to a large and diverse populous whilst being relatively cost efficient.

The questionnaire was issued via the online forums’ website *Reddit* within specific research-based sub-reddits, as well as through the University of the Witwatersrand email database. The online questionnaire was made accessible through a URL link via Google Forums that was distributed to the members via the sub-reddits’ webpages, as well as direct emails via the University of the Witwatersrand’ student database. The participant was made aware of the purpose of the study through a clear and concise cover page that outlines the phenomenon being researched as well as the insurance of each participants’ privacy and anonymity.

3.8 Data Analysis

The necessity for comprehensive data analysis cannot be understated. Data analysis is a crucial part of any research study (Hair, Ortinau and Harrison, 2010), and the quality of the research component of any study weighs heavily on the not only the type of data being collected, but also the means by which that data is interpreted and presented within the research results. The data was analysed using IBM’s Statistical Package for the Social Sciences (SPSS) and IBM SPSS Amos. The data analysis was conducted by a professional within the field of statistics to ensure that the

results of the study are accurate and reliable. The interpretations of the research results are provided to ensure alignment and validation to that of the research objectives.

We utilised the following step-by-step data analysis procedure:

1. Code and clean data collected into Excel
2. Import data into SPSS 28 and SEM AMOS 28
3. Descriptive statistics analysis
4. Confirmatory factor analysis
5. Path modelling - the results of the above steps are discussed in chapter four.

3.9 Data analysis using Structural Equation Modelling (SEM)

In the analysis of the data collected in this study, Structural Equation Modelling (SEM) was employed. SEM can be described as a method for representing, estimating, and testing connections between variables (Suhr, 2010). A very distinct feature of SEM is its ability to test and validate hypothesised relationships between variables (Grace, 2006). SEM grants the researcher the ability to establish and validate relationships between specific variables pertaining to the specific phenomena being investigated through the application of analytical tools such as factor analysis, regression analysis and simultaneous equation modelling.

It is SEM's innate ability to manage difficult data including time series with auto-correlated error, non-normal data and even incomplete data which makes it such a popular tool for data analysis (Alavifar, Karimimalayer and Anuar, 2012).

For this particular study, SEM was utilized due to the generalized approach within the analysis of multivariate data for the purpose of theory testing (Bagozzi, 1981). Due to the multivariate nature of the study, whereby relationships between a variety of constructs were tested, SEM can be considered the optimal data analysis method. Below are a number of advantages in using SEM:

- SEM models exceed other regression models through its integration of both dependent and independent variables within its hypotheses testing.
- SEM grants the ability to test and validate relationships between specific variables as well as conduct theory testing whereby no experiments are possible. As a result of this, SEM

data analysis methods have become highly common, almost to the point of standard practice, within social and behavioural sciences (Grace, 2006).

3.10 Validity and Reliability

Validity and reliability are two aspects within research that, though often perceived as closely related, are representative of separate attributes pertaining to the research instrument. In general, a measuring instrument can be reliable even if it is not valid, but it can also be unreliable if it is valid (Bell et al., 2022). Due to nature of these measures, researchers need to test both the validity and reliability of the instruments they use (Hair, 2011).

The validity of a research study refers to how well the results among the study participants represent true findings among similar individuals outside the study (National Library of Medicine, 2018). The level of validity within a research instrument pertains to how well that instrument is able to test the phenomenon it is intended to measure. Following the acquisition of data, further checks were implemented to test for any discrepancies within the data such as errors and irregularities. Validity was ensured through the careful construction and inclusion of questions that are consistent with the phenomenon being researched.

The Confirmatory factor analysis (CFA), which is a statistical technique used to verify the factor structure of a set of observed variables (Suhr, 2006), was used to determine whether the model utilized within the study is suitable to that of the data collected. Within the case of research methodologies, an ideal fit between that of the of the data collected and model being utilized does not necessarily imply absolute accuracy, but rather indicates the plausibility of the model being used.

Reliability refers to whether you get the same answer by using an instrument to measure something more than once. In simple terms, research reliability is the degree to which research method produces stable and consistent results (Business Research Methodology, 2023). This study used Cronbach Test (α value), Composite Reliability (CR value) and Average Variance Extracted (AVE value) to measure reliability.

3.10.1 Internal Validity

Internal validity is the degree to which research establishes a reliable causal link between treatment and outcome (Roberts and Priest, 2006). This is reflective of the study's exclusion of alternate

explanations towards that of the desired conclusion. The results of the study are taken into consideration with regards to how confident the researcher can be, basing these findings on the researcher's ability to avoid being misled and in turn compromise the validity of the results (Borsboom, Mellenbergh, and Van Heerden, 2004). This validity is influenced by the researcher's ability to exclude alternate explanations for their findings. Internal validity was maintained through the employment of specific protocols within the construction and issuance of the research instrument to respondents.

3.10.2 External Validity

External validity is the subjective assumption that an instrument measures what it intends to measure in terms of relevance (Borsboom et al., 2004). External validity is used to examine the degree to which the findings of a study are generalized and its ability to be transferred across situations that deal with similar subject matter. Through the use of a cover page that explains to participants the purpose of the study, which is included within the research instrument, a degree of validity is instilled and maintained within the acquisition of data.

3.10.3 Content Validity

The validity of the content of the data collection tool relates to the extent to which the elements of the tool adequately represent the concepts measured (Roberts and Priest, 2006). Through the meticulous review of academic literature pertaining to the phenomena under investigation, the research instrument used within the acquisition of data was guided and carefully constructed. Thereafter, these measurement tools were further examined and scrutinized by the researcher's academic supervisor to ensure the necessary contents related to the phenomena under investigation within the study are included. This is done to ensure that the measurement tools are comprehensive and enrich the study.

3.10.4 Reliability

Reliability reflects long-term consistency and reproducibility (Roberts and Priest, 2006). It can be seen as the extent to which an instrument measures a variable identically every time it is employed on the same participants and under the same circumstances (Wagner, Kawulich and Garner, 2012). To put this into layman's terms, it is the ability of the research component of a study to produce the same result(s) if the analysis is conducted numerous times. Therefore, reliability can be

considered a vital component within evaluation, and is a positive contributor towards the validation (validity) of a study.

3.11 Ethical Considerations

Ethics is defined as the moral principles that governs human behaviour when performing activities (Dobrick, Fischer, and Hagen, 2018). According to Neuman (2014), researchers face the conundrum of achieving a balance between the improvement of scientific knowledge through the ascertainment of a higher level of understanding whilst still maintaining the rights of the participants in the study. Therefore, this notion of ethics needs to always be considered when conducting any form of research.

It is therefore the responsibility of the researcher to ensure that the privacy, dignity, and other rights of the participants within the study are upheld and maintained. It is suggested that participants should consent to voluntary participation in order to comply with these ethical considerations (Collis & Hussey, 2009). A strong degree of morality needs to be applied within the guidance of all research conducted to ensure that no deception or intention of harm is present within the research instruments.

Within the current study, strong and moral considerations were meticulously applied within the collection of data from participants. Participants were well-informed about the purpose of the study, their participation was completely voluntary, and their privacy and integrity were upheld throughout the entirety of the study. The research was conducted in accordance with the ethics policy of Wits Business School research committee to ensure a high ethical standard is achieved throughout the entire research process.

3.12 Limitations of the study

The current study was site-based with a small number of respondents having been sourced from three select sub-reddits on the online forum's website *Reddit*. Additional respondents were sourced through the University of the Witwatersrand online database via direct email.

Therefore, to the primary target demographic having been derived from currently registered University of the Witwatersrand students, who are primarily situated in South Africa. The study would benefit from a more focused target demographic, that being avid and dedicated online video game players who are apart of online video game communities and are significantly invested in

the online video game titles they play. Through the access to such participants, the data collected will be more significant and will therefore be more relevant to the phenomena that is being investigated.

Chapter 4: Data Analysis and Results Presentation

4.1 Introduction

In this chapter, the results of the data analysis of 213 responses to the study are presented. SPSS 28 and SEM AMOS statistical programmes were used within the analysis of the data collected. It is through the use of these analytical tools that the empirical conclusion of the hypotheses being tested are confirmed and validated.

Within this chapter, the main topics that will be addressed are as follows:

- Descriptive statistics
- Reliability measures
- Validity measures
- Confirmatory Factor Analysis (CFA)
- Path Modelling
- Hypotheses Testing Results

Descriptive statistics are presented first, outlining demographical information pertaining to the population that was sampled. Thereafter, the measurement tools used within the reliability and validity of the data collected are discussed. Additionally, the CFA and path modelling results are discussed as well as the outcomes of the hypotheses tests that were conducted.

4.2 Descriptive Statistics

In the analysis of the data collected in this study, SEM AMOS and SPSS 28 statistical programmes were used to analyse the sample. The data collection took place between the 4th of July 2023 and the 7th of September 2023. The data collection tool that was utilized to obtain this information was that of an online survey questionnaire (See Appendix one). A total of 228 responses were gathered, with the invalid respondents being cleaned and removed, of which 213 valid respondents were utilized within the assembly of the study.

Table 4.1: Demographic Profile of Respondents

Does your average time exceed 2 hours per day?

		Percentage	Valid Percentage	Cumulative Percentage
Valid	No	0	0	0
	Yes	100	100	100.0
	Total	100.0	100.0	

Are you over the age of 18 years old?

		Percentage	Valid Percentage	Cumulative Percentage
Valid	Yes	100.0	100.0	100.0

Please indicate your gender.

		Percentage	Valid Percentage	Cumulative Percentage
Valid	Female	36.2	36.2	36.2
	Male	62.4	62.4	98.6
	Prefer not to say	1.4	1.4	100.0
	Total	100.0	100.0	

Please indicate your age range.

		Percentage	Valid Percentage	Cumulative Percentage
Valid	>45 years old	4.7	4.7	4.7
	18-25 years old	51.6	51.6	56.3
	26-34 years old	28.2	28.2	84.5
	35-44 years old	15.5	15.5	100.0
	Total	100.0	100.0	

How much time, on average, do you spend playing video games per day?

		Percentage	Valid percentage	Cumulative percentage
Valid	2-3 hours	44.6	44.6	44.6
	4-6 hours	46.0	46.0	90.6
	7-9 hours	6.6	6.6	97.2
	>10 hours	2.8	2.8	100
	1 hour or less	0	0	100.0
	Total	100.0	100.0	

Do you or have you ever made in-game purchases using real-world money within the video games you play (i.e., buying in-game currency and/or digital items)?

		Percentage	Valid percentage	Cumulative percentage
Valid	I have never made in-game purchases.	13.6	13.6	13.6
	I periodically make in-game purchases.	37.6	37.6	51.2
	I regularly make in-game purchases.	18.3	18.3	69.5
	I seldom make in-game purchases	30.5	30.5	100.0

	Total	100.0	100.0	
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Please indicate your household's monthly level of income.

