WHAT MAKES THE VIRTUAL GOODS VALUABLE IN THE EYES OF THE CONSUMERS: A VALUE THEORY PERSPECTIVE

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WHAT MAKES THE VIRTUAL GOODS VALUABLE IN THE EYES OF THE CONSUMERS: A VALUE THEORY PERSPECTIVE

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Nadjim MKEDDER'nın "**WHAT MAKES THE VIRTUAL GOODS VALUABLE IN THE EYES OF THE CONSUMERS: A VALUE THEORY PERSPECTIVE**" başlıklı tezi **30 MAYIS 2022** tarihinde aşağıdaki jüri tarafından değerlendirilerek "Anadolu Üniversitesi Lisansüstü Eğitim-Öğretim ve Sınav Yönetmeliği"nin 37, ilgili maddeleri uyarınca, **PAZARLAMA Anabilim Dalında, Doktora** tezi olarak kabul edilmiştir.

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ÖZET

SANAL ÜRÜNLERİ TÜKETİCİLERİN GÖZÜNDE DEĞERLİ KILAN NEDİR? DEĞER TEORİSİ BAKIŞ AÇISI

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Bu çalışma, üç işlevsel (fiyat, kalite ve başarı), üç duygusal (zevk, estetik ve kişiselleştirme) ve üç sosyal (sosyal varlık, algılanan kıtlık ve kendini sunma) değerin sanal ürünlere yönelik satın alma niyetini etkilemedeki rolünü araştırmaktadır. Bu çalışma ayrıca, algılanan değerin faktörler ve sanal ürünlere yönelik satın alma niyeti arasındaki aracılık etkisini araştırmaktadır. Araştırmada çevrimiçi anket kullanılarak Amerika Birleşik Devletleri'ndeki (ABD) 352 çevrimiçi oyun oyuncusundan veri toplanmıştır. İncelenen faktörlerin sanal ürünlere yönelik satın alma niyeti üzerindeki etkisinin araştırılmasında kısmi en küçük kareler-yapısal eşitlik modellemesi (PLS-SEM) kullanılmıştır. Sonuçlar, algılanan değerin sanal ürünlere yönelik satın alma niyetini olumlu yönde etkilediğini ortaya koymaktadır. Ek olarak, bulgular fiyat, kalite, zevk estetiği ve benlik sunumunun sanal ürünlerin algılanan değeri ve satın alma niyeti üzerinde önemli bir etkisi olduğunu göstermektedir. Bununla birlikte, başarı ve kişiselleştirmenin algılanan değer üzerinde olumlu bir etkiye sahip olduğu, ancak sanal ürünleri satın alma niyeti üzerinde anlamlı bir etki göstermediği bulunmuştur. Öbür yandan sosyal mevcudiyet ve algılanan kıtlık, algılanan değer üzerinde anlamlı bir etkiye sahip değilken, sanal ürünlere yönelik satın alma niyeti üzerinde olumlu bir etki göstermektedir. Aracılık etkisi ile ilgili olarak bu çalışma sonuçları, algılanan değerin yalnızca kalite, başarı, keyif alma, kendini sunma ile sanal ürünlere yönelik satın alma niyeti arasındaki ilişkide aracılık rolü göstermektedir. Algılanan değer, fiyat, estetik, kişiselleştirme, sosyal mevcudiyet, algılanan kıtlık ve satın alma niyeti arasındaki ilişkiye aracılık etmemiştir. Sanal ürünlere yönelik satın

alma niyetine yönelik işlevsel, duygusal ve sosyal değerlerin rolü sanal oyuncuların satın alma davranışlarının derinlemesine anlaşılmasını katkıda bulunmaktadır. Bu bakımdan, araştırma işlevsel, duygusal ve sosyal değerleri kullanarak sanal ürünlere yönelik kapsamlı bir modelin analiz edildiği önemli bir çalışmadır. Bu araştırma çevrimiçi oyunlarda sanal ürünleri satin alma niyetini anlamaya yönelik bir anlayışın gelişmesine katkı sunarak pazarlama literatürünü önemli ölçüde güçlendirmektedir. Bulgular, sanal ürün satışları, oyuncuların sanal ürün değerine ilişkin algıları ve sanal ürünlere yönelik satın alma niyeti hakkında kritik bilgiler sağlayarak çevrimiçi oyun sağlayıcılarına, geliştiricilere ve çevrimiçi oyun şirketlerine yardımcı olacaktır.

Anahtar Sözcükler: Sanal ürünler, Tüketim değeri teorisi, Satın alma niyeti, Algılanan Değer, İşlevsel Değer, Duygusal değer, Sosyal değer, Fiyat, Kalite, Başarı, Zevk, Estetik, Kişiselleştirme, Sosyal mevcudiyet, Algılanan kıtlık, Kendini sunma, PLS-SEM.

ABSTRACT

WHAT MAKES THE VIRTUAL GOODS VALUABLE IN THE EYES OF THE CONSUMERS. A VALUE THEORY PERSPECTIVE.

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This study investigates the role of three functional (price, quality, and achievement), three emotional (enjoyment, aesthetics, and customization), and three social (social presence, perceived scarcity, and self-presentation) values in influencing the purchase intention toward the virtual goods. This dissertation further examines the mediation effect of perceived value among the factors and purchase intention toward virtual goods. An online questionnaire was utilized to collected data from 352 online games players across the United States of America (USA). Partial least squares structural equation modelling (PLS-SEM) was utilized to analyze the impact of these factors on the intention to purchase virtual goods. The results reveal that perceived value positively influences the purchase intention of virtual goods. Additionally, the findings also show that price, quality, enjoyment aesthetics, and self-presentation all have a considerable influence on the perceived value and intention to purchase virtual goods. However, achievement and customization were found to have a positive impact on perceived value and show no significant effect on purchase intention of virtual goods. Whereas social presence and perceived scarcity have no significant on perceived value but show a significant effect on virtual goods purchase intention. Concerning the mediation effect this study results show that perceive value mediate the relationship only between quality, achievement, enjoyment, self-presentation, and the intention to purchase virtual goods. While perceived value did not mediate the relationship among price, aesthetics, customization, social presence, perceived scarcity, and purchase intention. The role of functional, emotional, and social values in the purchase intention for virtual goods contributes to an in-depth understanding of

the purchasing behavior of online players. In this respect, the research is an important study in which a comprehensive model for virtual goods is analyzed using functional, emotional, and social values sub-factors. This research significantly strengthens the marketing literature by contributing to the development of an understanding of the intention to purchase virtual goods products in online games. The findings will assist online game providers, developers as well as online games companies by providing critical information on virtual goods sales, players' perceptions of virtual goods value, and their intention to purchase virtual goods.

Keywords: Virtual goods, Consumption value theory, Purchase intention, Perceived Value, Functional Value, Emotional value, social value, Priced, Quality, Achievement, Enjoyment, Aesthetics, Customization, Social presence, Perceived scarcity, Self-presentation, PLS-SEM.

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Bu tezin bana ait, özgün bir çalışma olduğunu; çalışmamın hazırlık, veri toplama, analiz ve bilgilerin sunumu olmak üzere tüm aşamalarında bilimsel etik ilke ve kurallara uygun davrandığımı; bu çalışma kapsamında elde edilen tüm veri ve bilgiler için kaynak gösterdiğimi ve bu kaynaklara kaynakçada yer verdiğimi; bu çalışmanın Anadolu Üniversitesi tarafından kullanılan "bilimsel intihal tespit programı"yla tarandığını ve hiçbir şekilde "intihal içermediğini" beyan ederim. Herhangi bir zamanda, çalışmamla ilgili yaptığım bu beyana aykırı bir durumun saptanması durumunda, ortaya çıkacak tüm ahlaki ve hukuki sonuçları kabul ettiğimi bildiririm.

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I the undersigned hereby truthfully declare that this thesis is an original work prepared by me; that I have behaved in accordance with the scientific ethical principles and rules throughout the stages of preparation, data collection, analysis and presentation of my work; that I have cited the sources of all the data and information that could be obtained within the scope of this study, and included these sources in the references section; and that this study has been scanned for plagiarism with "scientific plagiarism detection program" used by Anadolu University, and that "it does not have any plagiarism" whatsoever. I also declare that, if a case contrary to my declaration is detected in my work at any time, I hereby express my consent to all the ethical and legal consequences that are involved.

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(Name and Surname of the Student)

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MMRMOGP	Massively Multiplayer Online Role-Playing Games
F2P	Free to Play
PV	Perceived Value
PI	Purchase Intention
PR	Price
QUAL	Quality
ACH	Achievement
ENJ	Enjoyment
AES	Aesthetics
CZ	Customization
SOC	Social presence
SC	Perceived scarcity
SL	Self-presentation
PLS-SEM	Partial Least Squares-Structural Equation Modeling
CB-SEM	Covariance Base Analysis Structural Equation Modeling
AVE	Average Variance Extracted
HTMT	Heterotrait-monotrait

CHAPTER ONE

1. INTRODUCTION

By the mid-1990s, online customers have enjoyed internet product purchases, first with physical products like books from “Amazon” and expanding to intangibles like music from “iTunes”. Lately, this tendency has expanded to encompass the use and purchase of “virtual goods” (Kim et al., 2012; Shukla & Drennan, 2018). Virtual purchasing originated in 1999 when Ever-quest (online game) was created by Sony Online Entertainment and launched as a player-to-player trade of virtual items in massive multiplayer online games (MMOGs) (Lehdonvirta, 2009; Muller et al., 2020).

Massively Multiplayer Online Role-Playing Games (MMORPGs) are one of the fastest divisions of the virtual electronic gaming industry, fueling a multi-billion dollar virtual economy (Shukla & Drennan, 2018). MMOGs contain a range of categories, including social, strategy, action, and construction, and often involve a large number of parallel players establishing a complex online community. MMORPGs (such as League of Legends, World of Warcraft, Pokémon Go, Fortnite, PUBG, and Call of Duty) are of significance in information technology and management literatures, not only for their social networking aspects, but also for the financial value they produce via the creation of virtual goods and currencies (Sierra et al., 2016). When virtual goods become attractive enough to be traded on auction websites like “eBay”, their supply and demand have an impact on the real economy (Lehdonvirta, 2009). More recently, this economy has been fueled by game providers directly marketing virtual goods to users (Fiorillo et al., 2020; Lehdonvirta, 2009).

In the late 2000s, several MMORPGs used a variety of various business methods to generate revenue from players such “Pay to Play” and “free to play” models (Davidovici-Nora, 2013). The Pay to Play business model is based on subscription fees (i.e., to play, a one-time fee is necessary to get access to the game). However, the F2P model is based on allowing players to download and play the game for free, with income made via in-game purchase referred to as microtransactions (Hamari & Lehdonvirta, 2010b; Ko & Park, 2020). Players in free to play may pay for virtual coins, virtual goods, or to eliminate game controls like time limitations in free-to-play games. The success of this strategy has resulted in the shift of numerous games to the

free-to-play model (Almendarez-Hernández et al., 2016; Ko & Park, 2020; Park & Lee, 2011), while those that stayed for purchase have fully integrated components of the free-to-play model, most notably the usage of microtransactions to purchase cosmetic virtual goods such as skins and loot boxes (Macey et al., 2020; Rockloff et al., 2021).

Virtual goods refer to "virtual objects such as items, virtual furniture, currencies, avatar clothing, weapons, characters, and tokens that commonly exist merely within a range of virtual environment such online games" (Hamari, 2015; Hamari et al., 2020; Hamari & Keronen, 2016). Virtual goods have the same possession characteristics as tangible goods. For instance, only one person may use the clothes at a time. However, information goods are not exclusive: one user may provide another user a copy of an e-book or MP3 file without losing the original one. Prior studies defined virtual goods in a various way. For instance: Oh and Ryu (2007) defined virtual goods as "goods that exist only in a virtual world". Kim et al (2009) defined "virtual goods as new media elements used by users for representation, expression, and communication in online environments." Cleghorn and Griffiths (2015) defined virtual goods as "items that are bought with real-world money for an avatar in-game such as Weapons, cloth, pets...etc." According to Kim et al (2011) virtual goods can be used to signify their owners, and players utilizing virtual goods to express their second personality in the virtual environment and controlling their virtual world. Virtual goods are often classified into three categories: aesthetic, social, and utilitarian (Lehdonvirta, 2009; Park & Lee, 2011). For instance, appearance-based products alter solely the look of the avatar, but functional goods may include gaming equipment such as stronger weaponry, armor, or other enhancements that improve different characteristics. Virtual goods are constrained by the laws of their context of usage.

Free-to-play games are based on players' willingness to buy products or pay for access to new content once they have experienced the game and gotten a feel for its characteristics. The concept of paying for more content after playing a game, such as access to other locales, avatars, or levels, enables developers to build many games on the same platform and then concentrate on extending those versions while collecting income via in-game payments. In a free-to-play environment, players have the option of purchasing or not purchasing virtual goods. The game's developers design two techniques for obtaining virtual goods. The first is to make direct payments for virtual

products sold in online gaming stores. The second is by playing the game for an extended period of time, earning points, awards, and then exchanging these points and rewards for virtual items. Thus, players are free to choose the technique that is most beneficial for them.

1.2 Problem of the Study

Digital games, which include social games, mobile games, personal computer games, and massively multiplayer online games, have grown rapidly in recent years, contributing 44$ billion to the United States' gross domestic product in 2022 (InsiderIntelligence, 2022). According to the Entertainment Software Association, 59% of Americans and 51% of US households play video games and possess at least one gaming device (Guo et al., 2019). In 2022, gamers in the United States of America aged 13 or older spent more than 20 hours a week playing video games, more than 150 million monthly played mobile gamers in the US which represent 89% gamers from the total US gamers, whereas the rest play video games on the other devices like desktop or laptop (InsiderIntelligence, 2022). Further, in-games (virtual goods') global sales is expected to hit 189.76 billion by 2025 (Release, 2019). Since virtual goods are the greatest lucrative supply of income in online games, free-to-play game developers have long revered them. To maximize revenue and encourage players to spend real-cash on virtual goods (Goode et al., 2014).

Free-to-play games are the most extensively utilized method of monetizing games (Civelek et al., 2018). Free-to-play games enable consumers to use the content for free and then buy virtual goods if they like it (Cai et al., 2019; Hamari, 2015). However, this monetization approach does not ensure success, since only a small percentage of consumers make in-game purchases, often less than 5% of all online game players (Jang et al., 2019). As a result, game developers are attempting to understand why this slight percentage of players purchase virtual goods and contributes to the massive cash generated by online games. Considering increased interest in this phenomenon, there is a dearth of study on the factors that impact consumers' decisions to pay for virtual goods in online games. Previous research about factors determining the purchase of virtual goods concentrated on two points: users' "psychological aspects" and "game design" (Hamari & Lehdonvirta, 2010; Lehdonvirta, 2009). Players' psychological perspective concentrates on the users' motives to buy virtual goods. However, the

game design approach is primarily concerned with developing a system to persuade users to make in-game purchases. While prior study (Hamari & Keronen, 2016) contributes to our knowledge that virtual goods purchases are directly tied to players satisfaction, attitude, their image improvement and enjoyment. However, it seems doubtful that these factors are sufficient to explain why players acquire virtual goods in online games.

Moreover, the phenomena of virtual goods use and purchase behavior have been investigated from a range of theoretical stances like "technology acceptance "(Chauhan et al., 2021; Hsu & Lu, 2004; Zhu et al., 2012), "theories of planned behavior and reasoned action" (Alzahrani et al., 2017; Dhir et al., 2020; Lee & Tsai, 2010), "uses and gratifications theory"" (U&G) (Hsiao & Chen, 2016; Lee & Xiong, 2018; Merhi, 2016), "social identity theory" and self-presentation theory" (Chen & Chen, 2020b, 2020a; Kim et al., 2012; Park & Chung, 2011) as well as "transaction cost theory" (Guo & Barnes, 2011; Guo & Barnes, 2012). However, there is a dearth of research based on "consumption value theory" (Hsiao et al., 2020; Kim et al., 2011).

Based on "consumer value theory", Kim et al. (2011) analyzed the virtual goods purchase intention. Three values were used in connection with their sub-values: "price utility" and "functional quality" reflect "functional value", "aesthetics and playfulness" represent emotional value, "social self-image expression" represents social value, and "social connection support" represents social value. On the other hand Hsiao et al. (2020; 2016) examine the reasons that impact the user intention to purchase in online games (mobile games and location-based AR games). Based on value theory three values were employed (functional, emotional, and social value) and linked with their sub-values: performance quality value, value price for money as functional value, playfulness as an emotional value, and connectivity as a social value.

Previous studies (Hsiao et al., 2020; Hsiao & Chen, 2016; Kim et al., 2011) explained the players motivations to purchase virtual goods in online games. However, these interrelationships in shaping the players intention to purchase virtual goods yet tend to be fully examined. Further investigation is still needed to explore how these interplays affect the player's purchase intention in online games.

Therefore, in this dissertation we address this gap in literature for by extending three values functional, emotional, and social with their sub-values price, quality, and

achievement shaping the functional value, enjoyment, aesthetics, and customization representing emotional value, and social presence, perceived scarcity, and self-presentation indicating social value.

1.3 Aim of the Study

In this dissertation we investigate the role of three functional (price, quality, and achievement), three emotional (enjoyment, aesthetics, and customization), and three social (social presence, perceived scarcity, and self-presentation) values in influencing the purchase intention toward the virtual goods. This dissertation further examines the mediation effect of perceived value among the factors and purchase intention toward virtual goods.

1.4 Originality/Value of the Study

This dissertation provides a number of significant theoretical contributions. The first implication is that the "consumption value theory" is expanded by employing it to the content of purchases of virtual commodities. It has been shown that the consumption value theory is useful for understanding why consumers purchase products and services in offline and online. However, its applicability in virtual worlds, particularly for the purchase of virtual goods, is inadequate. Therefore, this study expanded the "consumption value theory" (Sheth et al., 1991) application breadth and understanding by examining the role of online games' characteristics in enhancing players' perceived value and virtual goods purchase intention through functional value (price, quality, and achievement), emotional value (enjoyment, aesthetics, and customization), and social value (social presence, perceived scarcity, and self-presentation).

Second, although previous research has used "consumption value theory" to reflect users' intention to purchase virtual goods in online games, (Kim et al., 2011; Hsiao & Chen, 2016, and Hsiao et al., 2020) however being effective and efficient in online gaming is still challenging. Therefore, this study also expanded consumption value theory by examining the perceived value mediation effect between value dimensions and virtual goods purchase intention. According to Emerson's (1976), "social exchange theory", perceived information is calculated via mutual trade

transactions, including an exchange ratio of physical and immaterial activities. In addition, perceived value is often defined as "consumers' overall evaluation of the usefulness of a product or trade-off based on their expectations of what they would give and get" (Zeithaml, 1988). In this context, this study identifies and tests the mediating influence of perceived value among the dimensions of values and the virtual goods purchase intention. Although the mediation impact of perceived value has not previously been used in the context of virtual goods purchase intention, existing literature has highlighted it as a significant concept (Putra et al., 2019; Yi-Shun Wang, Ching-Hsuan Yeh, 2013).

Finaly, the present research contributes to the limited existing knowledge on the perceived scarcity influence on the willingness to buy virtual goods. The current literature suggests that rare items are more wanted by the players (Ho & Wu, 2012; Lehdonvirta, 2009; Wu et al., 2012). However, none of the prior research addressed the impact of perceived scarcity in online games. Therefore, the current dissertation fill this gap by examining the effect of perceived scarcity on intention to purchase virtual goods in online games.

1.5 Limitations of the Study

Despite the contributions, this research is certain to have some limitations. To begin with, this study targeted some specific online games, such as free-to-play games. It would be great if further research examined the players' purchase intentions in other business models like pay-to-play or play-to-win. Furthermore, this study used a modest sample size, focusing on the convenience sample method. Without a doubt, a larger sample size and employing other methods to collect data may give future studies more accurate results. Finally, the current study focuses on limited factors that may influence the player's behaviour. It would be beneficial if future studies investigated this phenomenon by studying the effect of other factors.

1.6 Definitions of constructs

The following table demonstrate the constructs definitions:

Table 1.1. *The constructs definitions*

Constructs	Definitions	References
Price	Refers to the perceived efficient use of money by acquiring/purchasing a virtual good	(Kim et al.2011).
Quality	Refers to the overall excellence and expected performance of an acquired/purchased a virtual good	(Kim, et al. 2011, (Miladian & Sarvestani, 2012)
Achievement	Refers to the desire to obtain power, advance quickly in the game, collect virtual goods, accumulate precious performance points, and compete with others.	(Wu et al., 2010; Yee, 2006)
Enjoyment	Refers to the action in which buying virtual goods brings users satisfaction and enjoyment as they play digital games.	(Ryan and Deci, 2000, Ozkara et al. 2017)
Aesthetics	Refers to the visual design that makes virtual goods appealing to the players' eyes. This form of game design involves not only the visual look of virtual goods such as hair color, skin tone, and apparel, but as well the related impact such as animations and sounds.	(Lehdonvirta. 2009, Ho 2014).
Customization	Refers to a player's capacity to build, alter, or customize any part of a digital game based on their own desires by purchasing virtual goods.	(Teng, 2010).
Self-Presentation	Refers to the degree to which a user wants to project his or her desired image in a virtual Community by buying a virtual good.	(Kim et al., 2012)
Social Presence	Refers to the user's perception of physically engaging with virtual goods in digital games.	(Biocca et al., 2003)
Perceived Scarcity	Refers to the players perception of a virtual goods' scarcity when shopping in online games store	(Gupta & Coskun, 2021, p. 3)

CHAPTER TWO

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

This section delivers a short literature overview of previous studies. First, the theoretical background and the connection between variables relevant to this research are examined. Second, the research hypotheses are illustrated.

2.1. Intention to purchase "virtual goods" in the "Online Games":

Several crucial theories demonstrate how the intention to purchase virtual goods in virtual realms is affected (Bleize & Antheunis, 2019). First, the "Theory of Planned Behavior" (TPB) (Ajzen, 1991) is a well-known theory in the fields of "marketing communication" and "consumer behavior" that connects the individuals beliefs to their behavior. TPB states that three elements impact a consumer's behavioral intention: attitude toward the behavior, subjective norms, and perceived behavioral control (Ajzen, 1991). According to TPB, consumers' buying intent is influenced by a previously defined significant or negative attitude toward purchasing virtual goods in virtual world. Furthermore, the norm established by others (whether others think that buying virtual goods is an expected behavior or not) and the perception of control (for example how simple it is to buy virtual goods) in the virtual environment as well impact on the purchase intention.

Second, the "Technology Acceptance Model" (TAM) (Davis, 1989) is concerned with the aspects that affect behavioral intentions. Despite TAM originating in information systems, it has been used in marketing communications to describe customer behavior (e.g. George, 2002; Guo & Barnes, 2009). TAM varies from TPB in that it recognizes various determinants that affect individuals' intention. TAM is based on two elements: "perceived utility" and "perceived ease of use", which mutually control an individual's behavioral intention (Davis, 1989). When it comes to purchase intention in virtual environment, perceived usefulness refers to" how much a person believes buying goods in the virtual environment will improve users' success in the game", while "perceived ease of use" refers to "how complicated people believe purchasing virtual goods is" (Davis 1989). More precisely, "perceived usefulness" refers to "players' perceptions of whether buying "virtual goods" would improve their performance in the game, such as buying a sword that improves their fighting skills".

In comparison, “perceived ease of use” relates to players' views on whether the advantages of buying virtual goods justify the effort required to do so.

Third, in contrast to the previous two theories, the “Consumption Values Theory” (Sheth et al., 1991) describes how individuals select goods and brands built on five consumption values (“functional”, “emotional”, “social, epistemic”, and “conditional”) that collectively decide why we purchase goods. The first value, functional value, is linked to product features, such as the functionality of virtual goods, such as an item that give functional advantage in a virtual world. Emotional value refers to “product attributes that influence consumers' feelings”. Purchasing pretty skins or clothes that are identical to someone's goods have in real life will arouse the player's sensation. Social values are “attributes of a product or brand that build associations among players and the product/brand, as friends or other users can buy the same virtual goods”. Furthermore, epistemic ideals are “associated with attributes that arouse customer interest, such as how buying furniture can be pleasant”. Finally, conditional value are “characteristics that generate meaning only under certain conditions” (Ho & Wu, 2012), such as buying new furniture allowing gamers to welcome other avatars to their home (e.g. Hotel Habo).

Finally, “flow theory” (Csikszentmihalyi, 1990) describes how people can become so absorbed in an operation that they are totally unaware of what is going on around them. Flow theory states that shopping in virtual realms, will induce a “state of flow” in which customers continue to browse and ultimately buy goods. This theory initially had nine dimensions, but it is now often calculated with fewer constructs. Koufaris (2002) used three influential constructs to measure flow: “perceived enjoyment”, “perceived control”, and “perceived concentration”. Perceived enjoyment describes how much a virtual environment is perceived to be pleasant or fun, perceived control describes the extent to which users have control over the virtual realm, and perceived attention explains the intensity with which users focus on a specific activity.

This dissertation examines the virtual goods purchase intention by using “consumption value theory” (Sheth et al., 1991). The consumption value theory is a desirable choice for this study because it enables businesses, such as online game companies, to achieve a deeper understanding of their target consumers and, as a result, shape their virtual goods, services, and corporate culture to influence

purchasing decisions. Furthermore, this theory is more comprehensive and will be able to help us understand the player's behavior more extensively (Diniso & Duh, 2021; Ray et al., 2021; Sheth et al., 1991). Therefore, according to the previous literature, a model is developed in order to examine three values functional, emotional, and social. These values are represented by sub-values (price, quality, achievements, enjoyment, aesthetics, customization, social presence, self-presentation, and perceived scarcity), and we further tend to examine the sub-values effect on perceived value and virtual goods purchase intention.

2.2. Perceived Value Theory ("Consumption Value theory")

The "perceived value" notion has been argued for a long time ago. A plethora of research defined the value in several ways and from several perspectives. For example, Zeithaml (1988, p. 14) described value as "the consumer's overall assessment of the utility of a product based on perceptions of what is received and what is given". They deduced this from consumer valuation of a product or service's 'get' and 'give' elements. Zeithaml (1988) argued that several individuals perceive value when there is a" low price", whereas others may perceive value when there is equilibrium among "quality and price". This view was too narrow, it was limiting the value between price and quality (functional value), and therefore, a more developed explanation was needed to understand the value.

Babin et al., (1994) established a scale based on customers' judgments of a shopping experience along dual key components: "utilitarian" and "hedonic" value. They concluded that the consumers were doing shopping in two ways. The first one is "work" i.e., people are doing the shopping because they are forced to, look to it as a mission that needs to be completed or for the necessity of meeting their needs. This kind of activity has a utilitarian value. The second way, consumers were doing shopping as fun, they were enjoying the moment when they are doing this action, they love it, and they had a feeling to meet their emotional needs.

On the other hand, Sheth et. al (1991) suggested five components of compound consumption value including five value elements, and these elements may create different influences under various circumstances. These dimensions are "functional", "emotional", "social, conditional", and "epistemic" values. Their study was built on the assumption of consumer perceived utility of choice, whether deciding to purchase

or not to purchase product level type “A or B” and brand “A or B”. Sheth et al. (1991) study results revealed that, beside Zeithaml’s functional value influence, the other value dimensions were also influencing the consumer choice. For instance, the decision of filtered or unfiltered cigarettes was dominated by functional and social value while the decision to smoke was obviously stemmed from the emotional value. The different values may occur depending on the product or service being examined and depending on the level of decision that has been taken. Sheth et. al (1991) work offers a solid foundation for expanding existing value categories and has been utilized in several domains, including economics, social psychology, and clinical psychology.

Accordingly, perceived value has been debated by Sweeney & Soutar (2001) and they developed the PERVAL scale. They combined the three elements of value namely “functional value”, “emotional value”, and “social value”. The “conditional” and “epistemic value” was ignored and seen as occasional factors due to less influence on consumer behavior. Their results indicated that all values were obviously influencing consumer behaviour.

Under the same path, Kim et al. (2009, 2011) discussed the influence of perceived value in the social networking community (virtual world). Based on Sweeney & Soutar (2001) study, they developed six subfactors (“Price utility/Quality, Aesthetics/playfulness, self-image/Social relationship”), over three elements of consumption value (“functional, emotional, and social”) which may influence the consumers’ purchase intentions toward virtual items. Their results illustrated that the different values (functional, emotional, and social) were clearly influencing the purchase intentions.

Value dimensions, according to Sheth et al. (1991, p 12), are independent since they "relate additively and contribute sequentially to decision." In this dissertation, three values are suggested, including functional value, emotional value, and social value. Concerns regarding virtual goods were considered indicators in the perceive value theory model because players' choices are made up of a variety of consuming attitudes that exert independent and different impacts under unique choice situations in online games (Hsiao et al., 2020; Kim et al., 2011). Due to the fact that this research considered the value of virtual goods consumption, we preferred to concentrate on the

three aforementioned inferences (functional, emotional, and social values) while analyzing consumer purchase behavior for virtual products.

2.2.1. Functional Value

Functional value has been believed as the main driver of consumer choice. Sheth et. al (1991) explained "functional value" as the "perceived utility" of a product depending on the product's ability for "functional or utilitarian performance". The functional value occurs when the consumer perceived the utility of utilitarian or physical performance acquired from products or services attributes. Sweeney & Soutar (2001) regards the functional value as "the utility derived from product reliability, durability, and short-term and longer-term costs". In the virtual community (online games) functional value refers to "the utility of obtaining virtual goods based on the consumer's functional benefits getting from these goods and what they will give to get them" (Kim et al., 2009, 2011). In this dissertation, we considered the price, quality and achievement as factors representing the functional value and influencing the perceived value and virtual goods purchase intention.

2.2.1.1. The Impact of Price on Perceived Value and Purchase Intention

In 1999, player-to-player trades in MMOs (Massive Multiplayer Online games) such as Ever-quest marked the launch of the real-money exchange of virtual goods (Ever-quest is established by "Sony Online Entertainments and was released" in 1999). Players were offering their hard-earned virtual goods on e-bay and let other players bid for them (Hamari & Lehdonvirta, 2010a; Lehdonvirta, 2009). Subsequently, the virtual goods monetization process developed and passed through three stages are paid games, subscribed games, and free-to-play games. The free-to-play (F2P) business model is the one that dominates all other strategies. It is based on offering the game for free to download and motivating players to purchase virtual goods. It began to emerge in 2007 when Facebook extended its platform to third-party application developers (Hamari, 2015). Facebook games such as "Farm Ville", "City Ville", and "Candy Crush Saga" collected millions and became famous due to the social network integration and F2P business model which all simultaneously offered a great supply channel and effortless entrance to browser games (Alha et al., 2014).

Free-to-play games are designed to motivate players to do 'micro-transactions. First, the player should buy the virtual coins by changing the real money to games

currency such as the "V-Bucks" in Fortnite or UC (Unknown Cash) in PUBG, and after they can purchase virtual goods such as rare skins and outfits accessories, and even dance moves from the in-game virtual store (King et al., 2020).

In the virtual community, the player's primary purchasing goal is to acquire value from virtual goods, which explains why all efficient trade transactions are crucial for them (Bagozzi, 1975; Holbrook, 1994; Hsiao et al., 2020). According to the “social exchange theory” (Emerson, 1976), the creation of value is the result of reciprocal trade transactions involving an "exchange ratio" of tangible and intangible activity. Thus, value is viewed and characterized as the consumers' total appraisal of the usefulness of a product or exchange based on their expectations of what they are providing and getting (Zeithaml, 1988). In this regard, perceived value is defined from a utilitarian perspective, where economic and cognitive reasoning are used to assess the costs and advantages of the transaction (Zietsman et al., 2019).

According to Ho & Wu (2012) price is regarded as a pecuniary sacrifice for reaching a virtual good and seen as one of the key determinants in customer behavior (Hsiao et al., 2020; Zeithaml, 1988). It is merely can be explained as what players are ready to pay for to obtain virtual goods (Kim et al.2011). Prior studies considered the price to perform an effective act in the formation of value opinions and increasing the intention to purchase (Chang & Wildt, 1994; Chua et al., 2019; Hamari & Lehdonvirta, 2010a; Lehdonvirta, 2009) when virtual goods are perceived as a convenient price, players believe that their money is spent more effectively. Thus, the greater the price is perceived as convenient to the players, the higher the perceived value and purchase intention of virtual goods will be. We, therefore, suggest the following hypothesis:

H1. Price has a positive effect on the perceived value of virtual goods.

H2: Price has a positive effect on the intention to purchase virtual goods.

2.2.1.2. The impact of Quality on Perceived value and purchase intention

Quality refers to “the consumer’s judgment about the superiority or excellence of a product” (Zeithaml, 1988). Moreover, the quality value is considered as a functional value and defined as “the utility derived from the perceived quality and expected performance of the product” (Sweeney & Soutar, 2001, p. 211). Concerning the quality of the virtual goods, it has been regarded as the overall excellence and

expected performance of virtual goods (Kim et al., 2011; Miladian & Sarvestani, 2012). It is also seen to be of considerable relevance in motivating players to pursue the use of upgraded virtual goods and use online gaming transaction platforms to acquire these virtual goods. (Guo & Barnes, 2009).

The quality of virtual goods as a functional value can be viewed from two angles. The graphical quality of virtual goods which may include virtual goods characteristics such as a good cloth design, skins, music sounds, and dance moves (i.e., all of which are created for aesthetic purposes). On the other hand, the quality of the game software should be good, updated, free of problem, and easy to use which offer players a compatible platform to achieve high-quality microtransaction (Miladian & Sarvestani, 2012). The quality of virtual goods and the game are considered important factors affecting consumer behavior (Guo & Barnes, 2009; Hamari et al., 2017; Kim et al., 2011; Rezaei & Ghodsi, 2014).

Value has attracted considerable attention in the consumer behavior and marketing fields. According to Vandermerwe (2003), value is determined by customers and is accomplished when individuals are delighted with the whole experience. Monroe (1990) concluded that individuals' opinions of value represent an exchange among the "perceived quality or benefits" of a product and the "perceived sacrifice" connected with paying the "price". Woodruff (1997), defined consumer value as "a customer's perceived preference and judgment of product qualities, performance attributes, and use outcomes that increase the customer's ability to accomplish product and buy goals in use circumstances". Accordingly, previous studies (García-Fernández et al., 2018; Kim et al., 2011; Konuk, 2018), stated that quality is significantly related to perceived consumer value and it considered as the driver of purchase intention. It is explained as an evaluation of the overall superiority or excellence of virtual goods, (Asshidin et al., 2016; Kim et al., 2011; Zeithaml, 1988). When it comes to the relationship among "perceived value and quality", there has been a consensus that favorable quality expectations lead to increased value attributions, therefore, lead to increase purchase intention (Cronin et al., 2000).

Quality involves dual elements: "game content quality" and "transaction system quality" (Guo & Barnes, 2009). The system quality, involving elements such as interface concerns, server reactions, lack of unpleasant ads...etc. (Harviainen et al., 2018). In contrast to "functional quality", which is "the perceived overall excellence

and projected performance of a digital item, which may exhibit distinct attributes across Social Network Communities". For instance, the quality of musical virtual goods requires its sound quality. The quality of graphics virtual goods may contain its attributes (e.g., dances, skins, clothes…etc.). Prior studies supported the notion that quality contributes to perceived value (Cheng & Lin, 2017; Guo & Barnes, 2009; Hamari et al., 2017; Kim et al., 2016; Rezaei & Ghodsi, 2014). Quality, perceived value, and purchase intention are closely connected and high perceived quality causes to high perceived value and increases the intention to purchase. For instance, when the player's perception of virtual goods quality increased significantly it results in a positive perception of value and significantly raise the likelihood of purchasing virtual goods. We, therefore, suggest the following hypothesis:

H3: Quality has a positive effect on the perceived value of virtual goods.