		Percent	Valid Percent	Cumulative Percent
Valid	>\$5500	9.9	9.9	9.9
	\$2000-\$3400	35.7	35.7	45.5
	\$300-\$800	13.1	13.1	58.7
	\$3500-\$5400	12.2	12.2	70.9
	\$900-\$1900	29.1	29.1	100.0
	Total	100.0	100.0	

Demographics

Table 4.2: Respondent Profile

Variable	Sub-variable	Percent	Valid Percent
Age range	18 – 25 years old	51.6	51.6
	26-34 years old	28.2	79.8
	35-44 years old	15.5	95.3
	>45 years old	4.7	100
	Total	100	
Play-time per day (hours)	2-3 hours	44.6	44.6
	4-6 hours	46	90.6
	7-9 hours	6.6	97.2
	>10 hours	2.8	100
	<1 hour	0	100
	Total	100	
In-game purchases	Never	13.6	13.6
	Periodic	37.6	51.2
	Regular	18.3	69.5
	Seldom	30.5	100
	Total	100	
Monthly income (USD)	>\$5500	9.9	9.9
	\$2000-\$3400	35.7	45.5
	\$300-\$800	13.1	58.7
	\$3500-\$5400	12.2	70.9
	\$900-\$1900	29.1	100
	Total	100	

Source: Self-developed based on SPSS 25 software output.

a) Gender

The majority of respondents were male (62%), which is in line with video gaming industry trends indicating that males make up the majority of the customer-base (Forbes, 2023).

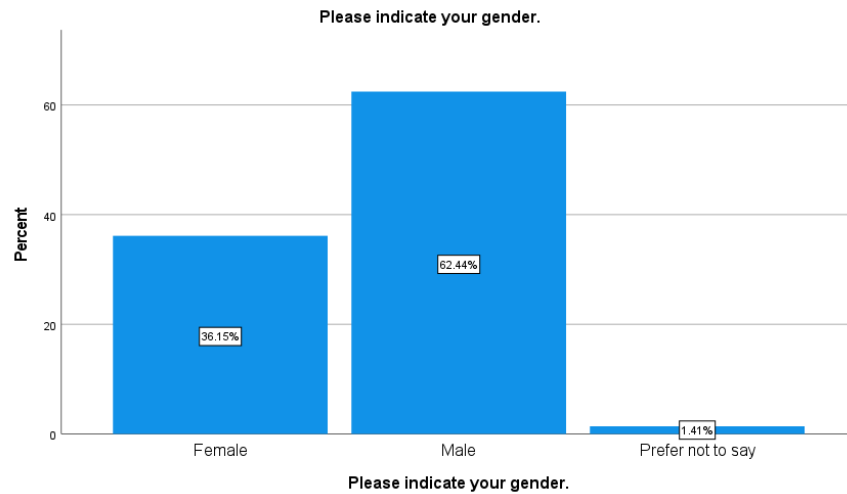


Figure 4.1: Gender

b) Age Category

As demonstrated in Figure __, a large percentage of the research population falls between the age ranges of 18-25 years old (51%). These age demographics follow similar trends to that of consumer reports pertaining to video gaming industries that show that their primary consumers fall within this age range (DataProt, 2023). Thereafter, the second most prominent age group is that of 26-34 year olds, which is much like the trends found within the primary age group, and are defined as the secondary target market within the majority of video gaming industries (DataProt, 2023).

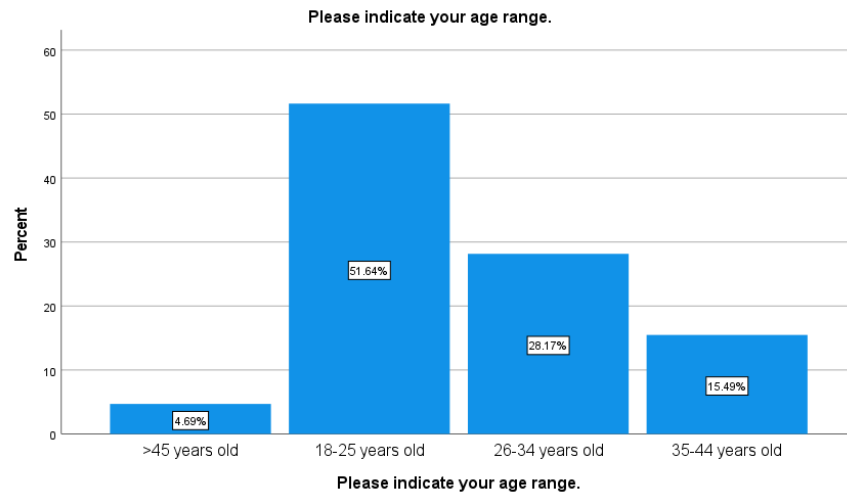


Figure 4.2: Age group

4.3 Reliability measurements

When conducting research that entails data collection, it is imperative that a high degree of consistency and trustworthiness is achieved and maintained throughout the analytical process of the study. To ensure this, the Cronbach's Alpha value (Cronbach α), Composite Reliability (CR) and Average Variance Extracted (AVE) were performed to appraise the reliability of the measures. The role of Cronbach's Alpha is to determine and confirm the presence of reliability within the dataset of the study. CR and AVE are performed in order to confirm and validate the presence of discriminant reliability. This is done to ensure that none of the observed variables have a high loading on more than one factor, thereby preventing cross-loading.

4.3.1 Cronbach Alpha

This is used to test the internal consistency (reliability) of a specific dataset. Cronbach Alpha calculates the average of all possible split half reliability coefficients (Becker et al., 2012). It is used to quantify the degree of reliability using a standardized scale between the numerical values of 0 and 1. Higher values (closest to 1) indicate a higher correlation between items. The coefficient of 1 indicates perfect internal reliability and the coefficient of 0 indicates no internal reliability whatsoever. If Cronbach alpha for a set of scores turns out to be .90, you can interpret that as meaning that the test is 90% reliable, and by extension that it is 10% unreliable (100% - 90% = 10%) (Brown, 2002). According to Becker et al. (2012), 0.80 as a figure is usually used as a rule

of thumb to indicate an acceptable level of internal reliability. Furthermore, the accepted cut-off point for item-to-total values is 0.3 (often ≤ 0.3) (Dunn, Seaker & Waller, 1994).

In this study, fourteen variables were tested using Cronbach's Alpha. This was to ascertain the internal reliability of each variable. Of the fourteen variables that were tested, twelve were within the stipulated threshold of between 0.7 and 1.0, therefore validating their internal reliability (i.e. EN=0.765, SI=0.877, ES=0.770, OIB=0.839, PE=0.749, H=0.855, C=0.817, PV=0.701, PMS=0.856, UCC=0.818, FOMO=0.856, GA=0.796, GI=0.725). The two variables that fell outside of the threshold of internal reliability are FC=0.535 and PRV=0.698.

Cronbach's Alpha is a measure of reliability but not validity. It indicates whether responses are consistent between items but does not determine whether the items measure the correct concept.

Table 4.3. Accuracy Analysis

Research Construct		Descriptive Statistics				Cronbach's Test		C.R. Value	AVE Value	Factor Loading
		Mean Value		Standard Deviation		Item - total	α value			
EN	EN1	4,034	4,074	1,189	1,119	0,741	0,864	0,867	0,799	0,762
	EN2	4,250		0,993		0,731				0,620
	EN3									0,617
	EN4	3,936		1,175		0,767				0,667
SI	SI1	4,461	4,482	0,704	0,711	0,766	0,864	0,867	0,827	0,702
	SI2									0,830
	SI3									0,808
	SI4	4,466		0,739		0,768				0,826
	SI5	4,520		0,691		0,698				0,696
ES	ES1	4,461	4,482	0,704	0,711	0,766	0,864	0,867	0,827	0,428
	ES2									0,805
	ES3									0,820
	ES4	4,466		0,739		0,768				0,462
	ES5	4,520		0,691		0,698				0,625
OIB	OIB1	4,461	4,482	0,704	0,711	0,766	0,864	0,867	0,827	0,862
	OIB2									0,871
	OIB3									0,657
	OIB4	4,466		0,739		0,768				0,604
	OIB5									0,590
	OIB6	4,520		0,691		0,698				0,036
PE	PE1	4,500	4,420	0,698	0,766	0,725	0,865	0,868	0,789	0,529
	PE2	4,250		0,825		0,668				0,875
	PE3	4,485		0,759		0,770				0,506
	PE4	4,446		0,783		0,705				0,686
FC	FC1	3,598	3,439	1,214	1,255	0,661	0,860	0,866	0,740	0,496
	FC2	3,485		1,246		0,757				0,796
	FC3	3,368		1,331		0,808				0,267
	FC4	3,304		1,230		0,606				0,427
H	H1	4,480	4,397	0,765	0,807	0,789	0,886	0,900	0,803	0,783
	H2	4,510		0,739		0,823				0,740
	H3	4,191		0,971		0,657				0,737
	H4	4,407		0,753		0,790				0,827
PRV	PRV1	3,598	3,439	1,214	1,255	0,661	0,860	0,866	0,740	0,561
	PRV2	3,485		1,246		0,757				0,676
	PRV3	3,368		1,331		0,808				0,715
	PRV4	3,304		1,230		0,606				0,287
C	C1	4,480	4,397	0,765	0,807	0,789	0,886	0,900	0,803	0,848
	C2	4,510		0,739		0,823				0,772
	C3	4,191		0,971		0,657				0,485
	C4	4,407		0,753		0,790				0,816
PV	PV1	2,593	2,902	1,381	1,432	0,475	0,690	0,686	0,547	0,822
	PV2	3,260		1,451		0,522				0,804
	PV3	2,853		1,465		0,517				0,413
PMS	PMS1	4,461	4,482	0,704	0,711	0,766	0,864	0,867	0,827	0,621
	PMS2									0,693
	PMS3									0,761
	PMS4	4,466		0,739		0,768				0,814
	PMS5									0,730
	PMS6	4,520		0,691		0,698				0,637
UCC	UCC1	4,426	4,368	0,694	0,795	0,716	0,871	0,884	0,727	0,397
	UCC2	4,422		0,742		0,806				0,922
	UCC3	4,132		0,966		0,538				0,967
	UCC4	4,407		0,798		0,778				0,707
	UCC5	4,451		0,777		0,711				0,371
FOMO	FOMO1	4,426	4,368	0,694	0,795	0,716	0,871	0,884	0,727	0,668
	FOMO2	4,422		0,742		0,806				0,737
	FOMO3	4,132		0,966		0,538				0,876
	FOMO4	4,407		0,798		0,778				0,786
	FOMO5	4,451		0,777		0,711				0,642
GA	GA1	4,461	4,482	0,704	0,711	0,766	0,864	0,867	0,827	0,662
	GA2									0,693
	GA3									0,728
	GA4	4,466		0,739		0,768				0,645
	GA5									0,554
	GA6	4,520		0,691		0,698				0,512
GI	GI1	4,480	4,397	0,765	0,807	0,789	0,886	0,900	0,803	0,328
	GI2	4,510		0,739		0,823				0,790
	GI3	4,191		0,971		0,657				0,696
	GI4	4,407		0,753		0,790				0,349

Source: Self-developed based on SPSS 28 and AMOS 28 software output.