H4: Quality has a positive effect on the intention to purchase virtual goods.

2.2.1.3. The impact of Achievement on Perceived value and purchase intention

In the perspective of online games, while thinking about player's desires, the desires can be correlated with the users' reasons for playing the games. Yee (2006) summarized the main elements of playing reasons including "achievement", "social component" (socializing, relationship and teamwork), and "immersion". They pointed out three components of achievement. Advancement refers to "the desire to acquire power, move quickly, and gather in-game symbols of prestige". Mechanics is "the desire to analyze the underlying laws and systems in order to improve character performance" (Yee, 2006).

The capability to proceed in a game and the achievement differ from one to another due to the variety of games designs. For instance, MMORPG (Massively Multiplayer Online Role-Playing Game) and MOBA (Multiplayer Online Battle Arena) such as PUBG (Player Unknown's BattleGrounds), Call of Duty & FORTNITE support the advancement through levels and collecting points and the rank, where the avatar becomes capable to collect virtual goods such as "weaponry or clothing". Further, levelling up an avatar and enhancing the power of an avatar's capabilities allow the users to achieve a high rank, collects more points, and arrange

their skills level, from the lowest to the highest (Schöber & Stadtmann, 2020; Sunil et al., 2021; Wang et al., 2013; Wu et al., 2010;).

Achievements may be characterized as "a motivation to acquire power, advance quickly in the game, collect virtual goods, earn significant performance points, and compete with others" (Wu et al., 2010; Yee, 2006, Xu and Yuan 2012, Li et al., 2015, Ryan, and Deci, 2000). According to Merhi (2016) People play online games primarily to fulfill a need that they are not able to meet in the real life or to demonstrate their talents to other users. Indeed, some gamers like to play online games in order to fulfill a craving that they cannot fulfill in real life. For instance, someone who usually loses while playing poker in person might satisfy this urge by playing the online game and achieving success (Fang et al., 2009). Whereas, other players tend to reach their goals in the game like passing level which makes them happy to spend time and effort realizing new challenges and show their progress and skills to others (Jang et al., 2019). From this viewpoint, achievement may be seen as intrinsic motivation, and it can be calculated on the basis of which the action of engaging in the online community is considered by players to be enjoyable, trust-building, and gratifying (Fang, et al., 2009).

Values have been influenced sociology, psychology, and anthropology (Weber, 1992). Values are derived from individuals physical and psychological needs, as well as their personal desires, perceptions, and preferences (Rokeach, 1973). The need for achievement stems from a psychological need (Lin et al., 2015). In this regard, the term "achievement" can be seen as the player's capability to accomplish more than other players in a digital world as a result of buying virtual goods (Mahfuzra et al., 2019). Several studies have indicated that achievement is the primary reason for engaging online games (Bartle, 1996; Fang et al., 2009; Lin et al., 2015; Mahfuzra et al., 2019; Tseng, 2011; Williams et al., 2008; Yee, 2006). According to Cruz et al. (2017) players may play online games for one of two reasons: they may be compelled to do so by an external force, such as rewards or challenges (i.e., “extrinsic motivation”), or they may do so for their own reasons (i.e., “intrinsic motivation”). Achievement not only offers players a feeling of internal joy and achievement, but it further satisfies their psychological needs and motivates them to play (Lin et al., 2015; Tseng, 2011). When the players achieve high levels than the others and obtain rare virtual goods due to sticking playing the game and getting more rewards than others

or purchase virtual goods from the in-game store, they meet their psychological needs, and they increase their personal satisfaction which in return increase the players value perception and purchase intention of the virtual goods. Thus, purchasing virtual goods may make players become superior to other users, and may tend to result in a better competitive perceived value by the players. We, therefore, suggest the following hypothesis:

H5: Achievement has a positive effect on the perceived value of virtual goods.

H6: Achievement has a positive effect on the intention to purchase virtual goods.

2.2.2. Emotional Value

Emotional value can be regarded as "the perceived utility of a product depending on the product's ability to arouse feelings or affective states" (Sheth et al. 1991). In addition, the products may generate affective states in which the consumers are linked with specific products emotionally (Sweeney & Sauter 2001). In the virtual community (online games) emotional value refers to the value delivered by pleasure and enjoyment felt by the player when they utilize the virtual goods (Kim 2011, Jia & Wang 2019). In this dissertation, we considered the enjoyment, aesthetics and customization as factors that shape the emotional value and influencing the perceived value and virtual goods purchase intention.

2.2.2.1. The impact of Enjoyment on Perceived Value and Purchase Intention

Perceived enjoyment has been considered as the primary driver of playing online games (Guo & Barnes, 2009; Noh et al., 2016; Ozkara et al., 2017). The term perceived enjoyment refers to "the degree to which the practice of using systems is regarded as pleasurable" (Davis et al., 1992). In online gaming, enjoyment is characterized as "the degree to which actions involving new technologies are pleasurable, independent of the outcomes of success" (Merikivi et al., 2017). Lee and Quan (2013) described perceived enjoyment as an intrinsic element of games that is unrelated to extrinsic factors such as monetary rewards and is determined by the game characteristics.

Additionally, enjoyment is described as the action in which acquiring virtual goods brings players satisfaction and gratification as they play games and is considered as one of the primary intrinsic motives for users' emotional behavior

(Ozkara et al., 2017; Ryan & Deci, 2000). According to Wu & Liu (2007), players who see online games as enjoyable and delightful are more inclined to be pleased, to offer favorable overall assessments of the results of playing and utilizing online games, and to be inclined to buy virtual goods.

In contrast, Hamari's (2015) research indicates that game pleasure decreases the desire to acquire virtual goods while simultaneously increasing the desire to play further the game. This assumption is based on the notion that, to sell virtual goods, companies may be attracted to reducing the quality of the game by introducing simulated barriers and gaps, resulting in a diminished perception of the game's pleasure. Thus, purchasable content may cover the intentional gaps left in a game.

Additionally, It has been demonstrated that perceived enjoyment as an internal motive and has a significant effect on a user's acceptance of technology such as online games and virtual goods, especially for emotional behaviors (Davis et al., 1992; Pantouw & Aruan, 2019; Van der Heijden, 2003). When utilizing technology (e.g. online games and virtual goods) perceived as enjoyable and pleasurable, individuals intrinsically tend to use it (Lee, 2009). Prior information system (IS) research have illustrated the importance of enjoyment in influencing the use of "emotional behaviors" (van der Heijden, 2003), "online games" (Li et al., 2015), "social virtual worlds" (Mäntymäki & Riemer, 2014), "social networking sites" (Cheung et al., 2011), and "music-listening applications" (Krause et al., 2014).

In online games, the term enjoyment refers to the way that buying virtual goods brings players happiness and pleasure as they play online games (Ozkara et al., 2017; Ryan & Deci, 2000). Prior research have steadily discovered that enjoyment is related to continued use, perceived value, and purchase intention (Guo & Barnes, 2009; Mahfuzra et al., 2019; Merikivi et al., 2017; Noh et al., 2016; Ozkara et al., 2017). According to Wang & Goh (2017) perceived enjoyment is positively connected with attitude and behavioral intention toward purchasing virtual goods. Mäntymäki et al.,(2020) elucidated that players pursue enjoyment primarily through their interaction with video games and their use of virtual goods. When the players feel that using virtual goods provides them pleasure and increases their happiness, their virtual goods value perception will increase, and they will perceive virtual goods as valuable and their likelihood to purchase virtual goods will increase as well. In contrast, if players

feel unhappy, they perceive the virtual goods as less valuable, and their intention to purchase virtual goods will decrease. We, therefore, suggest the following hypothesis:

H7: Enjoyment has a positive effect on the perceived value of virtual goods.

H8: Enjoyment has a positive effect on the intention to purchase virtual goods.

2.2.2.2. The impact of Aesthetics on Perceived Value and Purchase Intention

It is hard to agree on one definition of aesthetics since different disciplines disagree about the essence of aesthetics processes (Charters, 2006). The simplest definition has been addressed by Blackburn (1994, p. 8) is "the study of the emotions, ideas, and judgments that arise from our perception of the arts or of the larger category of objects that are considered beautiful, or delightful". According to Rintamaki et al. (2006) aesthetics features are stems from the hedonic (emotional) value of the objects, which create a positive emotion in the perceptions of the consumers. Further, Von Wright, (1963) suggested that aesthetics involves "a first-person hedonic judgment". Additionally, the majority of literature views aesthetics as a hedonic sensation (Rintamäki et al., 2006; Schmitt, Bernd, 1997).

In online game, the term aesthetics indicates to the visual shape that makes the virtual goods desirable to players (Lehdonvirta, 2009). Commonly, when using the game, the player's attention is drawn to the visual design of the game, and after playing, they are impacted by the virtual goods of the game (Hsiao et al., 2020). Aesthetics goods do not have functional benefits in games; It plays a hedonic role. For instance, purchasing a 'skin' or cloths, dance moves alter the appearance of a player's avatar and contributes significantly to enhance the overall player experience (Lehdonvirta, 2009; Marder et al., 2019; Musabirov et al., 2017). Prior research illustrated aesthetics as a key component of hedonic value and considered as main motive to purchase virtual goods (Hsiao et al., 2019; Kim et al., 2011; Lehdonvirta, 2009; Merikivi et al., 2017; Rintamäki et al., 2006; Wu & Hsu, 2018). Additionally, when players become aware of intrinsic cues associated with the inherent characteristics of a virtual good (such as its design and appearance), these cues correlate with the visual gratitude of the virtual good and may increase players perceived value and intention to purchase virtual good. Thus, the perception of the aesthetics characteristics of virtual goods may create emotional reactions and attract

the attention of the players and boost the virtual goods beauty perceptions in their eyes and increase the players intention to purchase. We, therefore, suggest the following hypothesis:

H9: Aesthetics has a positive effect on the perceived value of virtual goods.

H10: Aesthetics has a positive effect on the intention to purchase virtual goods.

2.2.2.3. The impact of customization on Perceived Value and Purchase Intention

Customization is gaining popularity among customers, businesses, and scholars (Wan et al., 2017). The term customization was initially proposed by Davis (1987) and after improved by Pine (1993). Pine (1993) described customization as "developing, producing, marketing and delivering affordable goods and services with enough variety and customization that nearly everyone finds exactly what they want." According to Wan et al., (2017) customization involves customer leadership and is followed by a various of consumer emotional responses and subjective feelings. Additionally, it is described as the customers' internal perceptions built on an assessment of the customization process and customized goods, as well as the degree to which they believe the features and attribute outputs of commodities and experiences match their desires and beliefs (Akbar et al., 2018).

In online game, customization demonstrated by Teng (2010) as "the capacity to design, select, or alter every aspect of the game based on a player's preferences via the purchase of virtual goods". (Ratan & Sah, 2015). Customization considered as a way in which the players are able to create, select, and modify their avatars in order to enhance their gaming experience. It further increases players sense of presence and enjoyment (Mahfuzra et al., 2019). Previous studies indicated that avatar customization improves players' sense of being intimately linked to their avatars (Liao et al., 2019; Ratan & Sah, 2015), enables the players to launch a truly self or an ultimate self into the character (Bailey et al., 2009), increases player's sense of enjoyment and immersion (Teng 2010, Mahfuzra, et al. 2019), enhance satisfaction and loyalty to the game (Barr et al., 2006; Kwak et al., 2010; Liao et al., 2019; Turkay & Adinolf, 2015) and considered as strong predictors for purchase intention (Guo & Barnes, 2012). It further has a positive influence on players' decision-making and perceived value (Wang et al., 2013). In addition, when the players will perceive higher

privacy or personalization value, they can alter a part of an online game avatar to suit their aspirations. They will be able to perceive more value from their use of virtual goods and they will keen to purchase virtual goods in order to satisfy their customization needs. We, therefore, suggest the following hypothesis:

H11: Customization has a positive effect on the perceived value of virtual goods.

H12: Customization has a positive effect on the intention to purchase virtual goods.

2.2.3. Social Value

Social value refers to "the utility acquired from the product's capability to enhance social self-concept" (Sweetney & Sauter 2001). Sheth et al. (1991) described social value as "the perceived utility acquired from a product with one or more specific social groups". Commonly products hold symbolic meanings and consumers tend to select the products depend on how they want to be noticed and/or how they want to demonstrate themselves by others. For instance, Sheth et, al. (1991) illustrated those products such as cars or appliances are usually chosen based on their social value. In the virtual community (online games) social value can be seen as the utility of obtaining virtual goods by players to improve their self-esteem and their social wellbeing (Kim et, al. 2011). In this dissertation, we considered social presence, perceived scarcity, and self-presentation as factors that reflect the social value and influence the perceived value and virtual goods purchase intention.

2.2.3.1. The impact of Social Presence on Perceived Value and Purchase Intention

The social presence approach is based on the theory of how a communication medium can transmit social signals (Short, Williams & Christie, 1976). The notion of "presence", and more precisely the notion of "social presence", is considered as one the important principles linking media features with users interactions (Lee, 2004). It is initially described as a property of a communication medium that enhances the "the degree of salience of the other people in the interaction" (Short et al., 1976, p. 65), social presence has been evolved into a psychological construct representing the subjectivity experience of proximity and connectedness in mediated communications (Biocca, 1997; Heeter, 1992).

Social presence is the extent to which two individuals speaking via a technical means feel as though they are together. (Bente et al., 2008). In the online games, players communicate with others via their avatars. Ekman et al., (2012) defined a variety of factors that influence "social presence", including: (a) "Sensory Representations" (looking to another's character); (b) "Mental Representations" (picturing the individual linked to the character); (c) "Psychological Involvement" ("mental and emotional connectedness"); and (d) "Behavioral Involvement" (communication between individuals). Under these circumstances, social cues and norms evolve, allowing individuals to evaluate events based on their actual experiences and respond appropriately (Horvath & Lombard, 2010). Biocca et al., (2003) demonstrated social presence as the user's perception of physically engaging in digital games via the usage of bought virtual goods. By perceiving their bodily presence, players would feel more linked to one another. The feeling of real presence in the games will enhance the social value perceived by players. Consequently, the purchase of virtual goods in digital games enables players to experience high value. (Mahfuzra et al., 2019).

Social presence has been believed to be an important and influential element in determining individuals' intentions toward virtual goods and game platforms (Jin et al., 2017; Lee et al., 2013; Li et al., 2015; Shang et al., 2012;Wang et al., 2018). Lombard & Ditton (1997) mentioned that the most common psychological states of social presence are pleasure and delight. Jin et al., (2017) illustrated that with a greater feeling of social presence, players would be more pleased and perceive the virtual goods and gaming platform as reflecting a good quality value (Jin et al., 2017; Mahfuzra et al., 2019). Therefore, when players consider using virtual goods and interacting with others through avatars in the online game as a medium of communication, their sense of social presence will increase. They will perceive virtual goods as a valuable means of communicating with others and their likelihood to believe that decorating avatars by purchasing virtual goods will help them in interacting with others in a better way. We, therefore, suggest the following hypothesis:

H13: Social presence has a positive effect on the perceive value of virtual goods.

H14: Social presence has a positive effect on the intention to purchase virtual goods.

2.2.3.2. The impact of Perceived Scarcity on Perceived Value and Purchase Intention

The scarcity concept is provided by dual psychological theories: “commodity theory” and “psychological reactance theory”. Scarcity is a basic economic notion stems from the simple reality that commodities are judged to be extra desirable and important when their supply is limited or reduced (Lynn, 1992; Wu et al., 2012). Perceived scarcity is one of the marketing tools that the marketers employ and control in order to persuade customers into making a quick purchase decision (Chae et al., 2020).

Cialdini (2009) splits perceived scarcity into two categories: products with a limited number and goods with a limited time. When a product has a “limited quantity scarcity” (LQS) (i.e., there are only 50 existing units for this price), the deal is made accessible for a specific quantity of the goods. Whereas, the “limited time scarcity” (LTS) case (i.e., today only, sale expires on specific day or period of time), an offer is made available for a certain amount of time, after which it becomes unavailable (Gupta & Gentry, 2019).

For decades, researchers have examined the effect of scarcity on product evaluations. Worchel et al. (1975) distributed identical cookies to groups of participants from two jars, one containing just two cookies and another containing 10 cookies, and asked which cookies they valued more. Although the cookies in both jars were similar, the biscuits in the almost blank jar were regarded as more appealing to consume and more beautiful. Individuals' naïve or informal economic beliefs can cause people to believe that rare goods are costly, of superior quality, and have a great perceived value (Lynn, 1992). Gupta & Gentry (2019) investigate the impact of scarcity on customer purchasing behavior. Their findings suggest that perceived scarcity increases the likelihood of making a purchase. Gabler and Reynolds (2013) found that when two scarcity types are combined (a “limited quantity”, with a collection decreasing price schedule), the combination of “LTS” and “LQS” is much more important for less visible products.

Gupta & Coskun (2021, p. 3) defined perceived scarcity as "a consumer's perception of a product scarcity when shopping in a retail store". In this study perceived scarcity is adapted from Gupta & Coskun (2021,p. 3) definition in which

refer to "the player's perception of the scarcity of a virtual good when shopping in online games store"(Adapted from (Gupta & Coskun, 2021, p. 3). This scarcity perception is associated with the idea that a certain virtual good is in low supply at a given time and quantity. According to Lehdonvirta (2009), virtual goods are appropriate to generating and providing social differences and connections due to their created-in rivalry and rarity. When the in-game promotional offer is restricted by scarcity cues such as limited quantity and limited time, the offer becomes a scarce commodity. When the virtual goods get scarce, it gains in value and attraction. Scarcity enhances the spontaneous purchase environment by creating a feeling of urgency in players' minds, resulting in shorter searches. Limiting a promotional offer prevents players from thinking about the deal by frightening them into thinking they will be unable to get it later, which increases their need for it now.

Players are often informed that unless they make an immediate buying choice, they may be forced to pay a higher price or would be unable to acquire the virtual goods at all (Cialdini, 2009). Players' freedom of choice may be affected by product shortages, discontinuations, and lengthy wait times. Confirming the psychological reactance theory, customers would acquire more of these things in times of scarcity in order to re-establish their threatened freedom (Clee & Wicklund, 1980). Additionally, scarcity creates demand, value, attractiveness, and increase purchase intention. Lynn (1992) demonstrated that scarcity promotes desirability because people's naive economic views drive them to seek rare commodities more than accessible goods because they think scarce goods are more costly, of higher quality, and have a superior perceived value. We, therefore, suggest the following hypothesis:

H15: Perceived scarcity has a positive effect on the perceive value of digital goods.

H16: Perceived scarcity has a positive effect on the intention to purchase digital goods.

2.2.3.3. The impact of Self-presentation on Perceived Value and Purchase Intention

According to the "Self-Presentation Theory", individuals demonstrate the actions they anticipate in various conditions of communication (Goffman, 1959). Self-presentation is linked to the sense board mechanism by which individuals exert influence over how others perceive them (Leary & Kowalski, 1990). Individuals

frequently utilize a particular self-image to manipulate the views of others, thus receiving benefits from them. Additionally, the transmission and management of information serves as the primary medium for self-expression. (Goffman, 1959). The control of information illustrates people's capacity to selectively convey diverse symbolic meanings to others, which reflects their self-concept and the permanence of their values (Schlenker & Wowra, 2003).

In the offline environment, self-presentation is facilitated by language, actions, look, and ownership (Fennis & Pruyn, 2007). As a result, individuals purchase and use physical objects, like clothing and accessories, hairstyles, automobiles to selectively transmit information and project their desired appearance to others. However, in online environments, information is transmitted primarily through message, signals, and auditory cues (Schau & Gilly, 2003). In online games, virtual goods are the more suitable way for players to engage in the digital environment. Individuals use and dress their avatars to express and control their image, which significantly enhances the means of their self-presentation in the virtual community (Chen & Chen, 2020).

According to Kim et al., (2012) self-presentation refers to “the extent to which an individual wants to present his or her preferred image in online games”. Additionally players spend time, resources, and endeavor to build their virtual image (avatar) and use it to evaluate themselves to others in order to determine their capabilities (Park & Chung, 2011). To achieve this, players seek to purchase virtual goods to accessorize their characters in the same way as they would purchase clothing, shoes, and other items in order to present themselves as they are in the real life (Chen & Chen, 2020). Players buy and consume virtual goods in order to enhance their capabilities for transferring information during social communication's, expressing a symbolic value to the virtual social community. Thus, using virtual goods will assist players in improving their self-image and self-expression, which creates a positive perception on others (Kim et al., 2012).

Prior studies demonstrated that online self-presentation behaviors contribute heavily in valuating virtual goods and strongly related to continue playing intention and the purchase of virtual goods (Kim et al., 2012; H. Li et al., 2015; L. Li et al., 2020; S. Li et al., 2019). Kim et al. (2011) illustrated empirical evidence that the self-

expression of players has a strong association with the purchase of virtual goods in the online world. Shang et al., (2012) indicated that self-expression significantly impacts on customer assessment of virtual goods. Commonly virtual goods like "skins, cosmetics, and accessories", have frequently been utilized as signals in the means of symbolic self-completion because of their high communicative value (Kim et al., 2009; Lehdonvirta, 2009; Li et al., 2019). Therefore, using virtual goods may increase self-presentation through games and can improve self-reliance and interactivity with other players (Chen & Chen, 2020). In physical education lessons, for example, competitive and peer relations, self-confidence and self-worth can be enjoyed by social comparisons (Roberts & Treasure, 1992). Similarly, for the online games, the virtual platforms (online games) offer the players avatar a good opportunity to show their achieved or purchased virtual goods, enhance their self-image and self-expression, and self-value through social comparison and strengthens players ability to control positively their image in the eyes of others. Thus, achieving high self-presentation may lead the players to evaluate the virtual goods as high value and increase their likelihood to purchase virtual goods. We, therefore, suggest the following hypothesis:

H17: Self-presentation has a positive effect on the perceive value of digital goods.

H18: Self-presentation has a positive effect on the intention to purchase digital goods.

2.2.4. The impact of Perceived Value on the Purchase Intention

Perceived value, which represents utility by evaluating benefits and sacrifice, has been seen as a measure of a individuals intention to purchase (Kim et al., 2007). Numerous prior scholars have found that the perceived value of products and services positively affects individuals intention (Sheth et al., 1991; Sweeney & Soutar, 2001; Zeithaml, 1988). Sheth et al. (1991), Sweetney and Soutar (2001), and Rintamaki et al. (2006) all addressed value structures that integrated three critical dimensions of consumer consumption values: (1) "functional value", (2) "emotional value", and (3) "social value". Every one of them found that functional, emotional, and social values were significant determinants of consumer behavior in their respective contexts.

Similarly, in digital contexts specifically online games perceived value has been demonstrated a remarkable impact on intention to purchase (Guo & Barnes, 2011;

Hamari & Keronen, 2017; Hsiao & Chen, 2016). Kim et al. (2011, 2009) used consumer value theory to explore the decision to buy virtual products. Their results indicate that perceived value is an important factor in defining an individual's intention to buy digital goods in social networking communities. Perceived value refers to "the different benefits of products from a consumer's point of view" (Yoo & Park, 2016). Customers often choose goods that enhance their perceived value. Therefore, greater the players value perceptions of virtual goods, their intention to purchase virtual goods will increase. We, therefore, suggest the following hypothesis:

H19: Perceived value has a positive effect on the intention to purchase virtual goods.

2.2.5. The mediation effect of Perceived Value

Generally, existing literatures see utilitarian, hedonic, and social values as three key components of consumer perceived value (Rintamäki et al., 2006; Sweeney & Soutar, 2001). Additionally, empirical research demonstrates that these values may be measured with high reliability and validity. In this dissertation price, quality, and achievement all represent utilitarian value. Enjoyment, aesthetics, and customization all address hedonic value. While social value explained by social presence, perceived scarcity, and self-presentation.

According to literature addressed above we posit that perceived value mediate the relation among price, quality, achievement, enjoyment, aesthetics, customization, social presence, perceived scarcity, self-presentation, and virtual goods purchase intention. We, therefore, suggest the following hypothesis:

H20a: Perceived value mediates the impact of price on purchase intention of virtual goods.

H20b: Perceived value mediates the impact of quality on purchase intention of virtual goods.

H20c: Perceived value mediates the impact of achievement on purchase intention of virtual goods.

H20d: Perceived value mediates the impact of enjoyment on purchase intention of virtual goods.

H20e: Perceived value mediates the impact of aesthetics on purchase intention of virtual goods.

H20f: Perceived value mediates the impact of customization on purchase intention of virtual goods.

H20g: Perceived value mediates the impact of social Presence on purchase intention of virtual goods.

H20h: Perceived value mediates the impact of perceived scarcity on purchase intention of virtual goods.

H20i: Perceived value mediates the impact of self-presentation on purchase intention of virtual goods.

The hypotheses and proposed model are depicted in Figure 1, Table 2.1, and Table 2.2.

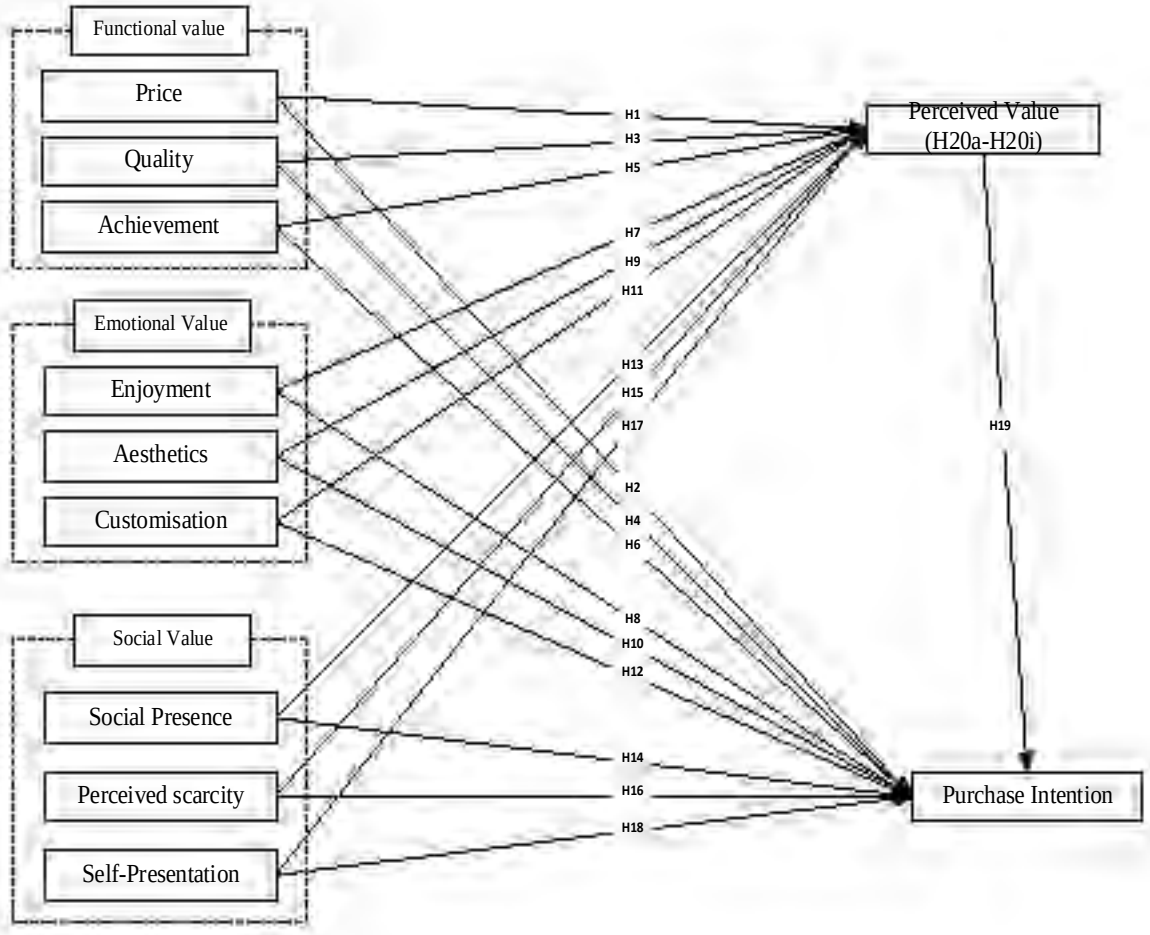

Figure 2.1. *Research model*

Table 2.1. *The Research Hypotheses*

Code	Hypothesis Statement
H1	Price of virtual items has a positive effect on the perceived value of virtual goods.
H2	Price of virtual items has a positive effect on the intention to purchase virtual goods.
H3	Quality has a positive effect on the perceived value of virtual goods.
H4	Quality has a positive effect on the intention to purchase virtual goods.
H5	Achievement has a positive effect on the perceived value of virtual goods.
H6	Achievement has a positive effect on the intention to purchase virtual goods.
H7	Enjoyment has a positive effect on the perceived value of virtual goods.
H8	Enjoyment has a positive effect on the intention to purchase virtual goods.
H9	Aesthetics has a positive effect on the perceived value of virtual goods.
H10	Aesthetics has a positive effect on with the intention to purchase virtual goods.
H11	Customization has a positive effect on the perceived value of virtual goods.
H12	Customization has a positive effect on with the intention to purchase virtual goods.
H13	Social Presence has a positive effect on the perceive value of virtual goods.
H14	Social Presence has a positive effect on the intention to purchase virtual goods.
H15	Perceived Scarcity has a positive effect on the perceive value of virtual goods.
H16	Perceived Scarcity has a positive effect on the intention to purchase virtual goods.
H17	Self-presentation has a positive effect on the perceive value of virtual goods.
H18	Self-presentation has a positive effect on the intention to purchase virtual goods.
H19	Perceived value has a positive effect on the intention to purchase virtual goods.

Table 2.2. *The Mediation effect Hypotheses*

Code	Hypothesis Statement
H20a	Perceived value mediates the impact of price on purchase intention of virtual goods
H20b	Perceived value mediates the impact of quality on purchase intention of virtual goods
H20c	Perceived value mediates the impact of achievement on purchase intention of virtual goods
H20d	Perceived value mediates the impact of enjoyment on purchase intention of virtual goods
H20e	Perceived value mediates the impact of aesthetics on purchase intention of virtual goods
H20f	Perceived value mediates the impact of customization on purchase intention of virtual goods.
H20g	Perceived value mediates the impact of social Presence on purchase intention of virtual goods
H20h	Perceived value mediates the impact of perceived scarcity on purchase intention of virtual goods
H20i	Perceived value mediates the impact of self-presentation on purchase intention of virtual goods

CHAPTER THREE

RESEARCH METHODOLOGY

The first four parts of this chapter address the methodology utilized, the research methods used to accomplish the main objective, and the data collection technique used. The next two parts cover the data analysis technique (i.e., SEM, partial least squares) and the statistical studies used to determine the study model's reliability and validity. Additionally, this chapter explains the methods involved in developing the study instrument, as well as statistical analysis of the demographic data.

3.1. Research methodology

This dissertation employs a survey research technique since it enables the collection of standardized data for the purpose of describing variables and examining their relationships (Malhotra & Grover, 1998; Zolkepli et al., 2021).

3.2. Research Processes

The dissertation's problem statement was generated after a review of the literature on virtual goods purchase intention. This dissertation finds from this review that a more in-depth understanding of the motivations that drive customers to purchase virtual goods is needed.

The research instrument created in this dissertation is based on previously recognized measurement scales. Adaptations are made when necessary to ensure that objects fit within the framework of the present study. Validity and reliability of the research instrument are defined by employing the card sorting technique and utilizing data from online surveys, pre-testing, and a pilot study.

The data is collected from Prolific, an online survey platform. The sample is drawn using convenience sampling method. Additionally, the data is evaluated by employing partial least square (PLS) a structural equation modelling (SEM) approach. Eventually, the findings are analyzed and reported.

3.3. Data Collection Technique

The following subsections address data collecting and sampling using Prolific online survey platform. Prolific data were acquired from online gaming players in the United States of America to investigate the hypothesized relationships.

3.3.1. Sample

This dissertation examines the role of value dimensions in modelling the intention to purchase virtual goods in online games for US players. *First*, players in the United States spend over 20 hours a week playing video games, and more than 150 million gamers play monthly (InsiderIntelligence, 2022). *Second*, during the second quarter of 2020, US gamers spent 1.02 billion dollars on virtual goods and 11.60 billion dollars on video games altogether (Statista, 2020). Thus, the combination of statistical data makes American gamers an ideal sample for evaluating the effect of various value dimensions on players' intents to buy virtual goods in online games.

Furthermore, this dissertation, participants were restricted to those who frequently engage in online gaming. Participants in this dissertation were above the age of 18. Due to the fact that most gamers under the age of 18 are not purchasing virtual goods with their own money, their value perceptions may vary. Additionally, this dissertation employs the convenience sampling technique. Sue and Ritter (2007) described convenience sampling as " a non-systematic approach to recruiting respondents that allows potential participants to self-select into the sample." Using this sample method has a number of drawbacks, such as the fact that you can't limit the number of responses, there are no limits on who can take part, and the answers may not be illustrative of the entire population (Hansen, 2010). However, there are a number of obvious benefits to employing convenience sampling techniques, including the fact that they involve a smaller amount of time and effort, achieve a huge quantity of participants, and are a good option for conducting online surveys.

3.3.2. Prolific Platform

In this study, Prolific platform was utilized to administrate the survey. Lately, social science researchers are increasingly depending on online data collection panels to accomplish their research objectives (Palan & Schitter, 2018). Additionally, there is evidence that data gathering techniques have altered as a result of technological advancements. Crowdsourcing, in particular (i.e., the process of obtaining information, ideas, and/or services from a group of persons, often online) has grown in popularity as a method of data collection in a large variety of fields of research (Alhalabi et al., 2021).

Crowdsourcing is the technique of engaging a crowd or a group of persons to accomplish a shared goal, which may include the paid recruitment of an online and autonomous global workforce with the purpose of completing a given job or series of tasks (Garcia-Molina et al., 2016, p. 901).

One popular crowdsourcing platform for social science conducting surveys is Prolific platform, an online jobs market that connects Requesters (i.e., individuals who want work to be completed) and Workers (i.e., participants who accomplish the job, such as survey completion) through short-term contracts (Armstrong et al., 2021). In this process, employees may look for and obtain labour for money, which is frequently completed from a distance at their availability. Workers may access a range of Cognition Tasks, many of which are social science surveys uploaded by academics. It is estimated that there are more than 125,817 active users on the Prolific platform last year (Armstrong et al., 2021), many of them are responding to surveys like those who completed the survey in this dissertation. Prolific does not include investigations; thus, scholars should connect their work to a peripheral survey platform, such as "Qualtrics" (www.qualtrics.com/), "SurveyMonkey" (www.surveymonkey.co.uk/), or "Gorilla" (www.gorilla.sc/). Prolific allows you to hire based on interests, demographics, or a nationally representative sample. Respondents have to be recorded users and are paid a minimum of £5.00 per hour (suggested at least £8 per hour) for finishing surveys.

As with any empirical investigation, the primary goals of designing a survey are to gather the necessary data, to reduce measurement error in the data, and to improve data quality. Insufficient Effort Responding (IER), often known as careless responding, is a unique data quality problem since it introduces error variation into observed scores. Participants who participate in Insufficient Effort Responding (IER) while completing a survey may not attentively read the survey instructions, may react randomly, or may respond without paying attention to the survey item content (Huang et al., 2014). Additionally, while there have been investigations into the data quality provided by crowdsourcing workers, many researchers have turned to the Prolific platform, which employs the most experienced workers, those who have been qualified by the Prolific platform, and who are ostensibly capable of providing the highest quality data. Prolific tend to overcome some of Amazon Mechanical Turk

(MTurk's) shortcomings by delivering ethical compensation, active userbase information, a more diverse sample, and trustworthy answer data (Pickering & Blaszczynski, 2021).