4.3.2 Composite reliability (CR)

To further assess the internal reliability of specific variables, CR is employed using the following formula:

$$CR = \frac{(\sum \lambda_i)^2}{(\sum \lambda_i)^2 + (\sum \epsilon_i)}$$

Composite Reliability = (square of the summation of the factor loadings)/{(square of the summation of the factor loadings)+(summation of error variances)}.

This is another means by which internal reliability can be measured. Composite reliability assesses scale items' internal consistency (Brunner and SUB, 2005). It is further reiterated that for a construct to be considered acceptable within its establishment of internal reliability the CR value needs to be above 0.70 of a specific construct.

Within the study, twelve variables are seen as possessing CR values greater than 0.70, however there are two variables whose CR values are less than 0.7 (FC=0.604, PRV=0.689) and therefore these two cannot be considered as displaying internal reliability.

Additionally, the average variance extracted (AVE) and the composite reliability coefficients (CR) are related to the quality of a measure (Valentini and Damasio, 2015). The AVE values must be above 0.50 to establish internal reliability (Bagozzi and Yi, 2012). The AVE values for the variables within this study all exceed the stipulated threshold of 0.50 beside one, namely FC=0.453, and therefore this variable cannot be considered reliable.

Thus, when we consider the results of these, we can deduce that the data is generally reliable.

4.4 Validity measures

4.4.1 Convergent validity

This is the measurement of the similarities between variables within the same construct to establish the degree of correlation of these variables within the same construct, as well as the degree of correlation with other variables outside of the defined construct. Jayasingh and Eze state that there should be no correlation between a variable within a specific construct and variables found within

other constructs. These measurements are determined through the application of factor loading valuations, and for convergent validity to be achieved, the threshold of above 0.50 needs to be met.

In this study, the majority of variables exceeded this threshold, however eight variables were below the threshold and therefore did not achieve convergent validity (ES1=0.428, ES4=0.462, FC1=0.496, FC3=0.427, C4=0.485, PV3=0.413, UCC1=0.397, UCC5=0.371).

4.4.2 Discriminant validity

Figure 4.3: Inter-correlations matrix

Inter-correlations Matrix															
	EN	SI	ES	C	PE	FC	H	PV	PRV	FOMO	GA	GI	PMS	OIB	UCC
EN	1														
SI	.442**	1													
ES	.324**	0,068	1												
C	.312**	.339**	.248**	1											
PE	.323**	.319**	.208**	.252**	1										
FC	.441**	.266**	.139*	.311**	.137*	1									
H	.456**	.384**	.251**	.363**	.274**	.337**	1								
PV	.254**	.152*	.200**	.237**	.231**	.323**	.209**	1							
PRV	.181**	.240**	0,105	.171*	.316**	0,128	.211**	.322**	1						
FOMO	.166*	.386**	.185**	.352**	.338**	0,117	.457**	0,131	.359**	1					
GA	.205**	.248**	0,126	.316**	.172*	.144*	.427**	.191**	.281**	.524**	1				
GI	.364**	.367**	.135*	.305**	.375**	.389**	.542**	.225**	.290**	.515**	.503**	1			
PMS	.316**	.180**	.271**	.332**	.299**	.241**	.267**	.239**	.351**	.437**	.252**	.353**	1		
OIB	0,124	0,069	0,123	.253**	0,101	.166*	.211**	.307**	.312**	.350**	.378**	.372**	.425**	1	
UCC	0,084	.216**	.136*	.171*	0,002	0,070	.311**	0,125	.325**	.420**	.445**	.328**	.409**	.413**	1
**. Correlation is significant at the 0.01 level (2-tailed).															
*. Correlation is significant at the 0.05 level (2-tailed).															

Source: Self-developed based on AMOS 28 software output.

The determination of discriminant validity involves the assessment of the potential correlation between constructs that are less than 1.0 in value. Research has shown that that within the numerical measurement of a relationship between variables, a correlation coefficient that represents the type and strength of the relationship is derived (Bagozzi and Yi, 2012). The range of this coefficient is between the numerical values of -1 and +1, with a perfectly negative value indicating a perfectly negative relationship between variables, and with the positive coefficient showing the adverse.

Table _ depicts the interconnection between the various construct variables of the study. The results range from 0.002 to 0.542, indicating a positive/strong correlation between the various

construct variables within the study. The closer r is to +1 the stronger the positive correlation whilst the closer r is to -1 the stronger the negative correlation.

4.4.3 Model Fit

Table 4.4: Model Fit Index

CFA Model Fit Index								
Model Fit Indicators	χ^2(CMIN/D F)	GFI	NFI	RFI	IFI	TLI	CFI	RMSEA
Threshold	<3	>0,900	>0,900	>0,900	>0,900	>0,900	>0,900	<0,08
Outcome	1,159	0,902	0,942	0,905	0,969	0,966	0,968	0,024
Acceptance	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept

Source: Self-developed based on AMOS 28 software output.

a) Chi-square (χ^2)

In accordance with literature based upon Chi-square theory, a value that is below 3 is an acceptable indication of model fit. The chi-square value within the current study is 1.159 which indicates an acceptable fit.

b) Goodness of Fit Index (GFI)

This test seeks to ascertain the degree to which the sample data aligns with a population's normal distribution. An acceptable fit is considered any value greater than 0.900. Within the current study, a GFI value of 0.902 is recorded, indicating an acceptable fit.

c) Normal Fit Index (NFI)

The recommended threshold for acceptance for NFI is any value greater than 0.900. The NFI value of the current study is 0.942, which is above the stipulated threshold thereby achieving an acceptable fit.

d) Relative Fit Index (RFI)

A RFI value that is greater than 0.900 is considered a good fit at a statistical level. The study produced a RFI value of 0.905 which indicates an acceptable fit.

e) Incremental Fit Index (IFI)

According to the theory surrounding IFI statistical analysis, any value that is equal to or exceeds 0.900 is considered an acceptable fit. In this study, an IFI value of 0.969 was obtained which indicates an acceptable fit.

f) Tucker Lewis Index (TLI)

It is recommended that any value equal or greater than 0.900 is an acceptable fit. This study displays a value of 0.966 which is indicative of an accepted fit.

g) Comparative Fit Index (CFI)

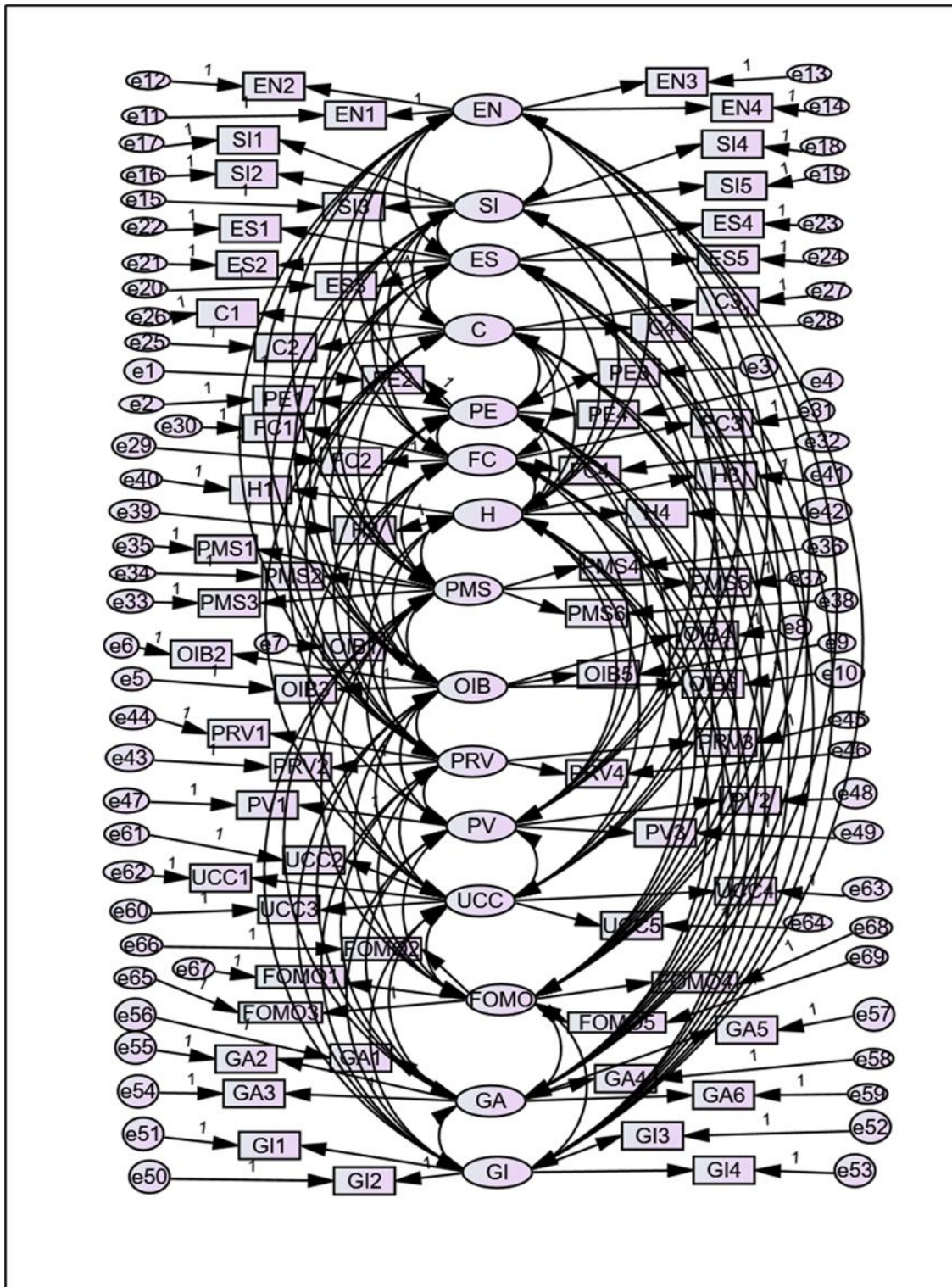
A CFI value that meets or exceeds 0.900 indicates a good fit. The CFI value of this study is 0.968, hence indicating an acceptable fit.

h) Root Mean Squared Error of Approximation (RMSEA)

A RMSEA value of 0.01 is considered to be an excellent fit. Within this study, a value of 0.024 was recorded and this is indicative of a good fit.