3.4. Proposed model

As mentioned in the earlier chapters the aim of this thesis is to examine the consumer virtual goods purchase intention. On the basis of the literature review, the research hypotheses and the theoretical research model are established. Figure 3.1 illustrates the theoretical research model and suggested hypothetical relations of the dissertation.

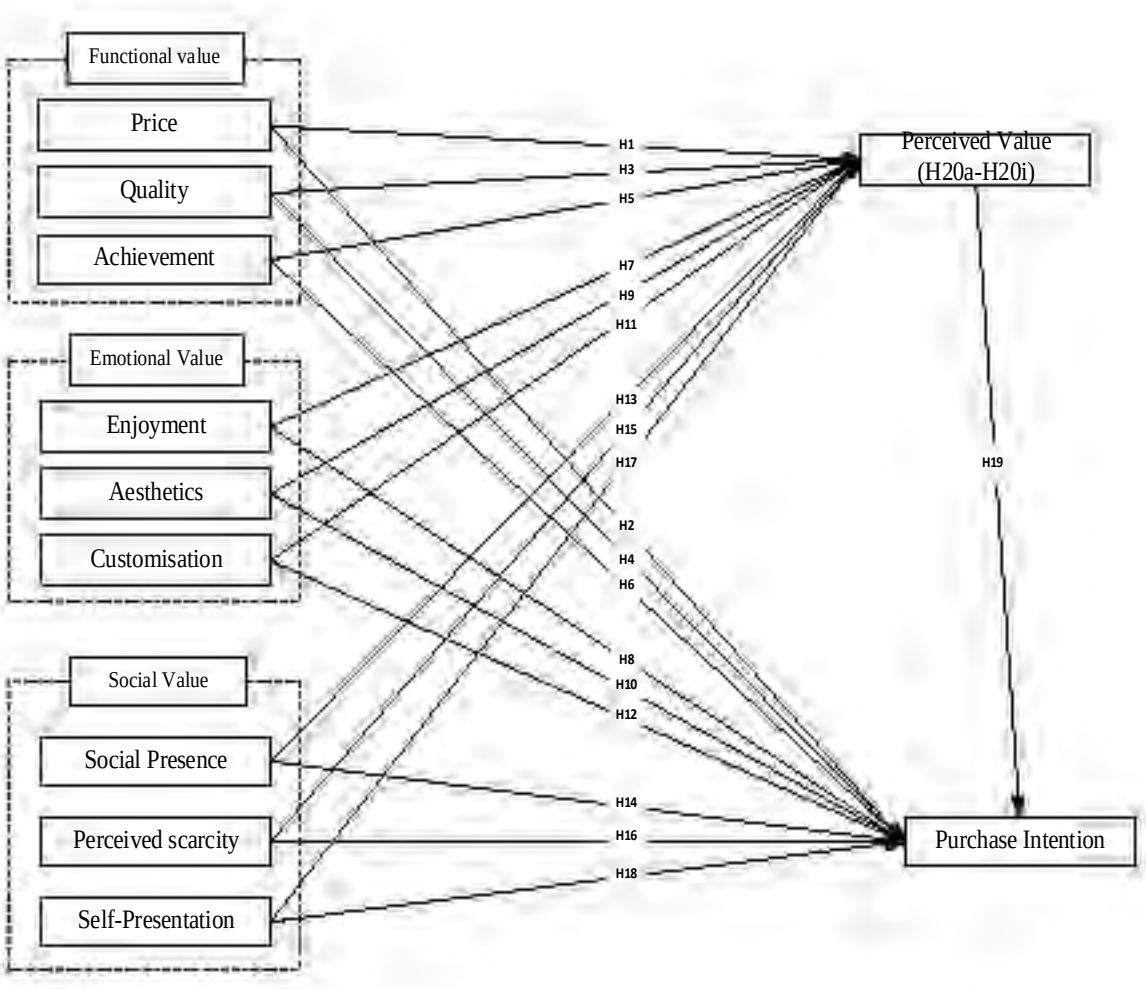

Figure 3.1. *The Theoretical model*

3.5. Measures

The measurement items in this dissertation are derived from previously verified constructs. As Straub (1989) suggests, it is preferable to utilize existing tested tools when conducting surveys. A benefit of employing existing measures is that they have previously been subjected to reliability and validity testing, providing the researcher with confidence in the measuring properties of the current measures without the need to review them (Babin & Svensson, 2012).

3.6. Data Analysis

3.6.1. Structural Equation Modelling (SEM)

Structural Equation Modelling (SEM) is a method that is used in blend with other multivariate statistical approaches to explore both direct and indirect correlations among one or more independent latent variables and one or more dependent latent variables (Hair et al., 2017, p. 17). SEM enables the conduction of a variety of multivariate statistical studies, “including regression”, “route analysis”, “factor analysis”, “canonical correlation analysis”, and “growth curve modelling” (Hair et al., 2017). Structural Equation Modelling enables researchers to evaluate a model's overall fit and to test the structural model in its entirety (Gefen et al., 2000). SEM assesses not just the anticipated structural relationships among constructs, but also the relationships between a construct and its associated measures.

When used SEM properly, it has a number of benefits across the initial generation of analytical tools (e.g., “principal component analysis”, “factor analysis”, or “multiple regression”). SEM allows users to analyze the interaction between theory and data with more freedom. Indeed, researchers have discovered that SEM enables them to: (1) "form correlations between multiple predictors and criterion variables"; (2) "create unobservable latent variables"; (3) "model measurement errors for observed variables"; and (4) "statistically verify a priori theoretical and measurement assumptions against empirical data" (Nunkoo & Ramkissoon, 2012).

3.6.2. Guidelines for Choosing CB-SEM or PLS-SEM

To select which statistical perspective to use, a researcher must first grasp the assumptions underpinning both statistical methods. The selection among CB-SEM and PLS-SEM may be influenced by a variety of parameters, including the study purpose, the kinds of measurement models specified, the modelling of structural models, data attributes, and model assessment(Hair et al., 2011). According to Hair et al. (2011), there are numerous guidelines to follow when deciding between PLS-SEM and CB-SEM.

First, the researcher must define the purpose of his study before choosing between the two methodologies. CB-SEM is an acceptable technique to utilize when the purpose of the study is to examine or confirm a theory. This is due to the capability to illustrate how clearly a theoretical model matches the observable facts is required when evaluating a theory (Vinet & Zhedanov, 2011). According to Barclay et al. (2011), CB-SEM is better suited for modelling in which the covariance matrix is to be minimized. This has been the power of CB-SEM.

PLS-SEM, alternatively, is appropriate when the study purpose is expectation and theory improvement. The objective of this sort of modelling is to determine the best predictions for the connections among variables and to increase the total of covariance among latent variable to enhance model explanation (Sarstedt et al., 2016).

Second, CB-SEM is contained to models of study that include reflective components. A reflective model is one in which the latent variable is the cause of the observable measurements. Despite not being immediately observable, the concept exists irrespective of its impact indicators. For example, a subject's answer to a questionnaire designed to measure this trait is based on what they know, not the other way around (Eboli et al., 2018). Even though prior research has included formative measures into the structural model, they have often resulted in identification difficulties (Henseler et al., 2009). For example, employing formative constructs inside CB-SEM would result in an inability to explain the covariance of all indicators. Additionally, it is relatively varied when employing CB-SEM to handle both reflecting and formative structures (Urbach Frederik, 2010). However, PLS-SEM, may be utilized to examine a research model that combines reflective and formative characteristics (Hair et al., 2011). In a reflective construct, it is considered that all

indications are caused by the latent attribute. All indications are supposed to be the source of the latent characteristic in a formative construct. Further, latent construct is also capable of being both formative and reflective (Hair et al., 2014). In this regard, the use of this combination in PLS permits scholars to use either reflective or formative constructs, or a mix of both.

Third, CB-SEM is premised on a set of assumptions that must be satisfied before proceeding with the analysis. These assumptions involve the evaluation of 1) the multivariate normality of the data, 2) the observation independence of the observations, and 3) the variable metric uniformity of the variables (Sosik et al., 2009). CB-SEM analysis needs a normal distribution and a high sample size. If any of the assumptions is broken, the results of the CB-SEM will be incorrect (Hair et al., 2011). PLS-SEM, on the other hand, is a more robust technique that is capable of analyzing data having a non-normal distribution. Additionally, data normality is not necessary since PLS employs standardization techniques that convert any non-normal data to conform to the central limit (Forina et al., 2007).

Finally, the primary goal of the PLS-SEM is to validate and/or estimate the theoretical model proposed in the literature, not to determine which different model fits the data better (Sosik et al., 2009). Table 3.1 highlights the general guidelines for choosing between CB-SEM and PLS-SEM.

Table 3.1. Summary of the Rules of Thumb in Selecting between CB-SEM and PLS-SEM. Criteria

Criteria to evaluate	CB-SEM	PLS-SEM
1. Research objective		
1.1 Predicting key target constructs		√
1.2 Theory testing, theory confirmation or comparison of alternative theories	√	
1.3 Exploratory of an extension of an existing structural theory		√
2. Measurement model specification		
2.1 If formative constructs are part of the structural model		√
2.2 If error terms require additional specification such as co-variation	√	
3. Structural model		
3.1 If a structural model is complex		√
3.2 If a structural model is non-recursive	√	
4. Data characteristics and algorithm		
4.1 Data meet distributional assumptions		√
4.2 Data did not meet distributional assumptions	√	√
4.3 Small sample size consideration		√
4.4 Large sample size consideration	√	√
4.5 Non-normal distribution		
4.6 Normal distribution	√	√
5. Model evaluation		
5.1 Use latent variable scores in subsequent analyses		
5.2 Requires global goodness of fit criterion 5.3	√	
5.3 Need to test for measurement model invariance	√	√

3.6.3 Partial Least Square (PLS)

Partial Least Squares (PLS) was developed in the 1970s by an econometrician called Herman Wold (Nokels et al., 2010). PLS contains alternating least squares techniques, which enhance the capabilities of principal component and canonical

correlation analysis (Henseler et al., 2009). PLS models are often implemented in two sets of linear equations referred to as the measurement and structural models (Henseler et al., 2009). The measurement model (also referred to as the outer model) describes the correlations between unobserved or latent variables, while the structural model (sometimes referred to as the inner model) specifies the relationships between a latent variable and its manifest variables (items).

According to Henseler et al., (2009), the PLS method is simply a series of regressions expressed in terms of weight matrix, with the following stages:

Stage one: Iterative estimate of latent variable scores, which involves repeating a four-step iterative approach until convergence is accomplished:

a) outer approximation of the latent variable scores.

b) estimation of inner weights.

c) inner approximation of the latent variable scores; and,

d) estimation of the outer weights.

Stage two: Estimation of outer weights/loading and path coefficients.

Stage three: Estimation of location parameters. PLS-SEM

PLS-SEM is rapidly being utilized in marketing and other commercial domains (Henseler et al., 2009). The PLS-SEM technique, according to scholars, provides a more comprehensive estimate of the structural model (Henseler et al., 2009). PLS-SEM is further considered an alternate approach when the distributional assumptions of CB-SEM are unmet (Hair et al., 2011). This dissertation evaluates the research model using determined analytic criteria, employing a partial least square (PLS-SEM) approach as the statistical technique. More precisely, the following factors influenced this decision:

1) The study in this dissertation is not focused on determining model invariance. Rather than that, the emphasis is on the predictors of virtual goods purchase intention. Thus, it is critical to investigate the latent variable scores in order to ascertain the underlying link between the Latent Variables (Sosik et al., 2009).

2) Henseler et al. (2009) assert that PLS is suited for big, complicated models with a high number of latent variables. This dissertation employs various use of Latent Variables and adopts a complicated research model (Henseler et al., 2009).

3) The dissertation's objective is to investigate the connections in light of pre-existing theoretical background. PLS-SEM is capable of estimating residual correlations and assessing their influence on the model.

3.6.4 Evaluating Measurement and Structural Models using Partial Least Square

In this dissertation, the research model is assessed in dual stages: (1) “the assessment of the measurement model”; and (2) “the assessment of the structural model”.

3.6.4.1. Measurement Model

Validation of a measuring model may be developed on the basis of earlier research by analyzing its internal consistency, indicator reliability, convergent validity and discriminant validity (Lewis et al., 2005)**.**

3.6.4.1.1. Internal Consistency

Cronbach's alpha has traditionally been used to determine the internal consistency of a measurement model (CA). In general, constructions with a high Cronbach's alpha value indicated that the components included inside the construct had a similar range and significance (Cronbach, 1971). Cronbach's alpha provides a measure of reliability based on the inter-correlations of indicators.

Within PLS, internal consistency is also calculated utilizing composite reliability (Chin, 1998). Internal consistency is measured by both composite reliability and Cronbach's alpha, even though composite reliability considers the fact that indicators have varying loadings. Cronbach's alpha may underestimate internal consistency reliability in cases when the measurements are not similar, and all indications are equally weighted. Internal consistency reliability is considered excellent when it is at least 0.7 in the early phases of research and more than 0.8 or 0.9 in the latter stages. A value less than 0.6 indicates an absence of reliability (Ketchen, 2013, p. 102; Nunnally & Berstein, 1994).

3.6.4.1.2. Indicator Reliability

The goal of indicator reliability assessment is to determine the degree to which a variable or combination of variables is consistently with the metric it is intended to measure (Urbach Frederik, 2010). Additionally, the reliability of a construct is

separate from the reliability of other constructs and is calculated differently. The significance of indicator loadings should be at least 0.05, with loadings of 0.7 suggested (Chin, 1998). Other research, however, argue that factor loadings should be more than 0.5 for optimal outcomes (Truong & McColl, 2011), while others assert that a threshold of 0.5 is appropriate (Chen & Tsai, 2007). Hair et al. (2011) suggest that factor loading estimates should be between 0.5 and 0.7.

A resampling technique such as bootstrapping, or jackknifing can be used to determine the importance of the indicator loadings. Considering the consistency characteristics of PLS, caution should be exercised while selecting to delete an indication. Indeed, an indication should be deleted only when its reliability is insufficient, and when its deletion coincides with a significant rise in composite reliability (Henseler et al., 2009).

3.6.4.1.3. Convergent Validity

Convergent validity, as defined by Urbach and Ahlemann (2010), refers to "the degree to which individual items represent a concept when compared to items measuring separate constructs". It may be determined by examining the value of the extracted average variance (AVE). Adequate convergent validity is defined as a construct's AVE value being at least 0.5 (Fornell & Larcker, 1981).

3.6.4.1.4. Discriminant Validity

Discriminant validity, as described by Urbach and Ahlemann (2010), is used to distinguish the measurements of a construct from one another. Additionally, it quantifies the level of distinction among overlapping conceptions (Hair et al., 2014). Unlike convergent validity, discriminant validity examines if the items measure anything other than the intended construct unexpectedly. There are two generally used metrics of discriminant validity in PLS: cross loading (Chin, 1998) and Fornell-Larcker's criterion (Fornell & Larcker, 1981).

Correlations between the component scores of each latent variable and all other items are used to determine cross-loading. If the loading of each indication is greater for the specified construct than for any other construct, it may be concluded that the indicators for the various constructions are not interchangeable (Chin, 1998).

To meet Fornell-Larcker's-criteria, the latent variable must share more variance with its assigned indicators than it does with any other latent variable. The square root

of the average variance extracted (AVE) is compared to the correlation of latent constructs in this technique. A latent construct should be able to account for the variation of its own indicator more accurately than it can account for the variance of other latent constructs. As a result, the square root of the AVE of each construct should be greater than the correlations with other latent constructs (Hair et al., 2014). Table 3.2 provides summary of validity guidelines to assess a reflective measurement model.

Table 3.2. *Summaries of validity guidelines for assessing reflective measurement model*

Validity Type	Guidelines
Internal consistency	CR > 0.7 (for exploratory study) CR > 0.8 (advance research) CR < 0.6—lack of reliability
Indicator reliability	Item's loading > 0.7 and significant at least at the 0.05 level
Convergent validity	Cross loading: Item's loading of each indicator is highest for its designated construct.
Discriminant validity	The square root of the AVE of a construct should be greater than the correlations between the construct and other constructs in the mode (Fornell & Larcker).

3.6.5. Structural Model

Only once the measurement model has been verified effectively can the structural model be examined. Validating the structural model enables systematic evaluation of whether the structural model's hypotheses are supported by the data (Urbach and Ahlemann, 2010). The coefficient of determination (R^2) and path coefficients may be used to assess a structural model in PLS.

The first critical criteria for evaluating the structural model are to determine the coefficient of determination (R^2) for each endogenous latent variable, which quantifies the link between a latent variable's explained variance and its overall variance. According to Chin (1998), a value of R^2 about 0.67 is regarded large, 0.333 is considered medium, and 0.19 and below are considered weak. On the other hand, Cohen's f^2 value is considered as small when $f^2 \geq 0.02$, medium when $f^2 \geq 0.1$, and large when $f2 \geq 0.35$ (Selya et al., 2012).

The path coefficient value, which forecasts the strength of the association between two latent variables, is the second criteria for evaluating the structural model. The researcher should assess the path coefficients, algebraic sign, magnitude, and significance of two latent variables while examining their connection. To account for a particular effect inside the model and to be significant at the 0.05 level of significance, path coefficients must surpass 0.100 (Huber et al., 2007). The requirements for validating the structural model are summarized in Table 3.3.

Table 3.3. Structural model validity guidelines for assessing reflective structural model

Criterion	Guidelines
Coefficient of determination (R2)	0.67— large 0.333—medium 0.190—weak
Cohen's f^2	$f^2 \geq 0.02$ small $f^2 \geq 0.15$ medium f2 ≥ 0.35 large
Path coefficients	Path coefficient must be at least 0.100 and at significance (at least 0.05)

3.6.5.1. Mediation Relationship

A mediating factor is a third variable that explains the association between the independent (predictor) and dependent (outcome) variables. A mediator is a term that refers to the method through which a predictor has an effect on an outcome variable (Nitzl et al., 2016). Current literature on mediation addresses two distinct forms of mediation, full and partial. Full mediation is indicated in the case where the direct effect c' is not significant whereas the indirect effect a × b is significant, which means only the indirect effect via the mediator exists. In other words, full mediation means that the effect of the variable X to Y is completely transmitted with the help of another variable M. However, in partial mediation, the direct effect c' and the indirect effect a × b point in the same (positive or negative) direction. It is an often observed result that a × b and c' are significant and a × b × c' is positive, which indicates that a portion

of the effect of X on Y is mediated through M, whereas X still explains a portion of Y that is independent of M (Nitzl et al., 2016).