4.5 Confirmatory Factory Analysis (CFA)

Figure 4.4: CFA Model



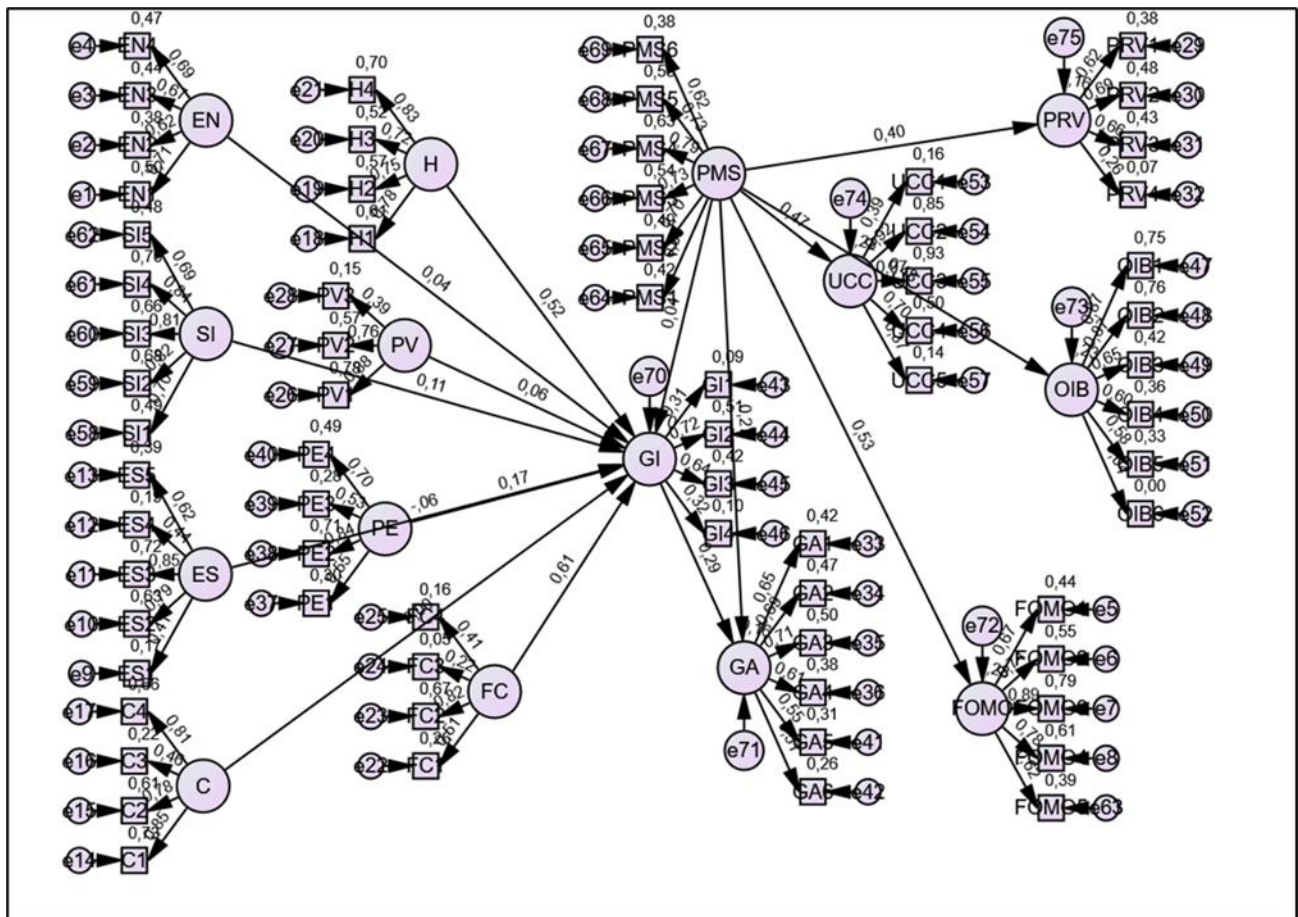
Source: Self-developed based on AMOS 28 software output.

Confirmatory factor analysis is a statistical assessment that is utilised within the verification of specific constructs and the variables associated with each that are observed within a study. It is a statistical analysis that is utilised to measure the potential relationships between dependent and independent variables if/where they exist.

The latent variables found within the study are represented by circular shapes, whilst the observed variables are represented by square shapes. Measurement errors that are present are also represented by circular shapes.

4.6 Path Modelling

Figure 4.5: Path Model



Source: Self-developed based on AMOS 28 software output.

Path Modelling and Structural Equation Modelling (SEM) are terminologies that are often used interchangeably (Sanchez, 2013). The objective of this process is to evaluate potential

relationships amongst latent variables through the application of various multivariate analytical processes.

Within Figure __, the path model for the study is illustrated. Usually, a path model is interpreted from left to right due to the variables on the left of the model being independent that are used to explain the variables on the right. Double-sided arrows indicate an interconnection between independent and dependent variables.

The model incorporates various statistical analysis tools within the multivariate analysis categories, focusing its analysis on causation. Path modelling is used to test the casual relationships between latent variables (Sanchez, 2013).

4.7 Hypothesis Testing Results

In the evaluation of potential relationships between specific variables within a study, two statistical analyses are performed in order to assess the type of relationship (if any) present between two variables as well as the significance of these relationships and whether they are strong enough to support the hypothesis being tested.

The path coefficient analysis is performed to deduce the type of relationship that exists between two specific variables. In terms of relevance, path coefficients are usually between -1 and $+1$, with coefficients closer to -1 representing strong negative relationships and those closer to $+1$ indicating strong positive relationships (Hair Jr., Hult, Ringle, Sarstedt, Danks and Ray, 2021).

The probability value (P-value) is a numerical value that indicates the likelihood that the data would have occurred by random chance, thereby determining whether the null hypothesis is true or false (Mcleod, 2023). Statistical significance with regards to the P-value is often expressed numerically, falling between the range of 0 and 1. A smaller the P-value (the closer the numerical value is to 0) indicates a lower probability of random chance within the results, thereby indicating that the null hypothesis should be rejected. The accepted threshold with regards to statistical significance is typically ≤ 0.05 which indicates significance and support for the hypothesis being tested.

Table 4.5: Hypotheses

Hypothesised Relationships			Path Coefficient	P-value	Outcome
EN	-->	GI	0,039	0,607	Not significant
H	-->	GI	0,523	***	Significant
PV	-->	GI	0,057	0,445	Not significant
SI	-->	GI	0,112	0,14	Not significant
PE	-->	GI	0,167	0,052	Not significant
FC	-->	GI	0,613	***	Significant
C	-->	GI	0,002	0,977	Not significant
ES	-->	GI	-0,057	0,443	Not significant
PMS	-->	GI	0,037	0,604	Not significant
PMS	-->	UCC	0,472	***	Significant
GI	-->	GA	0,286	0,01	Significant
PMS	-->	GA	0,275	0,001	Significant
PMS	-->	FOMO	0,533	***	Significant
PMS	-->	OIB	0,477	***	Significant
PMS	-->	PRV	0,403	***	Significant

Source: Self-developed based on AMOS 28 software output

Notes: EN=Enjoyment; H=Habit; SI=Social Interaction; ES=Escape; C=Competition; PE= Performance Expectancy; FC= Facilitating Conditions; PMS= Predatory Monetization Schemes; PRV= Perceived Reward Value; OIB= Online Impulse Buying; UCC= Use of Credit Cards; FOMO= Fear of Missing Out; GA= Gaming Addiction; GI= Gaming Intention

Table 4.5.1: H1 – Gaming Intention and Enjoyment

Hypothesised Relationships			Path Coefficient	P-value	Outcome
GI	←	EN	0,039	0,607	Not significant

The H1 path coefficient denotes the potential relationship between GI and EN, with the value being 0.039. The confidence level of the P-value is 0.607, which indicates that the relationship is not significant and therefore the hypothesis is not supported.

Table 4.5.2: H2 – Gaming Intention and Social Interaction

Hypothesised Relationships			Path Coefficient	P-value	Outcome
GI	←	SI	0,112	0,14	Not significant

The path coefficient between GI and SI is 0.112, indicating a possible positive relationship. The P-value is 0.14 the shows that the significance level is not significant and therefore not supported.

Table 4.5.3: H3 - Gaming Intention and Escape

Hypothesised Relationships			Path Coefficient	P-value	Outcome
GI	←	ES	-0,057	0,443	Not significant

H8 has a path coefficient value of -0.057, which is indicative of a possible negative relationship between GI and ES. The P-value is 0.443, which is greater than 0.05 and is therefore not statistically significant and the hypothesis is not supported.

Table 4.5.4: H4 – Gaming Intention and Competition

Hypothesised Relationships			Path Coefficient	P-value	Outcome
GI	←	C	0,002	0,977	Not significant

The path coefficient for H4 shows a value of 0.002, indicating a potential positive relationship between GI and C. The P-value recorded shows a value of 0.977, which is indicative of a not significant confidence level and therefore the hypothesis is not supported.

Table 4.5.5: H5 – Gaming Intention and Performance Expectancy

Hypothesised Relationships			Path Coefficient	P-value	Outcome
GI	←	PE	0,167	0,052	Not significant

The path coefficient for H5 is 0.167, indicating a potential positive relationship. The P-value recorded is 0.052, which is indicative of an insignificant confidence level and therefore the hypothesis is not supported.

Table 4.5.6: H6 – Gaming Intention and Facilitating Conditions

Hypothesised Relationships			Path Coefficient	P-value	Outcome
GI	←	FC	0,613	***	Significant

Note: c***=p<0.01

H6 shows a path coefficient value of 0.613, which is indicative of a potential positive relationship between GI and FC. The P-value recorded is 0.01, indicating a confidence level that is significant and a hypothesis that is supported.

Table 4.5.7: H7 - Gaming Intention and Habit

Hypothesised Relationships			Path Coefficient	P-value	Outcome
GI	←	H	0,523	***	Significant

Note: c***=p<0.01

The path coefficient between GI and H is 0.523, indicating a strong relationship. The P-value shows a confidence level of 0.01, which signifies that the hypothesis is significant and therefore supported.

Table 4.5.8: H8 – Gaming Intention and Price Value

Hypothesised Relationships			Path Coefficient	P-value	Outcome
GI	←	PV	0,057	0,445	Not significant

The path coefficient between GI and PV is 0.057, indicating a potential relationship. However, the P-value recorded is 0.445, which is greater than 0.05 and therefore shows that the significance level is not statistically significant.

Table 4.5.9: H9 - Gaming Intention and Predatory Monetization Scheme

Hypothesised Relationships			Path Coefficient	P-value	Outcome
GI	←	PMS	0,037	0,604	Not significant

The path coefficient for H9 is 0.037, which indicates a potential positive relationship between GI and PMS. The P-value shows a value of 0.604 that indicates not significant with regards to the confidence level and therefore the hypothesis is not supported.

Table 4.5.10: H10 – Perceived Reward Value and Predatory Monetization Scheme

Hypothesised Relationships			Path Coefficient	P-value	Outcome
PRV	←	PMS	0,403	***	Significant

Note: c***=p<0.01

The coefficient value for H10 is 0.403, indicating a potential positive relationship between PRV and PMS. The P-value shows a confidence level of 0.01, indicating that the hypothesis is significant and supported.

Table 4.5.11: H11 – Online Impulse Buying and Predatory Monetization Scheme

Hypothesised Relationships			Path Coefficient	P-value	Outcome
OIB	←	PMS	0,477	***	Significant

Note: c***=p<0.01

H11 records a coefficient value of 0.477, indicating a potential positive relationship between OIB and PMS. The P-value is 0.01, indicating that the confidence level for the hypothesis is significant and supported.

Table 4.5.12: H12 – Fear of Missing Out and Predatory Monetization Scheme

Hypothesised Relationships			Path Coefficient	P-value	Outcome
FOMO	←	PMS	0,533	***	Significant

Note: c***=p<0.01

The path coefficient for H12 is 0.533, which is indicative of a possible positive relationship between FOMO and PMS. The P-value is 0.01, showing that the significance level of the hypothesis is significant and supported.