3.6.6. Instrument Development

3.6.6.1. Items Selection

The measuring items in this dissertation are derived from previously verified constructs (Straub, 1989). Based on previous literature, a benefit of employing existing measures is that they have previously been subjected to reliability and validity testing, providing the researcher with information on the measuring properties of the current measures. Table 3.4 illustrates the utilized items.

Eleven constructs are measured in this dissertation utilizing multiple elements. Each item's language has been changed to reflect the context of virtual goods purchase intention. Further, all items are measured using seven-point Likert scales ranging from "strongly disagree" (1) to "strongly agree" (7).

Table 3.4. *Summary of the adapted items*

Constructs	Items	source
Price	**PR1**: The virtual goods sold in the online games are generally reasonably priced. **PR2**: The virtual goods sold in the online games offer value for money. **PR3**: The virtual goods sold in the online games are good products for the price. **PR4**: The virtual goods sold in the online games are considered economical in terms of price.	(Kim et al., 2011)
Quality	**QUAL1**: The virtual goods Sold in the online games have an acceptable standard of quality. **QUAL2**: The virtual goods sold in the online games are reliable in their performance. **QUL3**: The virtual goods sold in the online games are good in terms of their overall excellence. **QUAL4**: The virtual goods sold in the online games possess a degree of quality which is satisfactory.	(Kim et al., 2011)

Table 3.4. (continue) *Summary of the adapted items*

Achievement	**ACH1**: I can beat/surpass other players in the online games due to purchasing virtual goods. **ACH2**: I gain more power than others in the online games due to purchasing virtual goods. **ACH3**: I get a higher status/degree than other players in the online games due to purchasing virtual goods.	(H. Li et al., 2015; Mahfuzra et al., 2019)
Enjoyment	**ENJ1:** I feel the activity of purchasing virtual goods is an interesting activity **ENJ2:** I am happy to purchase virtual goods in the online games. **ENJ3:** I am happy to use virtual goods that I purchased in the online games **ENJ4:** I enjoy using virtual goods that I purchased in the online games	(Li et al., 2015; Mahfuzra et al., 2019)
Aesthetics	**AES1**: The virtual goods sold in the online games are lovely. **AES2:** The virtual goods sold in the online games reflect beauty. **AES3**: The virtual goods sold in in the online games are aesthetically appealing. **AES4:** The virtual goods sold in the online games have attractive aesthetics feature.	(Kim et al., 2011)
Customization	**CZ1:** I have more items in the game because I purchased virtual goods **CZ2:** I can modify the appearance and many goods in the game because I purchased virtual goods. **CZ3:** I can change many things about my game in accordance with my preferences because I purchased virtual goods	(Mahfuzra et al., 2019; Teng, 2010)

Table 3.4. (continue) *Summary of the adapted items*

Self-presentation	**SL1**: I use virtual goods in the game because it helps other players to perceive me as competent. **SL2:** I use virtual goods in the game because it helps other players to perceive me as socially desirable **SL3:** I use virtual goods in the game because it helps other players to perceive me as likable **SL4**: I use virtual goods in the game because it helps other players to perceive me as friendly. **SL5:** I use virtual goods in the game because it helps other players to perceive me as skilled. **SL6:** I use virtual goods in the game because it helps me to make a good impression. **SL7:** I use virtual goods in the game because it helps me to tell others a little bit about myself	(Lee et al., 2012)
Social presence	**SOC1:** I can offer more help to others using the Virtual goods I purchased in the online games. **SOC2:** I am able to be myself and show what kind of player/person I really am by purchasing virtual goods in the online games. **SOC3:** I feel like I am a member of the online games community because of virtual goods I purchased. **SOC4:** I feel connected to other players in the online games due using virtual goods	(Li et al., 2015; Mahfuzra et al., 2019)
Perceived Scarcity	**SC1**: In my opinion, the limited virtual goods are going to be sold out soon. **SC2**: I think the limited virtual goods surely attract more people to buy than the available virtual items. **SC3**: The number of the limited virtual goods is very limited. **SC4**: It is difficult to acquire the limited virtual goods. **SC5**: The limited virtual goods in the game is scarce.	(Chen & Sun, 2014)
	PV1: Using virtual goods in the online games is a good deal.	

Table 3.4. (continue) *Summary of the adapted items*

Perceived Value	**PV2:** Compared to the effort I make, using virtual in the online games is beneficial to me (or of value) **PV3:** Compared to the time I spend, virtual goods in the online games are worthwhile. **PV4:** Overall, using virtual goods in the online games delivers me good value	(Yang et al., 2016)
Purchase Intention	**PI1**: I intend to purchase virtual items for my characters in the online games. **PI2**: My willingness to buy advanced virtual items in the online games is High. **PI3**: The likelihood that I would purchase advanced items in the online games is high	(Guo & Barnes, 2012)

3.6.6.2. Card Sorting as pre-test

First, a pilot study was conducted using Amazon Mechanical Turk in August 2021. However, during the analysis, we noticed that some respondents were inappropriate, and in order to resolve this issue and ensure the accuracy of the scales and items, we employed the card sorting method.

Second, to assess the instrument's suitability, a card sorting test was used, in which participants were asked to connect the questions and match them to the proper constructs. The researcher created a table for each component that was ordered randomly. Three English specialists were chosen. One of them was a native English speaker (from the United States of America), while the other two were high school English teachers. The format, content, readability, terminology, as well as the simplicity and speed with which the assignment could be completed, were all evaluated.

Finally, to further test and strengthen the instrument, a preliminary study and final study was conducted in November 2021 with Prolific participants who were involved in the usage and experience of virtual goods in online games (free to play).

3.6.6.2. Questionnaire format and administration

There are three main sections in the survey used in this study. The first section presents an introduction related to the purpose of the research and contains statement

of assurance of confidentiality and anonymity. Furthermore, a filtering question was asked such us “Are you playing online games?". Respondents who answered “No”, were directed to the end of survey (with a message explaining why the survey ended for them). Respondents who answered ‘Yes’ were directed to the other section of the survey. Since the focus of this study is to understand players purchase intention of virtual goods sold in online games, only participants using online games were allowed to participate in the survey.

In the second section, the scale items were addressed with some control questions. The participants are asked to answer 45 questions about the determinants, perceived value, and virtual goods purchase intention. Using the control function in the survey, respondents were forced to answer all questions. Furthermore, in order to assert that the participants were reading the questions, the researcher included some control questions in the survey such as "If you read this question, please choose number six".

In the last section, provided personal demographic information for statistical purposes.

3.6.7. Final Survey Data

3.6.7.1. Data Preparation

In this dissertation, the data was collected through Prolific to reach online games players in the USA. The data collection process gathered in the period of November 2021 resulted in the collection of 375 questionnaires. After discarding 23 incomplete questionnaires out of 375 questionnaires, the analyses continued with 352 valid questionnaires.

One of the most important issues in a statistical analysis is that the sample size is large enough to demonstrate the necessary statistical power. The literature has suggested different approaches in determining the minimum sample size for SEM analyses (Memon, Ting, et al., 2020). However, recent developments encourage researchers to determine the sample size through power analysis (Ketchen, 2013). Power analysis is a powerful approach that recommends determining the minimum sample size based on the maximum number of exogenous latent variables linked to an endogenous latent variable. While doing this, it requires power (1-β error probability, typically 0.80), effect size (typically 0.15) and significance level (α=0.05) parameters (Memon, Ting, et al., 2020). In this research, a priori power analysis was performed

with the help of G*Power v.3.1.9.6 to determine the required sample size for the proposed model (Faul et al., 2007). Power analysis results showed that 95% statistical power relies on a minimum of 172 observations for a medium effect size (0.15) at a significance level of 0.05. The sample (n=352) used in this study was considered adequate because it was above the minimum sample threshold.

3.6.7.2. Respondents' demographic information

Descriptive statistics provide light on the demographic characteristics of survey respondents. Among these respondents, 62.5% were females, 30.4% were male, 6.0% non-binary / third gender and 1.1% they prefer not to say. Almost 50.0% aged between 21-30, 21.3% between 31-40, 19.6% between 18-20, and 8.1% above 41. These analyses also show 35.8% their education level was college, 29.5% high school, 26.7% bachelor and 8% had master. The income of 33.8% of sample were less than 1000 $, 14.5% between 1000 $-1500 $, 17.6% between 1500 $ -2500 $, 13.9% between 2500 $ -3500 $, 8.5% between 3500 $-5000 $ and lastly 11.6% more than5000 $.

The respondents also answered some questions related to the online games such as which games you are playing, 25.9% play Fortnite, 3.1% play PUBG, whereas 71.0% play other games. 34.1% of the respondents they are playing the games less than 3 hours, 33.8% between 3-6 hours, 8.2% between 9-12 hours and finally 10.5% more than 12 hours weekly.

Concerning receiving free virtual goods most of the players answer yes 83.8% while 16.2% answered no. whereas most of the players answered yes 90.1% and 9.9% answered no related to purchasing virtual goods. Further participants who were purchasing virtual goods were asked about how often do they buy virtual goods? 40.3% were buying occasionally, 35.8% rarely, 13.6% often, 9.9% never bought before and 0.30% were always buying. Regarding to the amount spent in purchasing virtual goods 52.8% said less than10 $, 20.7% between 11 - 25 $, 06.5% between 26 - 50 $, 09.1% between 51 - 100 $, 0.60% between 101 - 250 $, and 0.90% more than 250 $. Table3.5. represent the respondent's demographic information.

Table 3.5. *Respondents' demographic information*

Demographics	Frequency (n=352)	Percentage (%)
Gender		
Male	107	30.4%
Female	220	62.5%
Non-binary / third gender	21	6.0%
Prefer not to say	4	1.1%
Age		
Between 18-20	69	19.6%
Between 21-30	176	50.0%
Between 31-40	75	21.3%
Between 41-50	25	7.1%
Between 51-60	5	1.4%
Over 60	2	0.6%
Education		
High school	104	29.5%
College	126	35.8%
Bachelor	94	26.7%
Master	28	8.0%
Income		
Less than 1000 $	119	33.8%
Between 1000 $-1500 $	51	14.5%
Between 1500 $ -2500 $	62	17.6%
Between 2500 $ -3500 $	49	13.9%
Between 3500 $-5000 $	30	8.5%
More than5000 $	41	11.6%
Which games you are playing?		
Fortnite	91	25.9%
PUBG	11	3.1%
Others	250	71.0%

Table 3.5. (Continue) *Respondents' demographic information*

How long are you playing the game?		
0 - 3 hours	120	34.1%
3 - 6 hours	119	33.8%
6 - 9 hours	47	13.4%
9 - 12 hours	29	8.2%
More than 12 hours	37	10.5%
Have you ever received free virtual goods in the game?		
Yes	295	83.8%
No	57	16.2%
Have you ever purchased virtual goods in the game?		
Yes	317	90.1%
No	35	09.9%
If YES, how often do you buy virtual goods?		
Always	1	0.30%
Often	48	13.6%
Occasionally	142	40.3%
Rarely	126	35.8%
Never	35	09.9%
How much on average are you willing to pay for virtual goods?		
Less than10 $	186	52.8%
11 - 25 $	73	20.7%
26 - 50 $	23	06.5%
51 - 100 $	32	09.1%
101 - 250 $	2	0.60%
More than 250 $	3	0.90%
Never	33	9.4%

3.6.7.3. Descriptive Statistics of the Measurement Items

The mean, standard deviation, variance, minimum and maximum values of each indicator were determined using the statistical program SPSS version 26.0. The following table summarizes the descriptive data for each indicator. Chapter 4 also includes descriptive data for the instrument used in the final research. Table 3.6 indicates the descriptive statistics of the instruments.

Table 3.6. *Descriptive statistics of instruments for the final study.*

Construct Items	N	Min	Max	*M*	*SD*	Variance
Price						
PR1: The virtual goods sold in the online game are generally reasonably priced	352	1	7	3.23	1.386	1.921
PR2: The virtual goods sold in the online game offer value for money	352	1	7	3.20	1.434	2.055
PR3: The virtual goods sold in the online game are good products for the price	352	1	7	3.24	1.333	1.778
PR4: The virtual goods sold in the online game are considered economical in terms of price	352	1	7	3.13	1.321	1.745
Quality						
QUAL1: The virtual goods sold in the online game have an acceptable standard of quality	352	1	7	3.68	1.582	2.501
QUAL2: The virtual goods sold in the online game are reliable in their performance	352	1	7	3.60	1.698	2.884
QUAL3: The virtual goods sold in the online game are good in terms of their overall excellence	352	1	7	3.61	1.598	2.553

Table 3.6. *(continue) Descriptive statistics of instruments for the final study.*

QUAL4: The virtual goods sold in the online game possess a degree of quality which is satisfactory	352	1	7	3.53	1.640	2.689
Achievement						
ACH1: I can beat/surpass other players in the online game due to purchasing virtual goods.	352	1	7	3.18	1.767	3.124
ACH2: I gain more power than others in the online game due to purchasing virtual goods.	352	1	7	3.19	1.749	3.059
ACH3: I get a higher status/degree than other players in the online game due to purchasing virtual goods	352	1	7	3.41	1.704	2.903
Enjoyment						
ENJ1: I feel the activity of purchasing virtual goods is an interesting activity	352	1	7	3.37	1.605	2.575
ENJ2: I am happy to purchase virtual goods in the game online game.	352	1	7	3.23	1.629	2.652
ENJ3: I am happy to use virtual goods that I purchased in the online game	352	1	7	3.67	1.913	3.658
ENJ4: I enjoy using virtual goods that I purchased in the online game	352	1	7	3.74	1.920	3.686
Aesthetics						
AES1: The virtual goods sold in the online game are lovely	352	1	7	3.55	1.617	2.613
AES2: The virtual goods sold in the online game reflect beauty	352	1	7	3.60	1.582	2.503
AES3: The virtual goods sold in the online game are aesthetically appealing	352	1	7	3.59	1.744	3.041
AES4: The virtual goods sold in the online game have attractive aesthetics feature	352	1	7	3.57	1.738	3.020
Customization						

Table 3.6. (continue) Descriptive statistics of instruments for the final study

CZ1: I have more items in the online game because I purchased virtual goods	352	1	7	3.63	1.960	3.840
CZ2: I can modify the appearance and many goods in the online game because I purchased virtual goods	352	1	7	3.69	1.938	3.754
CZ3: I can change many things about my online game in accordance with my preferences because I purchased virtual goods	352	1	7	3.62	1.836	3.371
Social Presence						
SOC1: I can offer more help to others using the virtual goods I purchased in the online game	352	1	7	3.30	1.527	2.331
SOC2: I am able to be myself and show what kind of player/person I really am by purchasing virtual goods in the online game	352	1	7	3.64	1.633	2.665
SOC3: I feel like I am a member of the online game community because of virtual goods I purchased	352	1	7	3.41	1.655	2.738
SOC4: I feel connected to other players in the online game due to using virtual goods	352	1	7	3.49	1.666	2.775
Perceived Scarcity						
SC1: In my opinion, the limited virtual goods are going to be sold out soon	352	1	7	3.01	1.646	2.709
SC2: I think the limited virtual goods surely attract more people to buy than the available virtual items	352	1	7	3.49	1.764	3.111
SC3: The number of the limited virtual goods is very limited	352	1	7	3.13	1.499	2.247
SC4: It is difficult to acquire the limited virtual goods	352	1	7	3.23	1.519	2.309
SC5: The limited virtual goods in the game is scarce	352	1	7	3.27	1.443	2.082

Table 3.6. (continue) Descriptive statistics of instruments for the final study

Self-Presentation						
SL1: I use virtual goods in the online game because it helps other players to perceive me as competent	352	1	7	3.21	1.557	2.425
SL2: I use virtual goods in the online game because it helps other players to perceive me as socially desirable	352	1	7	3.14	1.548	2.396
SL3: I use virtual goods in the online game because it helps other players to perceive me as likable	352	1	7	3.24	1.646	2.709
SL4: I use virtual goods in the online game because it helps other players to perceive me as friendly	352	1	7	3.27	1.606	2.578
SL5: I use virtual goods in the online game because it helps other players to perceive me as skilled	352	1	7	3.35	1.729	2.991
SL6: I use virtual goods in the online game because it helps me to make a good impression	352	1	7	3.40	1.694	2.868
SL7: I use virtual goods in the online game because it helps me to tell others a little bit about myself	352	1	7	3.44	1.678	2.817
Perceived Value						
PV1: Using virtual goods in the online game is a good deal	352	1	7	3.40	1.540	2.372
PV2: Compared to the effort I make, using virtual goods in the online game is beneficial to me.	352	1	7	3.51	1.636	2.678
PV3: Compared to the time I spend, virtual goods in the online game are worthwhile	352	1	7	3.58	1.654	2.734
PV4: Overall, using virtual goods in the online game delivers me good value	352	1	7	3.41	1.559	2.430
Purchase Intention						

PI1: I intend to purchase virtual items for my characters in the online game.	352	1	7	3.44	1.745	3.045
PI2: My willingness to buy advanced virtual items in the game is High	352	1	7	2.91	1.522	2.318
PI3: The likelihood that I would purchase advanced items in the game is high	352	1	7	3.03	1.579	2.492

3.6.7.4. Missing Data

The examination of missing values is not essential in this dissertation since an online survey compels respondents to respond. Null replies are immediately identified as incomplete by the survey provider, and the system accepts only complete responses. As a result, every answer that was downloaded was full and had no missing data.