Table 4.5.13: H13 – Gaming Addiction and Predatory Monetization Scheme

Hypothesised Relationships			Path Coefficient	P-value	Outcome
GA	←	PMS	0,275	0,001	Significant

H13 shows a path coefficient of 0.275, indicating a potential positive relationship between GA and PMS. The P-value denotes a 0.01 confidence level, indicating that the hypothesis is significant and supported.

Table 4.5.14: H14 – Use of Credit Card and Predatory Monetization Scheme

Hypothesised Relationships			Path Coefficient	P-value	Outcome
UCC	←	PMS	0,472	***	Significant

Note: c***=p<0.01

H14 has a coefficient value of 0.472, which indicates a possible positive relationship between UCC and PMS. The P-value recorded is 0.01, indicating that the significance level is significant, and the hypothesis is supported.

Table 4.5.15: Hypothesis with Moderation effect

Hypothesised relationship			Estimate	P-value	Outcome
OIB	←	PMS	0,337	***	Supported
OIB	←	InterPMSxUCC	0,129	0,032	Supported
OIB	←	UCC	0,276	***	Supported

Note: c***=p<0.01

Use of credit card has a positive influence upon online impulse buying as indicated within the coefficient value of 0.276. The P-value of 0.01 suggests statistical significance between the confidence levels of the moderator (UCC) to that of OIB, and the hypothesis is supported. Additionally, there is a positive relationship between predatory monetization scheme and online impulse buying, with the moderator between both constructs being use of credit card. Through the established positive relationships between UCC and both PMS and OIB, it can be deduced that UCC as a moderator has a positive influence between the hypothesised relationship between PMS and OIB. It is through this that UCC as a moderator can be seen as significant and the hypothesis is supported.

Table 4.5.16: H15 – Gaming Addiction and Gaming Intention

Hypothesised Relationships			Path Coefficient	P-value	Outcome
GA	←	GI	0,286	0,01	Significant

The path coefficient for H15 is 0.286, which shows a possible positive relationship between GA and GI. The P-value is 0.01, which indicates that the significance level is significant, and that hypothesis is supported.

4.8 Chapter summary

Within this chapter, data that was collected using an online questionnaire. The data was analysed and interpreted using specific data analysis programmes i.e., SPSS 28 and AMOS 28 were the programmes utilized within the data analysis and the results were presented.

Descriptive statistics were presented and discussed. Thereafter, reliability and validity measures were employed for all proposed constructs within the conceptual model. SEM was performed,

which includes Confirmatory Factor Analysis and Path Modelling. Lastly, the hypotheses of the study were tested, and the results presented.

Chapter 5: Discussion and Results

5.1 Introduction

This chapter seeks to expand upon and explain the results obtained and presented within the previous chapter so as to provide additional clarity and understanding.

5.2 Respondent profile

An online survey questionnaire was distributed to participants through a digital link that was made accessible through three specific subreddits on the forums website *Reddit*, as well as via the University of the Witwatersrand's student email database. To better ensure that the correct target demographic of the study was achieved, only participants who were over the age of eighteen years old and who play online video games for at least two hours per day were eligible for the study (n=213).

5.2.1 Demographic profiles

The primary objective of the study is to examine the possible relationship between video game addiction and excessive in-game spending (predatory monetization schemes). The respondents comprised of a diverse population of varying age groups, genders, income brackets and engagement levels with the large majority playing video games and spending money within the video games they play.

The study focuses on individuals who are active online video game players (2 hours or more per day) and who are over the age of eighteen years old. The largest percentage of the study population was amongst participants between the ages of 18 – 25 years old (51.6%). The second largest age demographic found within the study comprised of participants between the ages of 26 – 34 years old (28.2%) and these findings are consistent within industry reports that show the primary target demographic are individuals between the ages of 18 -35 years old (DataProt, 2023).

The other area of interest of the study is regarding time spent playing video games per day. The results of the study illustrate that the majority of the study population comprised of male respondents (62.4%) which is in-line with industry finding that show that the primary target demographic within most video game industries comprise of young men (Forbes, 2023).

The study also investigates the frequency by which respondents make in-game purchases. The study population indicates that the majority of respondents (37.6%) make periodic purchases. The smallest recorded population group comprised of respondents that have never made in-game purchases using real money (13.6%). This indicates that, within the study population, the large majority of respondents (86.4%), in varying capacities, have made in-game purchases using real money.

The final descriptive statistic that was investigated pertained to respondent's monthly household income. The currency used within the study was \$(USD) due to the online survey having been conducted through *Reddit*, the world's largest online forums website, and the diverse and international population this entails. The dollar (USD) is considered a universal currency and is the reason for the use thereof. In terms of the respondents, the study population indicates that the majority comprised of income levels between \$2000 - \$3400 monthly household income (35.7%). These are inherently middle-class households with sufficient disposable income to afford expenditure of non-essential goods and services.

5.3 Hypothesis discussion

Numerous hypotheses were tested in order to investigate potential relationships between specific variables, all with the objective of answering the research questions as concisely and thoroughly as possible. The study tested a total of fifteen hypotheses, with eight proving statistically significant and supported. The objective of the study was not to prove all hypotheses to be true, but to rather investigate the primary influencers regarding video game addiction and its relationship to excessive in-game spending.

5.3.1 Hypothesis 1

H1: Enjoyment and Gaming Intention

The results of the study indicate that there is not a statistically significant link between gaming intention and enjoyment. This is indicated through the coefficient value of 0.039 and a P-value of 0.607, which indicates that the hypothesis is not supported.

Through the results obtained within the study, observations are made that suggest that the relationship between gaming intention and enjoyment is not significant. What this further suggests is that enjoyment does not play a significant role within respondents' intentions to play video

games. This is a very interesting observation as the results suggest that the majority of respondents within the study do not play video games due to the enjoyment they provide.

5.3.2 Hypothesis 2

H2: Social interaction and Gaming Intention

Through the results recorded within the study illustrates a path coefficient value of 0.112 and a P-value of 0.14 which is indicative of a not significant confidence level and a hypothesis that is not supported.

Upon investigation of the recorded results within the study, it can be suggested that the hypothesised relationship between gaming intention and social interaction is not of statistical significance and is not supported. As a result, and in accordance with the results, it can be deduced that social interaction is not a significant motivator of gaming intention amongst respondents. Therefore, the social component present within a large number of online video games is not a significant stimulus within respondents' intentions to play online video games.

5.3.3 Hypothesis 3

H3: Escapism and Gaming Intention

H3 path coefficient value is -0.057, indicating a negative relationship between gaming intention and escape. The P-value is 0.443 that shows a confidence level that is not significant, and the hypothesis is not supported.

The concept of escapism, as it applies to the phenomena under investigation, can be defined as an individual's ability to escape real-world issues by immersing themselves in virtual worlds of video games (Bonny and Castaneda, 2022). As observed within the results of the study, escape is not seen as a primary driver of respondents' intent to play online video games. It should be noted that this motivation is more dominant within problematic gaming (video game addiction), although it is suggested that verification of this statement requires further research (Demetrovics et al., 2011).

5.3.4 Hypothesis 4

H4: Competition and Gaming Intention

The path coefficient value between gaming intention and competition is 0.002, which indicates a negative association between the variables. Additionally, the confidence level of the P-value recorded is 0.977, indicating that it is not significant, and the hypothesis is not supported.

Competition within online video games is often associated with the achievement aspect (Demetrovics et al., 2011). Through the results of the study, it is suggested that competition is not a significant driver within respondents' intention to play video games. A previous study into the motivation for online gaming reiterated the suggestion that there is a weak correlation between competition and recreation (Demetrovics et al. 2011). What this suggests is that, within the majority of players, competition is not a primary motivator in their intentions to play online video games.

5.3.5 Hypothesis 5

H5: Performance expectancy and Gaming Intention

Through the recorded values of the coefficient of 0.167 and a P-value of 0.052, it can be deduced that the confidence level is not statistically significant, and the hypothesis is not supported.

Through the study results of the statistical analysis, it can be suggested that the hypothesised relationship between gaming intention and performance expectancy is not significant and thus unsupported. Due to the leisurely nature of online video gaming, performance expectations are not considered significant (Ramírez-Correaa, Rondán-Cataluñab, Arenas-Gaitánb and Félix Martín-Velicia, 2019). Venkatesh et al. (2003) defines performance expectancy as the level of individual belief that the use of the system can help them gain benefits in their activities. Therefore, through the results of the study, it is suggested that performance expectancy and the perceived benefits that are associated with it are not primary drivers within respondents' motivations to play video games.

5.3.6 Hypothesis 6

H6: Facilitating conditions and Gaming Intention

The hypothesised relationship between gaming intention and facilitating conditions is considered statistically significant and supported due to the path coefficient value being 0.613 and the P-value

being 0.01. These values suggest that there is a strong positive relationship between gaming intention and facilitating conditions.

When investigating the relationship between gaming intention and facilitating conditions, it makes sense that there is a strong relationship between these two constructs. When considering that facilitating conditions determine the degree by which an individual can engage with a specific technology, in this case being online video games, it begins to make sense that there would be a strong relationship between gaming intention and facilitating conditions. The reason for this is that if an individual does not have the means by which to play online video games, his ability to play online video games is restricted, which in turn will have a direct impact on that individual's intention to play video games.

5.3.7 Hypothesis 7

H7: Habit and Gaming Intention

The relationship between gaming intention and habit can be seen as positive and significant as indicated by a path coefficient value of 0.523 and a P-value of 0.01. This demonstrates that the intention to play online video games are positively influenced by habitual behavioural characteristics that are formed amongst users. What the results suggest is that, over a prolonged and frequent period of time spent playing video games, habitual behavioural characteristics may develop that become significant drivers within individuals' intentions to play online video games.

5.3.8 Hypothesis 8

H8: Price value and Gaming Intention

The relationship between gaming intention and price value is not significant and therefore the hypothesis is not supported. This can be deduced through the observation of the results recorded within the path coefficient value of 0.057 and a P-value of 0.445, which indicates that the confidence level is not significant, and the hypothesis is not supported.

The recorded results of the study suggest that the hypothesised relationship between gaming intention and price value is not significant and is unsupported. What the results propose is that price value is not a significant driver within a respondents' intention to play video games. Price value refers to the cognitive trade-off by users between the perceived benefits of using a particular technology and the cost involved in the use of these technologies (Chaveesuk, KhalidId, Bsoul-

Kopowska, Rostańska and Chaiyasoonthorn, 2022). In accordance with the results, it can be deduced that price value is not a significant driver within respondents' intention to play online video games.

5.3.9 Hypothesis 9

H9: Predatory monetization schemes have a positive influence on gaming intention.

In accordance with the results of the study, the path coefficient is 0.037, which indicates a negative relationship between the variables. The P-value is 0.604, suggesting a confidence level that is not significant and therefore the hypothesis is not supported.

Predatory monetization can be referred to as schemes which involve in-game purchasing systems that disguise or withhold the true long-term cost of the activity until players are psychologically and/or financially committed (Zendle et al., 2021). In-game purchasing options, though extremely prevalent within a large number of online video game titles, is not considered a motivator within respondents' intentions to engage with video games. However, much like it is suggested that the escapism motivation is more dominant within problem gamers, there is a strong possibility that the same is true for excessive in-game spend (predatory monetization scheme) being a strong motivator amongst individuals that display problem gaming behavioural characteristics. However, further research is required to validate this statement.

5.3.10 Hypothesis 10

H10: Predatory monetization schemes have a positive relationship with perceived rewards.

The coefficient value for H15 is 0.403, suggesting that there is a positive relationship between predatory monetization scheme and perceived reward value. A P-value of 0.01 indicates that the confidence level is significant, and the hypothesis is supported.

Perceived reward value can be defined as an effect elicited not only by stimuli that are predictive of performance-contingent delivery of rewards but also by stimuli that were previously rewarded (Antono, Vakhrushev and Pooresmaeili, 2022). Reward systems can be reliant upon two modes of reward modulation, namely goal-driven and stimulus-driven. For the purpose of this study, stimulus-driven reward structures were analysed in conjunction with the in-game monetization schemes that facilitate them. It can be deduced that specific predatory monetization schemes may illicit positive and/or pleasant affective experiences within the consumer. It is through this

established relationship between predatory monetization scheme and perceived reward value that a greater understanding into the motivations of consumers to engage with these in-game monetization options begin to become clearer.

Within the case of loot box mechanics, the consumer engages with these systems in anticipation of acquiring digital items that possess in-game value. However, the probability of acquiring such items from one of these loot boxes is very low and the factor of chance (luck) plays a significant role within the acquisition of such goods. These monetization schemes follow very similar mechanics to that of slot-machine gambling (Zendle et al., 2021), which is highly problematic when considering the age demographics these products are targeted towards.

5.3.11 Hypothesis 11

H11: There is positive relationship between predatory monetization schemes and online impulse buying behaviour.

H11 recorded a coefficient value of 0.477, which is indicative of a positive relationship between predatory monetization scheme and online impulse buying. The P-value, 0.01, shows that the confidence level is statistically significant, and that the hypothesis is supported.

Online impulse buying is often associated with a loss of cognitive will regarding purchasing decisions amongst consumers. This equates to impulsivity becoming a primary driver within consumers decisions to buy (Karbasivar et al., 2011). As mentioned within FOMO as a motivator for spend, online impulse buying also involves the diminishment and/or loss of autonomy within consumers buying behaviours. This can result in the compromising of consumers personal well-being.

5.3.12 Hypothesis 12

H12: There is a positive relationship between predatory monetization schemes and FOMO.

There is a strong positive relationship between predatory monetization scheme and fear of missing out that is shown by the coefficient value of 0.477. The P-value of 0.01 indicates a significant confidence level and the hypothesis is supported.

FOMO can be described as a pervasive apprehension that others might be having rewarding experiences from which one is absent (Przybylski et al., 2013). FOMO incites impulsivity within

consumers purchasing decisions through the use of time-gated content/specials that are only available for a limited time period. This results in a loss of autonomy amongst consumers as they are required to make purchasing decisions quickly of face the risk of “missing out”.

Predatory monetization schemes often utilize manipulative marketing strategies to encourage spending amongst consumers. These tactics often involve the engagement of what is referred to as “fast thinking” (Kahneman, 2011), whereby the cognitive state of thinking is bypassed, and varying degrees of impulsivity is introduced into consumers purchasing decision-making. It is through the established link between predatory monetization scheme and FOMO that high levels of impulsivity are introduced into consumers purchasing decisions and buying behaviour.

5.3.13 Hypothesis 13

H13: There is a positive relationship between predatory monetization schemes and gaming addiction.

The path coefficient recorded is 0.275, indicating a positive relationship between predatory monetization scheme and gaming addiction. The confidence level as shown within the P-value of 0.01 suggests significance amongst the variables and that the hypothesis is supported.

The hypothesised relationship between predatory monetization scheme and gaming addiction is a cause for concern in that video gaming addiction is classified as a mental health disorder that displays similar behavioural characteristics to other addictive personality disorders. Strong indicators include compulsivity, loss of autonomy and deterioration of physical and mental well-being. When coupled with predatory monetization schemes, the probability of individuals suffering from gaming addiction to engage with these in-game monetization schemes is increased significantly. This only proves to exacerbate an already volatile and detrimental situation even further through the introduction of potential financial harm.

5.3.14 Hypothesis 14

H14: Use of Credit Card moderates the relationship between Predatory Monetization Scheme and Online Impulse Buying.

The path coefficient value between predatory monetization scheme and use of credit card is 0.472, indicating a positive relationship between both variables. The recorded P-value is 0.01, which

suggests that the confidence level between predatory monetization scheme and use of credit card is significant, and the hypothesis is supported.

Additionally, the confidence level as indicated by a coefficient value of 0.276 between UCC and OIB shows a positive relationship between both variables. The P-value of 0.01 indicates statistical significance and illustrates that the hypothesis is supported.

Predatory monetization schemes often involve “surprise mechanics” much like that seen within slot machine gambling. These mechanics are often referred to as “loot boxes”, which are virtual containers comprising of a random assortment of digital goods of varying in-game value. These in-game items are often purchased with virtual currencies that are initially purchased and converted using real-world money. There is a significant degree of chance (luck) associated with the digital items acquired through these mechanics.

Through the access of credit facilities that provide the majority of consumers with the ability to spend money that they often do not have, players are able to engage with these in-game monetization schemes more easily and at a more frequent rate. It is through this that use of credit card can be seen as a facilitator of action between players (consumers) and the in-game monetization schemes present within a large number of video game titles.

This relationship is further compounded by the introduction of online impulse buying. It has already been established that OIB equates to impulsivity becoming a primary driver within consumers decisions to buy (Karbasivar et al., 2011). Through a path coefficient value of 0.337 and a P-value of 0.01, it can be deduced that a positive relationship exists between PMS and OIB which is statistically significant and supported.

5.3.15 Hypothesis 15

H15: There is a positive relationship between gaming intentions and gaming addiction.

There is a significant correlation between gaming intention and gaming addiction, which is indicated through the coefficient value of 0.286. A P-value of 0.01 indicates that the hypothesis is supported, and the confidence level is significant.

Gaming intention are the motivations that drive an individual to engage with video games. As discussed previously within this paper, these engagement levels can range from recreational to

highly problematic. Within the spectrum of problem gaming (video game addiction), individuals display high levels of engagement and compulsivity in their behaviour towards playing video games.

The result of the study suggests a positive relationship between gaming intention and gaming addiction, whereby the higher the level of intent to engage with video games can often progress towards the development and display of addictive behavioural characteristics.

Chapter 6: Conclusion and Recommendations

In this chapter, the conclusion of the research findings are provided as well as the implications of the findings and the recommendations thereof.

6.1 Conclusion

The purpose of the study was to investigate the relationship between individuals that display behavioural symptoms of Internet Gaming Disorder and spend significant amounts of expenditure within their chosen video games' in-game monetization models. With reference to the research objectives set out within previous chapters, numerous conclusions can be derived on the basis of the findings within the research component of this study.

Firstly, the study set out to investigate the possible impact predatory monetization schemes have in influencing spending within video games. Through the findings within the study, it is suggested that there is a positive relationship between these in-game monetization schemes and spending amongst consumers through the positive relationship established between predatory monetization scheme and use of credit card. It is through this relationship that the study can deduce that, through the presence of these in-game monetization models, in conjunction with the aggressive marketing tactics employed towards consumers (players) to encourage engagement with them, that the probability of in-game spending amongst consumers is increased significantly.

Secondly, the study endeavoured to investigate the extent to which predatory monetization schemes, found within numerous online video games, have an influence on individuals who are suffering with gaming addiction (IGD). What can be deduced from the findings in this study is that predatory monetization schemes have a positive influence upon individuals suffering with video game addiction. What the results suggest is that individuals who are suffering with Internet Gaming Disorder (video game addiction) have a higher probability of engaging with these in-game monetization schemes. This becomes highly problematic in that, not only are these individuals' well-beings being negatively compromised both physically and psychologically, but now there is the potential to further exacerbate this issue through the introduction of potential financial harm.

Thirdly, and to further reiterate what has been discussed in the previous paragraph, the results of the study show that there is a positive relationship between predatory monetization schemes found

within numerous video game titles and video game addiction (IGD). The results indicate that individuals who display behavioural characteristics associated with Internet Gaming Disorder (video game addiction) have a far higher probability of engaging with the in-game monetization schemes present within the video games they play. Additionally, the results suggest that individuals suffering with video game addiction are more likely to spend more real-world money within these in-game monetization schemes, which increases the probability of excessive amounts of in-game spend.

Lastly, the study endeavours to investigate whether the predatory monetization schemes found within numerous video game titles infringe upon consumer protection rights when placed within a South African context and in accordance with South African consumer protection laws. What can be deduced from the results of the study is that there are numerous positive relationships that have been established between these predatory monetization schemes and other problematic variables. The results indicate positive relationships between in-game monetization schemes and specific variables like FOMO, online impulse buying, use of credit card and video game addiction. All these variables, in varying capacities, negatively impact upon an individual's autonomy through the increased amounts of impulsivity they encourage within a consumer's purchasing decisions and buying behaviour. It has been established that, through the loss of autonomy and an increase in compulsivity, there is an adverse impact to a person's mental and physical well-being.

The South African Consumer Protection Act stipulates that the fundamental consumer rights are the right to equality in the consumer market; privacy; choice; disclosure and information; fair and responsible marketing; fair and honest dealing; fair, just and reasonable terms and conditions; fair value, good quality and safety; and the supplier's accountability to consumers (Jacobs, Stoop & van Niekerk, 2010). When applying this to the phenomena under investigation, namely predatory monetization schemes within online video games, several concerns arise with reference to the consumer protection rights outlined above. Within the study, it has been established that there are positive relationships between a number of problematic variables and predatory monetization schemes in video games. These variables are strongly associated with the loss of autonomy and increased compulsivity within consumer buying behaviour. When scrutinized against the outlined rights stipulated within the South African Consumer Protection Act, numerous concerns begin to arise. It has been established within the empirical findings in this study that the loss of autonomy

is a result of a decrease in consumer choice brought on and influenced by external factors, in this case predatory monetization schemes. Though this diminished choice within consumers is not physically imposed, it can be attributed to a number of variables that all contribute towards to a loss in autonomy. Empirical literature identifies that variables such as FOMO, impulsivity and behavioural characteristics associated with addiction all have a positive influence on the diminishment of autonomy within individuals. The results of the study have established that there are positive relationships between the predatory monetization schemes found within video games and all the stipulated variables. It is through these established relationships, in conjunction with the loss of autonomy, that major questions need to be posed as to the ethicality as well as the legality of these monetization schemes in accordance with the South African Consumer Protection Act. This is further compounded when considering the age demographics these products are targeted towards, that being minors.