3.6.7.5. Data Normality

Two statistical techniques were used to determine data normality: the Shapiro-Wilk test and an examination of skewness and kurtosis. The Shapiro-Wilk test indicates that all variables have significant values of 0.00, suggesting that the data are not normally distributed (non-normal). Additional tests were performed by determining the skewness and kurtosis values of the data. This test revealed that the data distribution was non-normal, with around 80% of the data exhibiting skewness and kurtosis values more than the required threshold (-3 to +3). That is, the data normality distribution assumption was not respected, which further supports the use of PLS-SEM.

3.6.7.6. Common Method Bias

Additionally, the data was analyzed for any common method bias. This dissertation used Harman's one factor test, which has been successfully applied in earlier research (Koh & Kim, 2004), to investigate the results of unrotated factor solutions and to establish the number of factors accounting for the variation in the variables (Koh & Kim, 2004). Two requirements indicate that a common method bias exists: (1) when a single factor emerges from factor analysis; and (2) when a single

general factor accounts for the majority of the covariance in the independent and criterion variables.

According to Podsakoff et al. (2003), the amount of variation explained by common method biases (CMB) varies according to the topic of the study (e.g., marketing, management, and psychology). When the covariance accounted for by a single component exceeds 40.7 % in research examining behavioral themes, common method bias occurs. Eleven factors were identified in this study using Harman's one factor test, with the highest covariance explained by one factor accounting for 25.6 % of the variance. This demonstrates that common method bias is unlikely to influence study findings.

CHAPTER FOUR

DATA ANALYSIS AND RESULTS

Overview

This chapter summarizes the findings of the study performed using the statistical approach mentioned in Chapter 3. This chapter adheres to the commonly recognized approach of describing PLS analysis, as indicated by earlier research. To begin, the measurement model's validity and reliability are evaluated, followed by the structural model's validation. Due to the fact that this dissertation examines the mediating role of perceived value, a mediation analysis is used to analyze this impact. Additionally, this chapter discusses the preliminary study's findings, finishing with a summary.

4.1. Sample

The Prolific sample was needed to fulfill the following screening criteria: (1) be a gamer; (2) utilize social online games (free to play); and (3) be at least 18 years old. A 375-person online survey was conducted. Participants whose responses were not completed or who failed an attention check question were excluded from the sample, leaving 352 instances for analysis (Table 4.1). Respondents varied in age from 18 to above 60 years, female representation of 62.5 percent and male 30.4 percent.

4.2. Measurement Model Assessment

The measurement and structural model are evaluated using ADANCO (Dijkstra & Henseler, 2015; Salazar-Ordóñez et al., 2018). This statistical program evaluates the measurement model's psychometric qualities and calculates the structural model's parameters.

As described in Chapter 3, the measurement model's validity and reliability are determined by examining its (1) internal consistency reliability; (2) indicator reliability; (3) convergent validity; and (4) discriminant validity. The following sections summarize the findings from all analyses conducted to determine the measurement model's validity and reliability.

4.2.1. Internal Consistency Reliability

When the composite reliability (CR) of each construct reaches the threshold value of 0.7, a measurement model is considered to have sufficient internal consistency dependability. According to Table 4.1, the CR of each construct in this dissertation

ranges between 0.8124 to 0.9004. These findings indicate that the items selected to represent the factors have adequate internal consistency and reliability.

4.2.2. Indicator Reliability

By assessing the item loadings, the indication reliability of the measurement model is determined. When the loading estimates for each item are more than 0.5 - 0.7, a measurement model is considered to have adequate indication reliability (Hair et al., 2011). According to the study, all elements in the measurement model had loadings greater than 0.5, ranging from 0.5730 to 0.9132. All items are statistically significant at the 0.001 level. The loading for each item is shown in Table 4.1. Thus, all items employed in this study exhibit acceptable indication reliability.

4.2.3. Convergent Validity

The convergent validity of the measurement model is examined in this dissertation by assessing its average variance extracted (AVE) value. Convergent validity is considered satisfactory when the average variance extracted (AVE) value of the constructs is near to or greater than 0.5. As shown in Table 4.1, all constructs have an AVE of between 0.5206 and 0.7301, indicating that the measuring model has good convergent validity.

Table 4.1. Loadings Reliability and Validity

Indicator	Loadings	Cronbach's alpha(α)	Rho_A	CR	AVE
Price		0.7689	0.7873	0.8509	0.5885
PR1: The virtual goods sold in the online game are generally reasonably priced	0.7155				
PR2: The virtual goods sold in the online game offer value for money	0.7367				
PR3: The virtual goods sold in the online game are good products for the price	0.8019				
PR4: The virtual goods sold in the online game are considered economical in terms of price	0.8102				

Table 4.1. (continue) Loadings Reliability and Validity

Quality		0.7772	0.7794	0.8569	0.5998
QUAL1: The virtual goods sold in the online game have an acceptable standard of quality	0.7341				
QUAL2: The virtual goods sold in the online game are reliable in their performance	0.7684				
QUAL3: The virtual goods sold in the online game are good in terms of their overall excellence	0.8034				
QUAL4: The virtual goods sold in the online game possess a degree of quality which is satisfactory	0.7901				
Achievement		0.8134	0.8229	0.8900	0.7301
ACH1: I can beat/surpass other players in the online game due to purchasing virtual goods.	0.8515				
ACH2: I gain more power than others in the online game due to purchasing virtual goods.	0.9132				
ACH3: I get a higher status/degree than other players in the online game due to purchasing virtual goods	0.7946				
Enjoyment		0.703	0.7209	0.8124	0.5206
ENJ1: I feel the activity of purchasing virtual goods is an interesting activity	0.6961				
ENJ2: I am happy to purchase virtual goods in the game online game.	0.7789				
ENJ3: I am happy to use virtual goods that I purchased in the online game	0.7302				
ENJ4: I enjoy using virtual goods that I purchased in the online game	0.6767				
Aesthetics		0.7806	0.7833	0.8584	0.6026

Table 4.1. (continue) Loadings Reliability and Validity

AES1: The virtual goods sold in the online game are lovely	0.7515				
AES2: The virtual goods sold in the online game reflect beauty	0.7857				
AES3: The virtual goods sold in the online game are aesthetically appealing	0.7677				
AES4: The virtual goods sold in the online game have attractive aesthetics feature	0.7994				
Customization		0.727	0.7278	0.8457	0.6463
CZ1: I have more items in the online game because I purchased virtual goods	0.7973				
CZ2: I can modify the appearance and many goods in the online game because I purchased virtual goods	0.8175				
CZ3: I can change many things about my online game in accordance with my preferences because I purchased virtual goods	0.7968				
Social Presence		0.7252	0.7410	0.8308	0.5553
SOC1: I can offer more help to others using the virtual goods I purchased in the online game	0.5730				
SOC2: I am able to be myself and show what kind of player/person I really am by purchasing virtual goods in the online game	0.7701				
SOC3: I feel like I am a member of the online game community because of virtual goods I purchased	0.8046				
SOC4: I feel connected to other players in the online game due to using virtual goods	0.8079				
Perceived Scarcity		0.7827	0.8743	0.8500	0.5323
SC1: In my opinion, the limited virtual goods are going to be sold out soon	0.7420				

Table 4.1. (continue) Loadings Reliability and Validity

SC2: I think the limited virtual goods surely attract more people to buy than the available virtual items	0.6508				
SC3: The number of the limited virtual goods is very limited	0.7815				
SC4: It is difficult to acquire the limited virtual goods	0.7580				
SC5: The limited virtual goods in the game is scarce	0.7087				
Self-Presentation		0.8706	0.7859	0.9004	0.5645
SL1: I use virtual goods in the online game because it helps other players to perceive me as competent	0.7518				
SL2: I use virtual goods in the online game because it helps other players to perceive me as socially desirable	0.7581				
SL3: I use virtual goods in the online game because it helps other players to perceive me as likable	0.8027				
SL4: I use virtual goods in the online game because it helps other players to perceive me as friendly	0.7624				
SL5: I use virtual goods in the online game because it helps other players to perceive me as skilled	0.6907				
SL6: I use virtual goods in the online game because it helps me to make a good impression	0.8068				
SL7: I use virtual goods in the online game because it helps me to tell others a little bit about myself	0.6768				
Perceived Value		0.8196	0.8235	0.8811	0.6500
PV1: Using virtual goods in the online game is a good deal	0.7504				

Table 4.1. (continue) Loadings Reliability and Validity

PV2: Compared to the effort I make, using virtual goods in the online game is beneficial to me.	0.8212				
PV3: Compared to the time I spend, virtual goods in the online game are worthwhile	0.7934				
PV4: Overall, using virtual goods in the online game delivers me good value	0.8562				
Purchase Intention		0.1840	0.7848	0.8751	0.7011
PI1: I intend to purchase virtual items for my characters in the online game.	0.7621				
PI2: My willingness to buy advanced virtual items in the game is High	0.8726				
PI3: The likelihood that I would purchase advanced items in the game is high	0.8724				

CR= Composite Reliability, **Rho_A**= Reliability Coefficient, **AVE**= average variance extracted.

4.2.4. Discriminant Validity

The discriminant validity of the measurement model is evaluated in this dissertation using two criteria: (1) Fornell and Larcker's (1981) criterion; and (2) heterotrait-monotrait (HTMT) (cross loadings). A measurement model has acceptable discriminant validity when: (1) the square root of the AVE is greater than the correlations between the measure and all other measures; and (2) the loading of an indicator is greater for its associated construct than for any other construct.

The first criteria are evaluated by using the ADANCO-PLS algorithm function, which calculates the AVE value for each construct. The square root of the extracted average variance (AVE) is compared to the correlation of latent constructs in this technique (Hair et al., 2014). A latent construct should be able to better explain the variation of its own indicator than other latent constructs. As a result, the square root of the AVE for each construct should be larger than the correlations with other latent constructs (Hair et al., 2014).

All square roots of AVE in this dissertation surpassed the off-diagonal elements in their respective row and column. The italic items in Table 4.2 indicate the square roots of the AVE, whereas the unitalic values provide the coefficient of correlation

between constructs. As seen in Table 4.2, all off-diagonal components are less than the square roots of AVE, indicating that Fornell and Larker's criterion is satisfied.

Table 4.2. Discriminant Validity: Fornell-Larcker Criterion

Construct	PR	QUAL	ACH	ENJ	AES	CZ	SOC	SC	SL	PV	PI
PR	*0.5885*										
QUAL	0.0423	*0.5998*									
ACH	0.0478	0.1078	*0.7301*								
ENJ	0.1121	0.1433	0.0573	*0.5206*							
AES	0.0977	0.1796	0.1166	0.2529	*0.6026*						
CZ	0.0563	0.0843	0.0979	0.1596	0.2014	*0.6463*					
SOC	0.0700	0.2899	0.1024	0.1239	0.1273	0.1412	*0.5553*				
SC	0.0927	0.0457	0.0337	0.0466	0.0503	0.0296	0.0980	*0.5323*			
SL	0.0578	0.2009	0.1467	0.1556	0.2089	0.1700	0.2468	0.0552	*0.5645*		
PV	0.1282	0.3592	0.2108	0.2991	0.3127	0.2261	0.2656	0.0378	0.3740	*0.6500*	
PI	0.1760	0.2975	0.1170	0.2652	0.3049	0.1794	0.3387	0.1380	0.3191	0.3999	*0.7011*

Values in Italic represents square root of AVE. Square correlations, AVE in the diagonal.

Note. PR =Price, QUAL =Quality, ACH =Achievement, ENJ=Enjoyment, AES=Aesthetics, CZ =customization, SOC =social presence, SC =Perceived scarcity, SL=Self-presentation, PV=Perceived value, PI =Purchase intention.

The second method of determining discriminant validity is to examine indicators and compare them to all construct relationships. The indicator of factor loading on the assigned construct should be greater than the indicator of factor loading on all other constructs. Table 4.3 contains the result of the ADANCO-PLS algorithm function's cross loadings. All measuring items employed in this dissertation loaded much higher than other variables against their respective intended latent variable. Additionally, each block's loading is greater than any other block in the same rows and columns, clearly isolating each latent variable as the conceptual model hypothesized. Thus, the cross-loading result validates the discriminant validity of the measurement model.

Overall, the reliability and validity tests undertaken on the measurement model are satisfactory, indicating that the items used to measure constructs in this dissertation are valid and appropriate for use in estimating structural model parameters.

Table 4.3. *Discriminant Validity: Heterotrait-Monotrait Ratio of Correlations (HTMT)*

Construct	PR	QUAL	ACH	ENJ	AES	CZ	SOC	SC	SL	PV	PI
PR											
QUAL	0.252										
ACH	0.274	0.413									
ENJ	0.410	0.510	0.297								
AES	0.393	0.541	0.428	0.653							
CZ	0.309	0.384	0.405	0.537	0.593						
SOC	0.338	0.716	0.428	0.479	0.469	0.515					
SC	0.375	0.249	0.230	0.260	0.259	0.225	0.413				
SL	0.286	0.543	0.456	0.478	0.549	0.513	0.623	0.279			
PV	0.444	0.752	0.560	0.691	0.695	0.613	0.672	0.225	0.720		
PI	0.523	0.698	0.426	0.662	0.702	0.558	0.769	0.457	0.682	0.789	

Note. PR =Price, QUAL =Quality, ACH =Achievement, ENJ=Enjoyment, AES=Aesthetics, CZ =customization, SOC =social presence, SC =Perceived scarcity, SL=Self-presentation, PV=Perceived value, PI =Purchase intention.

4.2.5. The Goodness-of-Fit

The Goodness-of-Fit (GOF) statistic is used to assess the whole model's fit and to ensure that the model adequately describes the empirical data (Tenenhaus et al., 2005). The GOF values range from 0 to 1, with 0.10 indicating a minor validation, 0.25 indicating a medium validation, and 0.36 indicating a large validation. A good model fit demonstrates that a model is concise and credible (Hussain et al., 2018). The GOF of a model is derived using the geometric mean of the average communality (AVE values) and the average R2 value(s), and the following equation is used to determine the GOF of the model (Tenenhaus et al., 2005).

$$\textbf{GOF} = \sqrt{\boldsymbol{Average\ R^2} * \boldsymbol{Average\ communality}}$$

With a SRMR 0.0601 and GOF index of 0.6130, the empirical data fits well with this model and has a high level of predictive power compared to the baseline values, as shown by Table 4.4.

Table 4.4. The Goodness-of-Fit

Construct	Average variance extracted (AVE)	Coefficient of determination (R^2)	Value
PR	0.5885		
QUAL	0.5998		
ACH	0.7301		
ENJ	0.5206		
AES	0.6026		
CZ	0.6463		
SOC	0.5553		
SC	0.5323		
SL	0.5645		
PV	0.6500	0.6324	
PI	0.7011	0.6031	
Average values	**0.6083**		
AVE* R^2	**0.3758**		
GoF (goodness of fit)	**0.6130**		
SRMR			**0.0601**

Note. PR =Price, QUAL =Quality, ACH =Achievement, ENJ=Enjoyment, AES=Aesthetics, CZ =customization, SOC =social presence, SC =Perceived scarcity, SL=Self-presentation, PV=Perceived value, PI =Purchase intention.

4.3. Structural Model

The following sub - sections explain the tests carried out to determine the structural model's validity for this dissertation, which includes an analysis of the coefficient of determination (R^2) and path coefficients. Additionally, this dissertation utilizes the mediation relationships suggested in the research model.

4.3.1. Coefficient of Determination (R^2)

The coefficient of determination (R^2) value represents the proportion of variation explained by the independent variables in a dependent variable. In other words, the measurement model describes the fraction of variability in the data. This number should be high enough to adequately explain the variation of the endogenous latent variable; hence, a higher R^2 value boosts the structural model's predictive power. The ADANCO-PLS algorithm function is utilized in this dissertation to determine the R^2 values. While the ADANCO-PLS bootstrapping function generates 1000 samples from 352 instances for the purpose of calculating the t-statistics. The structural

model's results (shown in Figure 2) explain the variables' relationships. The R^2 criterion is satisfied, and the structural model is sufficiently predictive (Chin, 1998).

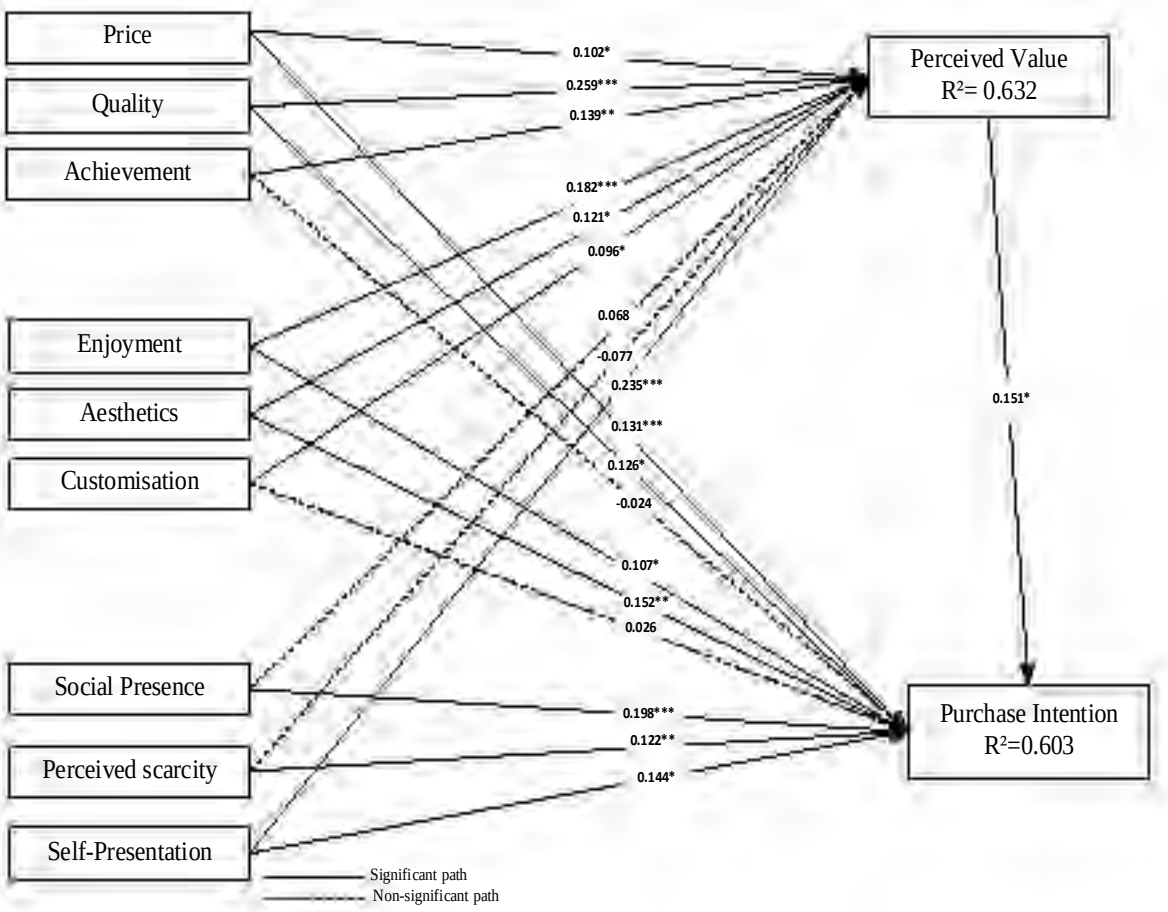

Figure 4.1 *Structural Model Results*

4.3.2. Path Coefficients

Each path inside the structural model connects two latent variables that reflect a hypothesis. The researcher may use path coefficients to validate or refute each hypothesis and to get a better understanding of the strength of the relationship between dependent and independent variables.