Out of fifteen hypothesis that were tested, eight were proven statistically significant and supported. The hypotheses that were found to be statistically significant were H6, H7, H10, H11, H12, H13, H14 and H15. The remaining six hypotheses were found to be not significant and unsupported and are therefore not included within this analysis.

H7 of the study sought to investigate the potential relationship between habit and gaming intention. The results show that habit has a positive relationship on individuals' intentions to engage with video games. Habit can be defined as a usual way of behaving; something that a person does often in a regular and repeated way (The Britannica Dictionary, 2023). Habit and addiction share very similar characteristics in that both display repetitive characteristics in varying forms, with habit being seen as being less severe and within the control of an individual's choice to engage. The development of addiction occurs when an individual is unable to control their choice to engage, developing a level of compulsivity towards that activity or substance. It should be noted that there is a very fine line between what determines a habit from an addiction (Boardwalk Recovery Center, 2020). This implies that habitual behaviour can, over time and prolonged exposure, develop into addictive behaviour. This can be indirectly deduced through the positive relationship between habit and gaming intention and the positive relationship between gaming intention and gaming addiction.

H6 investigated the possible relationship between facilitating conditions and gaming intention. It was found that facilitating conditions have a positive influence on gaming intention within individuals. This implies that factors that influence an individual's ability to play video games, whether it be hardware, knowledge, or other determining factors that influence an individual's ability to play video games, have a determining and significant impact upon an individual's intention to play video games. These factors are deemed facilitators of play and therefore determine the efficiency by which an individual can engage with a video game(s).

H10, H12, H13, H14 and H15 are somewhat interrelated in that they all seek to establish the motivations behind the factors that influence engagement with in-game monetization schemes. All these variables share a commonality in that they all encourage impulsivity within consumer buying behaviour. It is through this that these monetization schemes can be considered predatory in nature as they induce a diminishment within consumer autonomy, thereby reducing the degree of logic and reason within consumer purchasing decisions. This is achieved through manipulative marketing strategies that involve numerous predatory practices.

H15 investigates the potential relationship between gaming intention and gaming addiction. The results of the study suggest that gaming intention positively influences gaming addiction. The construct of gaming intention shares a positive relationship with that of habit, which in accordance with empirical literature, indicates shared characteristics with gaming addiction. It can be deduced that through habit, addiction can develop, which can result in numerous negative physiological consequences. Addiction can be seen as the progression of habitual behaviour that becomes uncontrolled and compulsive. It is through this compulsivity that a loss of autonomy occurs, leading to the compromise of well-being amongst individuals.

6.2 Implications of the study

All the above findings indicate predatory marketing practices are present within these in-game monetization schemes. This, in conjunction with products that are targeted towards a younger age demographic, that being minors, is a major cause for concern. The study set out to investigate the potential relationship between predatory monetization schemes that are present within a majority of modern-day video game titles and video game addiction.

6.2.1 Theoretical implications

The theoretical contribution of this study involves the advancement of knowledge towards the relationship between predatory monetization schemes found in numerous video games and video game addiction. The results of the study serve to expand upon the understanding of the relationship between these predatory monetization schemes and video game addiction through the suggestion and analysis of various hypothesis that serve to expand upon the identification and classification of the predatory nature of these in-game purchasing options. Thereafter the study establishes a link between these predatory monetization models and individuals suffering from video game addiction and determines a positive relationship between the two. What this means is that gaming addiction has a direct impact upon engagement levels with these in-game purchasing options, often resulting in excessive amounts of real-world money being spent. The study analyses the effects that predatory monetization scheme has on gaming intention within individuals, as well as the link between both variables and gaming addiction.

The study employs established theories grounded in the fields of social sciences and psychology that include the components model of addiction (Brown, 1993), internet gaming disorder (Sopher & Miller, 1983), use and gratification theory (Katz & Blumler, 1974), unified theory of acceptance and use of technology (Venkatesh et al., 2003), unified theory of acceptance and use of technology 2 (Venkatesh et al., 2012) and self-determination theory (Ryan & Deci, 2000). The results of the study serve to establish a more comprehensive understanding of the relationship between predatory monetization schemes within online video games and video game addiction. External researchers will benefit from the theoretical contributions provided within the study and can utilize the acquired results within their own investigations.

Based upon the findings within this study, there is a strong relationship between predatory monetization scheme and video game addiction, which in-turn translates to higher levels of in-game spend. It can be deduced that video game addiction has a positive influence on excessive in-game expenditure.

6.2.2 Practical implications

The result of the study establishes a positive relationship between predatory monetization schemes and video game addiction. In the investigation of both constructs, several variables were investigated with regards to the relationships they have with a specific construct, and the

implications thereof. It is through the significance and acceptance of these relationships that it can be deduced that extended engagement levels with video games that have in-game monetization models present within them does have a positive influence on in-game expenditure. This is further reinforced through the positive relationship established through the results of the study between predatory monetization scheme and gaming addiction. This relationship suggests that prolonged exposure and engagement does in fact translate to excessive in-game spending. This further compound an already volatile situation in that an individual suffering from video game addiction experiences a deterioration of both their physical and mental well-being and are now exposed to the added risk of financial harm.

The situation becomes even more concerning when considering that a large portion of the player base is comprised of minors.

The following practical recommendations are posed:

Total transparency within transaction of goods

Within these in-game monetization models, a major emphasis is placed upon the sale of loot boxes. This is considered problematic in that these monetization models utilize “surprise mechanics” much like slot machine gambling. This means that consumers purchase digital containers whereby the contents are not specifically known, in hopes of acquiring in-game items of value. This follows identical mechanics to slot machine gambling and should therefore be prohibited. Consumers should make in-game purchases knowing exactly what they are buying.

In-game play time limiter

Through the results of the study, it is validated that excessive engagement levels increase the probability of individuals developing addictive behavioural characteristics indicative of gaming addiction. Therefore, it is recommended that a mandatory play-time restrictor be imposed and implemented within all online video games sold within the South African jurisdiction. This will assist in managing play time amongst players and will alleviate excessive engage with a particular game.

Additionally, text alerts can be sent to guardians or parents pertaining to in-game play time amongst minors to ensure excessive engagement levels are restricted.

No online storage of credit card details

A large majority of purchases are facilitated using a credit card. This requires the user to input the card details in order to validate and facilitate the transaction. However, once these credit card details are provided, these video game publishers capture and store these details in order to facilitate further transactions more quickly and easily. This, in turn, encourages impulsive buying behaviour amongst consumers due to the ease and convenience of transaction. Therefore, it is recommended that the storage of credit card details onto a digital system be prohibited, forcing consumers to input their credit card details every time they wish to make an in-game purchase.

One-Time-Pin confirmation

To further restrict impulsivity within consumer purchasing decisions, it is recommended that a One-Time-Pin confirmation request be sent in order to finalize the transaction. This involves acquiring a pin number from your bank that the consumer will need to input to facilitate the transaction.

Legislation pertaining to the regulation of loot box mechanics

Currently in the South African Consumer Protection Act there is not legislation regarding the purchasing of loot boxes. These in-game items share very strong characteristics with that of slot-machine gambling. This is problematic and highly concerning as there is no regulations regarding these in-game monetization schemes. The recommendation of this study is to outlaw such predatory monetization schemes within the South African video game market as they share very similar mechanics to that of gambling.

Counselling hotline

The study recommends the introduction of a national problem gaming hotline whereby individuals experiencing behavioural issues associated with internet gaming disorder (video game addiction) can converse with trained professionals to seek guidance and assistance in diagnosing and treatment of the issue.

Parental educational material

The study recommends the development and provision of educational material pertaining to the risks of online video gaming and the predatory monetization schemes found within. These

educational sources should be provided by the state through online forums such as YouTube and Facebook, as well as through direct email.

6.2.3 Ethical implications

Within the current iteration of the South African Consumer Protection Act, there is no legislation pertaining to the regulation of monetization models found within most online video games. Through the findings within the study, it is apparent that these monetization schemes utilize predatory marketing strategies to encourage and facilitate spend amongst consumers. Therefore, the need for regulations pertaining to the governance and restriction of such predatory monetization schemes needs to be addressed. This then necessitates the implementation of stringent legislation pertaining to the regulation of these in-game monetization models, whereby spending caps are enforced, storage of credit card details for future purchases are prohibited, the need for One-Time-Pin confirmation when making an in-game purchase is necessitated, and the restriction of loot box mechanics should be implemented as a means to protect consumers from these predatory monetization practices.

6.3 Limitations of the study

Target demographic: The study was restricted to respondents from three survey-related subreddits via the online forums website Reddit as well as the University of the Witwatersrand's email database. The study would benefit from a more focused target demographic regarding the respondents. This will ensure more concise data and validity within the responses acquired, which in turn will assist in achieving a more clear and concise understanding of the phenomena under investigation.

Sample Size: The study had a total response rate of 228 respondents, of which 213 were valid. The study would greatly benefit from a larger sample size as it would increase the reliability and validity of the results.

Data collection: The data collection tool utilized within the study is an online survey questionnaire that was close ended. The study would benefit from a qualitative approach to enable researchers to gain greater insight and understanding into the phenomena being investigated.

Quantitative analysis approach: The study employed a quantitative analysis within the acquisition and interpretation of data. This can often result in an inability to generalize results towards a larger population, thereby affecting the credibility of the results when placed within a broader context.

6.4 Suggestions for further research

Further research into the topic could include participants from a larger and more diverse age demographics. This should include participants that are below the age of 18 years old as their perspective into the topic would create a greater understanding.

Additionally, further studies into this phenomenon should be more focused on avid gamers as their target demographic and respondents to their study as this will provide more concise data.

Further studies could be more focused on respondents within a South African context in order to gain a greater understanding of the topic under investigation as it pertains to South African video gamers.

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APPENDICES

APPENDIX A: Cover Letter

Dear Sir/Madam,

My name is Jarryd Wassink, and I am a master's student in the field of Strategic Marketing currently completing my dissertation at the University of the Witwatersrand, Johannesburg, South Africa. As a part of my dissertation, I will be researching the influence of predatory monetization schemes on video game addiction in online video gaming. The study is titled "Gaming is exploding! A framework to examine the influence of predatory monetization schemes on video game addiction in online video gaming" and will investigate the link between predatory monetization schemes found within many online video games and the outcomes thereof.

I would greatly appreciate if you could spare 5 – 10 minutes out of your day to complete the questionnaire below. Your response to this study is important and there are no wrong or right answers. Anonymity and confidentiality are guaranteed as you do not need to provide your name or identity number. Your participation is completely voluntary and involves no risk, penalty, or loss of benefits whether you participate or not. It is therefore our request that you answer all questions honestly and as best as you can. As participation in this study is voluntary, you may withdraw at any phase. Please note that completing and returning this questionnaire will be regarded as consent that you have agreed to take part in the study.

If you have any questions afterwards about this research, please feel free to contact me on the details listed below. If you have any queries, concerns or complaints regarding the ethical procedures of this study, you are welcome to contact the University Human Research Ethics

Committee (non-medical), telephone + 27(0)11 717 1408, email Shaun.Schoeman@wits.ac.za

Thank you for your willingness to participate in the study.

Researcher: Jarryd Wassink

University of the Witwatersrand

482686@students.wits.ac.za | 079 316 9108

Supervisor: Dr Neo Ligaraba

University of the Witwatersrand

neo.ligaraba@wits.ac.za | 011 717 829

APPENDIX B: Questionnaire

Survey Questions:

Screening question:

(Please circle the relevant answer below)

SQ1. Does your average time involved in playing online video gaming exceed 3 hours per day?

Yes No

SQ2. Are you over the age of 18 years old?

Yes No

IF YOUR ANSWER IS TO EITHER SQ IS NO, YOU WILL NOT BE ELIGIBLE TO CONTINUE WITH THE SURVEY.

Thank you for your time and participation ☺

Section A: Demographics

This section is for statistical purposes only. (Please choose the relevant answer below)

A1. Please indicate your gender.

- a) Male
- b) Female
- c) Prefer not to say

A2. Please indicate your age range.

- a) 18-25 years old
- b) 25-35 years old
- c) 35-45 years old
- d) >45 years old

A3. How much time, on average, do you spend playing video games per day?

- a) One hour or less
- b) 2-3 hours
- c) 4-6 hours
- d) 7-9 hours
- e) More than 10 hours

A4. Do you make in-game purchases within the video games you play. (i.e., buying in-game currency and/or items)?

- a) I regularly spend real money to make in-game purchases in all the online games I play.
- b) I periodically make in-game purchases in the online games I play.
- c) I seldom make in-game purchases in the online video games I play.
- d) I have never made in-game purchases using real money.

A5. Please indicate your household's monthly level of income (USD).

- a) \$300-\$800
- b) \$900-\$1900
- c) \$2000-\$3400

- d) \$3500-\$5400
- e) >\$5500

Section B: Core Questions

In this section, please indicate the extent to which you Disagree or Agree with each of the statements. You can indicate this by choosing the corresponding number in the 5-point scale where: 1 =Strongly Disagree; 2 = Disagree; 3 = Neutral; 4 = Agree; 5 = Strongly Agree. Please try and be as truthful as possible within your responses.

Enjoyment						
	Koo (2009)	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
ENJ1	I get excited to play online video games.	1	2	3	4	5
ENJ2	I get enjoyment out of playing online video games.	1	2	3	4	5
ENJ3	I find the gameplay engaging and immersive within the online video games I play.	1	2	3	4	5
ENJ4	Playing these online video game makes me happy (brightens my mood).	1	2	3	4	5

Social Interaction						
	Ghazali, Mutum &Woon (2019)	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

SIN1	Playing online video games enables me to interact with others.	1	2	3	4	5
SIN2	Playing online video games fulfils my need to interact with others.	1	2	3	4	5
SIN3	Playing online video games increases my opportunities to interact with others.	1	2	3	4	5
SIN4	Playing online video games enables me to be more social and establish friendships.	1	2	3	4	5
SIN5	Playing online video games allows me to achieve a sense of belonging.	1	2	3	4	5

Escape						
	Ghazali, Mutum &Woon (2019)	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
ESC1	I play online video games in order to relax from the day's work or stress.	1	2	3	4	5
ESC2	I play online video games so that I can avoid thinking about certain real-life problems or worries.	1	2	3	4	5
ESC3	I play online video games to escape from real-world problems.	1	2	3	4	5
ESC4	I play online video games because it reduces anxiety.	1	2	3	4	5
ESC5	I play online video games to forget about unpleasant things or offences within my life.	1	2	3	4	5

Competition						
	Demetrovics et al. (2011)	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
COM1	I play online video games because I enjoy competing against other players.	1	2	3	4	5
COM2	I play online video games because I like to test my skill-level with my chosen video games.	1	2	3	4	5
COM3	Playing online video games allows me to attain a sense of achievement when overcoming challenges within the video games I play.	1	2	3	4	5
COM4	I play online video games for the pleasure of testing my skills against other players with the primary objective of winning.	1	2	3	4	5

Performance Expectancy						
	Ramírez-Correa, et al. (2019)	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
PEX1	I find online video gaming useful in my daily life.	1	2	3	4	5
PEX2	Playing online video games increases my chances of achieving things that are important to me.	1	2	3	4	5
PEX3	Playing online video games helps achieve a sense of accomplish.	1	2	3	4	5
PEX4	Playing online video games increases my productivity.	1	2	3	4	5

Facilitating Conditions						
	Ramírez-Correa, et al. (2019)	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
FC1	I have the resources necessary to play online video games (hardware etc.).	1	2	3	4	5
FC2	I have the knowledge necessary to use online video games.	1	2	3	4	5
FC3	Online video games are compatible with other technologies I use (i.e., smartphone).	1	2	3	4	5
FC4	I can get help from others when I have difficulties with online video games.	1	2	3	4	5
Habit						
	Ramírez-Correa, et al. (2019)	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
HAB 1	Playing online video games has become a habit for me.	1	2	3	4	5
HAB 2	I play online video games as often as I possibly can.	1	2	3	4	5
HAB 3	I feel a strong need/desire to play online video games.	1	2	3	4	5
HAB 4	Playing online video games has become a part of my daily routine.	1	2	3	4	5

Price Value						
	Ramírez-Correa, et al. (2019)	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
PV1	Online video games are reasonably priced.	1	2	3	4	5
PV2	Online video games are a good value for the money.	1	2	3	4	5
PV3	At the current price, online video games provide a good value.	1	2	3	4	5

Predatory Monetization Schemes						
	King, Russell, Delfabbro & Polisen (2020)	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
PMS1	When I buy in-game items I can increase my game level easier and more quickly.	1	2	3	4	5
PMS2	When I buy in-game items, this allows me to become more powerful/competitive in the video games I play.	1	2	3	4	5
PMS3	When I buy in-game items I can make my game characters look better and unique.	1	2	3	4	5
PMS4	When I buy certain in-game items I become more noticed by other players within the game.	1	2	3	4	5
PMS5	When I buy in-game items this allows me to better differentiate myself from other players within the game.	1	2	3	4	5
PMS5	By making in-game purchases, I can gain access to in-game items that I cannot acquire without spending real money.	1	2	3	4	5

Perceived Reward Value						
	King, Russell, Delfabbro & Polisena (2020)	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
PRV1	Certain in-game items are worth spending money on.	1	2	3	4	5
PRV2	Some in-game items hold more value than the real money cost it took to acquire them.	1	2	3	4	5
PRV3	Some in-game items are very good value for the amount of real money they cost.	1	2	3	4	5
PRV4	There is a strong factor of “luck” involved in acquiring some of these valuable in-game items that are purchased using real money.	1	2	3	4	5

Online Impulse Buying Gaming Behaviour						
	Dyulgerova & Devreli (2019)	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
OIB1	I often buy virtual goods spontaneously.	1	2	3	4	5
OIB2	“Just do it” describes the way I buy virtual goods.	1	2	3	4	5
OIB3	I often buy virtual goods without thinking.	1	2	3	4	5
OIB4	“I see it, I buy it” describes me.	1	2	3	4	5
OIB5	I buy virtual goods according to how I feel at that specific time.	1	2	3	4	5
OIB6	Sometimes I am a bit reckless with regards to my spending habits in these online video games.	1	2	3	4	5
OB7	I only buy in-game items if I know I have enough real money to afford to do so.	1	2	3	4	5

Use of Credit Card						
	Israel & Jena (2018)	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
UCC 1	I am less aware of the actual cost of in-game items when converting real money to virtual currency to make these purchases.	1	2	3	4	5
UCC 2	I am more impulsive when I shop using credit cards.	1	2	3	4	5
UCC 3	I spend more when I use a credit card.	1	2	3	4	5
UCC 4	I tend to overspend on in-game purchases when using a credit card.	1	2	3	4	5
UCC 5	I have made purchases using another person's credit card (parent etc.) without their knowledge to acquire in-game items.	1	2	3	4	5

FOMO (fear of missing out)						
	Wegmann, Oberst, Stodt & Brand (2017)	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
FMO 1	I fear that others may have more rewarding experiences than me in the online video games I play.	1	2	3	4	5
FMO 2	I am continuously online in order to not miss out on any exclusive or time-gated content/items within the video games I play.	1	2	3	4	5

FMO 3	I fear that I will not have the most current and sought-after in-game items within my online gaming communities.	1	2	3	4	5
FMO 4	I continuously consult my smartphone, in order not to miss out on anything relating to the online video games that I play.	1	2	3	4	5
FMO 5	It is important that I understand the gaming-terminologies and current “meta” (most efficient in-game items) to better fit in within certain online video game communities.	1	2	3	4	5

Gaming Addiction						
	Jap et al. (2013)	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
GA1	I think about playing online video games all day long.	1	2	3	4	5
GA2	Other people’s interventions fail when they try to reduce my online video gaming engagement levels (time played).	1	2	3	4	5
GA3	I feel anxious if I cannot play online video games.	1	2	3	4	5
GA4	Online video games made my relationships with others (such as family, friends, etc.) problematic.	1	2	3	4	5
GA5	The time I spend playing online games negatively affects my sleeping patterns.	1	2	3	4	5
GA6	Playing online video games have a negative impact on my productivity levels in other areas of my life.	1	2	3	4	5

Gaming Intention						
	Wu & Liu (2007)	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
GI1	My intention to play online video games supersedes my other responsibilities.	1	2	3	4	5
GI2	I will play online games frequently in the future.	1	2	3	4	5
GI3	I intend to continue to play online games.	1	2	3	4	5
GI4	I intend to make in-game purchases within the video games I play.	1	2	3	4	5

Thank you for your participation ☺

APPENDIX C: Ethics Clearance

Graduate School of Business Administration
University of the Witwatersrand, Johannesburg



Wits Business School Ethics Committee
Constituted under the University Human Research Ethics Committee (Non-Medical)

Ethics Clearance Certificate

Ethics protocol number: WBS/SM482686/411

This certificate is only valid with a legitimate ethics protocol number and signed by the Researcher (below)

This certificate is only valid if accompanied by formal permission from the relevant stakeholder(s).

Project title	The effects of predatory monetisation schemes in video games on consumers
Investigator / Researcher	Mr Jarryd Wassink
Nature of Project	MM (Strategic Marketing)
Decision of the Committee	Approved, provided stakeholders and participants are guaranteed anonymity and confidentiality.
Issue Date of Certificate	14 10 2022
Expiry date	Date of submission of the project / research report
Chairperson	Prof Anthony Stacey ☎ +27 11 717 3587 📠 +27 82 880 4531 ✉ anthony.stacey@wits.ac.za

A handwritten signature in black ink, appearing to read 'A Stacey'.

Declaration by Researcher

One copy must be signed by the Researcher and returned to the Chairperson of the Wits Business School Ethics Committee.

I fully understand the conditions under which I am authorized to carry out the abovementioned research and I guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I undertake to resubmit the protocol to the Committee.

A handwritten signature in black ink, consisting of several strokes.

Signature

18/1020222

Date:

APPENDIX D: Originality Score

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ORIGINALITY REPORT

9%	9%	4%	%
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