Path coefficients are equivalent to standardized beta coefficients in ordinary least squares regression. Along with t-statistics, the bootstrapping approach is used to estimate the significance of route coefficients.

The path coefficients, t-statistics, and significance level for each predicted relationship are listed in Table 4.5. Each submitted hypothesis is either supported or not supported based on the route assessment findings. The next section discusses these findings.

4.3.3. Hypotheses Testing

Path coefficients between latent variables are calculated to test the provided hypotheses and structural model. A path coefficient value of at least 0.1 should be used to account for a specific effect inside the model (Hair et al., 2011). In this dissertation, each of these path coefficients are presented in Table 4.5.

Nineteen hypotheses were proposed; fifteen were supported, while five were rejected. Supported hypotheses are statistically significant at the 0.05 level, have signs in the expected directions, and possess a path coefficient value (β) ranging from 0.1016 to 0.2589.

As shown in the table 4.5, the price of virtual items has a positive effect on the perceived value (ß =0.1016, p <.001) and purchase intention of virtual goods (ß =0.1016; p <.001), supporting **H1** and **H2**. Further, Quality has a positive effect on the perceived value (ß =0.2589, p <.001) and purchase intention of virtual goods (ß =0.1260; p <.001), supporting **H3** and **H4**. Achievement has a positive effect on the perceived value (ß =0.1391, p <.001), supporting **H5.** Whereas the effect among achievement and purchase intention of virtual goods was not supporting **H6** (ß =-0.024; p= 0.5307). Also, Enjoyment has a positive effect on the perceived value (ß =0.1822, p <.001) and purchase intention of virtual goods (ß =0.1066; p <.001), supporting **H7** and **H8**. Furthermore, Aesthetics has a positive effect on the perceived value (ß =0.1207, p <.001) and purchase intention of virtual goods (ß =0.1524; p <.001), supporting **H9** and **H10**. The customization has a positive effect on the perceived value of virtual goods (ß =0.0963, p <.001), supporting **H11**, while the effect with purchase intention of virtual goods was not (ß =0.0257; p= 0.5562) thus, **H12** was not supported. Moreover, Social Presence has a positive effect on the perceived value (ß =0.0684; p= 0.1507) was not supporting **H13**, however with purchase intention of virtual goods (ß = 0.1976; p <.001), was supporting **H14**. Similarly, Perceived Scarcity has a positive effect on the perceived value (ß =-0.0769; p= 0.0556) was not supporting **H15**, while with purchase intention of virtual goods (ß = 0.1222; p <.001), was supporting **H16**. Self-presentation has a positive effect on the perceived value (ß =0.2351, p <.001) and purchase intention of virtual goods (ß =0.1444; p <.001), supporting **H17** and **H18**. Lastly, perceived value has a positive effect on the purchase intention of virtual goods (ß =0.1512; p <.001), was also

supporting **H19**. Table 4.5 and figure 4.1 summarizes results for all hypotheses assessed.

Table 4.5. *Results of structural model assessment*

Effect	Std β					Percentile bootstrap quantiles		
		Std Error	*t*-value	*p*-value	Cohen's f^2	2.5%	97.5%	Decision
Pr -> PV	0.1016**	0.0384	2.6476	0.0082	0.0225	0.0268	0.1769	Supported
Pr -> PI	0.1311**	0.0397	3.3066	0.0010	0.034	0.0553	0.2106	Supported
QUAL -> PV	0.2589**	0.0534	4.8506	0.0000	0.1122	0.1567	0.3659	Supported
QUAL -> PI	0.126*	0.0633	1.9906	0.0468	0.0221	0.0001	0.2491	Supported
ACH -> PV	0.1391**	0.0454	3.0651	0.0022	0.041	0.0516	0.2239	Supported
ACH -> PI	-0.024	0.0383	-0.6272	0.5307	0.0011	-0.0966	0.0551	Not supported
ENJ -> PV	0.1822***	0.0458	3.9754	0.0001	0.0587	0.0878	0.2676	Supported
ENJ -> PI	0.1066*	0.0535	1.9915	0.0467	0.0176	0.0022	0.2175	Supported
AES -> PV	0.1207*	0.0512	2.3564	0.0186	0.0234	0.0239	0.2236	Supported
AES -> PI	0.1524**	0.0576	2.6446	0.0083	0.0337	0.0284	0.2571	Supported
Cz -> PV	0.0963*	0.0448	2.1479	0.0320	0.0175	0.0158	0.1878	Supported
CZ -> PI	0.0257	0.0437	0.5887	0.5562	0.0011	-0.0556	0.1140	Not supported
SOC -> PV	0.0684	0.0476	1.4381	0.1507	0.0074	-0.0265	0.1608	Not supported
SOC -> PI	0.1976***	0.0558	3.5391	0.0004	0.0566	0.0841	0.3014	Supported
SC-> PV	-0.0769	0.0401	-1.9161	0.0556	0.0135	-0.1506	0.0022	Not supported
SC -> PI	0.1222**	0.0437	2.7982	0.0052	0.0312	0.0362	0.2034	Supported
SL -> PV	0.2351***	0.0477	4.9259	0.0000	0.0905	0.1403	0.3229	Supported
SL -> PI	0.1444*	0.0595	2.4261	0.0154	0.029	0.0336	0.2700	Supported
PV -> PI	0.1512*	0.0731	2.0696	0.0387	0.0212	0.0047	0.2883	Supported

Note. PR =Price, QUAL =Quality, ACH =Achievement, ENJ=Enjoyment, AES=Aesthetics, CZ =customization, SOC =social presence, SC =Perceived scarcity, SL=Self-presentation, PV=Perceived value, PI =Purchase intention.

4.4. Mediation Analysis

According to Henseler et al. (2009), another critical aspect of evaluating a structural model is determining the direct and indirect relationships between exogenous and endogenous latent variables. Both direct and indirect relationships were analyzed for significance, which was used to determine the relevance of the mediating interactions proposed in this dissertation. The overview of direct and indirect relationships based on the structural model is shown in Table 4.6. Perceived value has a substantial role in mediating the association between nine latent variables and intention to purchase virtual goods.

Further analysis was also performed to examine the mediating effects through the bias-corrected bootstrap confidence intervals procedure with 5000 resamples (Nitzl et al., 2016). Accordingly, the lower limit (LL) and upper limit (UL) values of the confidence interval should not contain zero for a significant mediating effect (Memon, Salleh, et al., 2020). As indicated in the **table 4.6**. perceived value mediates the impact quality (**H20a**: β=0.0392, p-value= 0.0000, CI: [LL=0.0013, UL=0.0867]), achievement (**H20b**: β=0.0210, p-value= 0.0022CI: [LL=0.0001, UL=0.0475]), enjoyment (**H20c**: β=0.0276, p-value= 0.0001, CI: [LL=0.0008, UL=0.0593]), customization (**H20g**: β=0.0146, p-value= 0.0320, CI: [LL=-0.0007, UL=0.0379]),]), aesthetics (**H20f**: β=0.0183, p-value= 0.0186, CI: [LL=-0.0005, UL=0.0524]), and self-presentation (**H20d**: β=0.0356, p-value= 0.0000, CI: [LL=0.0013, UL=0.0712]) on purchase intention. As the bootstrap confidence interval did not contain zero, we can conclude that the suggested hypothesizes that perceived value mediates the effects between quality, achievement, aesthetic, enjoyment, customization, self-presentation, and purchase intention are statistically significant.

However, as mentioned in table 4.6, perceived value did not mediate the impact of price (**H20e**: β=0.0154, , p-value= 0.0082, CI: [LL=-0.0004, UL=0.0356]) social presence (**H20h**: β=0.0104, t=1.0786, p-value=0.1507, CI: [LL=-0.0036, UL=0.0334]) and perceived scarcity (**H20i**: β=0.0116, , p-value=0.0556, CI: [LL=-0.0275, UL=0.0012]) on purchase intention. As the bootstrap confidence interval did contain zero for price, and p-value were not significant for social presence and perceived scarcity we conclude that the suggested hypothesizes that perceived value mediates the effects between price, social presence, perceived scarcity, and purchase intention are not statistically significant.

For the second issue, mediation analysis is seen as indirect effects inference from the results table 4.6. By using confidence interval, you can report them like as follows.

Table 4.6. *Results of measurement of mediation effect*

Effect	β			Percentile bootstrap quantiles		
		StD error	*p*-value	2.5%	97.5%	Decision
PR -> PV -> PI	0.0154	0.0095	0.0082	-0.0004	0.0356	Not supported
QUAL -> PV -> PI	0.0392	0.0217	0.0000	0.0013	0.0867	Supported
ACH -> PV -> PI	0.0210	0.0120	0.0022	0.0001	0.0475	Supported
ENJ -> PV -> PI	0.0276	0.0143	0.0001	0.0008	0.0593	Supported
AES -> PV -> PI	0.0183	0.0137	0.0186	0.0005	0.0524	Supported
CZ -> PV -> PI	0.0146	0.0103	0.0320	0.0007	0.0379	Supported
SOC -> PV -> PI	0.0104	0.0096	0.1507	0.0036	0.0334	Not supported
SC -> PV -> PI	-0.0116	0.0077	0.0556	0.0275	0.0012	Not supported
SL -> PV -> PI	0.0356	0.0174	0.0000	0.0013	0.0712	Supported

Note. PR =Price, QUAL =Quality, ACH =Achievement, ENJ=Enjoyment, AES=Aesthetics, CZ =customization, SOC =social presence, SC =Perceived scarcity, SL=Self-presentation, PV=Perceived value, PI =Purchase intention.

4.5. Summary of Chapter 4

ADANCO is employed to examine the motivations behind purchasing the virtual goods. A number of interesting insights that can be drawn from the research that was done on both the measurement and structural models.

First, the measurement model was shown to be both reliable and valid. All constructs obtained composite reliability scores greater than 0.7 in terms of internal consistency. All item loadings were within the acceptable cutoff range and statistically significant at the 0.05 level, indicating indication reliability. Additionally, the measuring model revealed acceptable convergent and discriminant validity, with **AVE** values within the acceptable range. Further, all visible variables were loaded onto their corresponding latent variables, and the square roots of the AVE for each construct were larger than the inter-correlation for that construct.

Second, the structural model's validation achieved excellent results. The **R2** values were significant, ranging from moderate to acceptable. Additionally, fifteen of nineteen of the structural model's predicted routes were supported. Specifically, these proposed relationships had β values greater than 0.1 and were significant at the 0.05 level.

Lastly, the structural model exhibited six significant mediating relationships. Perceived value had a mediation effect between quality, achievement, aesthetics, enjoyment, customization, self-presentation, and purchase intention of virtual goods, while had no mediation effect among price, social presence, perceived scarcity, and purchase intention of the victual goods.

CHAPTER FIVE

CONCLUSION

5. Overview

This chapter addresses the findings reported in Chapter 4, as well as the theoretical and managerial implications of the dissertation's findings. Additionally, this chapter discusses the study's limitations and offers recommendations for future research.

5.1. Discussion

The main objective of this dissertation was to determine what factors make virtual goods valuable in the eyes of the game players and what value factors are effective in the purchase decision of the virtual goods.

Based on the “consumption value theory” (Sheth et al., 1991; Sweeney & Soutar, 2001) our model was developed and hypnotized, that utilitarian value which addressed by price, quality, and achievement, and emotional value which represented by enjoyment, aesthetics, and customization, and social value which demonstrated by social presence, perceived scarcity and self-presentation effected differently the perceived value and virtual goods purchase intention. Further, this dissertation found that the perceived value acted as a mediator among constructs and purchase intention of virtual goods. The results are consistent with some previous findings.

Numerous significant findings emerged from this investigation. First, this study confirmed that perceived value significantly impacts the intention to purchase virtual goods. This result is consistent with the study by Hsiao et al. (2020), Guo & Barnes (2012) and Kim et al. (2011) that demonstrate perceived value is an important antecedent of purchase intention of virtual goods. Perceived value relates to the many advantages of goods as perceived by players (Yoo & Park, 2016). Players are always seeking to maximize their benefits from the use of virtual goods. Since virtual goods provide players with significant benefits and a high perceived value, their intention to use and purchase virtual goods will increase.

Second this study findings indicated that the price significantly affects the perceived value. This result consistent with that of Hsiao et al. (2020) who revealed that price have a significant positive influence on perceived value. Further, the study results indicated that price positively associated with players purchase intention of

virtual goods. This findings contrasts with that of Kim et al. (2011) who found no significant effect among price and purchase intention of virtual goods. Moreover, this study results demonstrated that quality is significantly associated with perceived value and players purchase intention of virtual goods. This findings completely contrasts with that of Kim et al. (2011) and Hsiao et al. (2020) who found no significant effect among quality and players purchase intention of virtual goods. Achievement was found positively associated with the players perceived value. This findings consistent with that of Lin et al. (2015) who demonstrated that online games (e.g., MMORPGs) have a unique gameplay modality that draws players and allows them to satisfy their psychological needs and expectations in the virtual world via achievement values. Also, achievement considered as the primary motive for playing online games (Wu et al., 2010). Whereas this study found that there is no significant association between achievement and players purchase intention of virtual goods. This finding contradict with that of Guo & Barnes (2012) who found that achievement has a significant impact on players' intention to purchase virtual goods. The reason for this outcome is that players who have been playing the games for an extended period of time (stuck playing) are able to accumulate more points and rewards than other players and may get virtual goods by exchanging their earned points for virtual goods. Previous studies revealed that players purchase digital goods for hedonic reasons rather than utilitarian (Hamari et al., 2017; Hsiao et al., 2020; Kim et al., 2011; Lehdonvirta, 2009). They assumed that players' perceptions of virtual goods were purely hedonic. This study findings contradict this premise and demonstrate that utilitarian values are important in determining how players perceive and purchase virtual goods. Virtual goods have grown in popularity as a result of the proliferation of huge online gaming platforms and the advent of metaverses. Our results show that players shifted from seeing virtual goods and online games as a source of entertainment and pleasure to viewing virtual goods as comparable to real goods, which is even better in the perspective of players who like to accumulate virtual goods to impress others.

Third, this study findings indicated that the enjoyment significantly affects the perceived value and purchase intention of virtual goods. This results are consistent with that of Mahfuzra et al. (2019) who found that enjoyment was dominant factor affecting the perceived value and purchase intention of virtual goods. Further, this findings contrasts with the findings of Li et al. (2015), who concluded that enjoyment

was not the primary factor influencing consumers' repurchase intention. This result demonstrates that consumers evaluate the sensation of pleasure while utilizing online games, which in turn drives them to purchase virtual goods. When players experience a high degree of enjoyment, their willingness to buy digital goods increases. Concerning aesthetics this study results revealed that the aesthetics significantly associated with the perceived value and purchase intention of virtual goods. This finding is in parallel with Hsiao et al. (2020), Kim et al. (2011) and Marder et al. (2019) who discovered that aesthetics positively impacts the perceived value and purchase intention of virtual goods. When players perceive the aesthetics characteristics of virtual goods they create emotional reactions, attract their attention, and boost the virtual goods beauty and attractiveness perceptions that lead them at the end to the high-value perception of virtual goods and increase the player's purchase intention. This study also, demonstrated that customization have a significant effect on perceived value. This finding contradict with that of Mahfuzra et al. (2019) who observed that customization has no significant impact on players' value perception. Additionally customizing an avatar is seen as a pleasurable activity that meets players' demands for immersion in the digital games, resulting in immersion pleasure and increasing the virtual goods value perception in the player's mind (Teng, 2010). Further, this study findings indicated that customization have no significant effect on purchase intention of virtual goods. This result contrast with that of Guo & Barnes (2012) considered customization as strong predictors for purchase intention of virtual goods. Since the online games business model is dependent on encouraging players to continue playing on obtaining free items from friends, and on earning awards and points for achievements in the games, their desire to buy virtual goods will decrease over time, resulting in a decline in virtual goods purchase intention. Further, this study result agree with previous studies of Hamari et al. (2017), Lehdonvirta (2009), Hsiao et al. (2020) and Kim et al. (2011) who revealed that players purchase virtual goods for hedonic purposes (hedonic value).

Fourthly, the outcomes of this research demonstrate that social presence has no significant effect on perceived value. This findings contrast with prior studies of Lee et al. (2013) and Mahfuzra et al. (2019) who discovered that social presence strongly influence the perceived value. While, this study results indicated that social presence

positively associated with players purchase intention of virtual goods consistent with the findings of Jin et al. (2017), Jin & Sun (2015) and Lee et al. (2013). Perceived scarcity shown no significant effect toward perceived value of virtual goods. This findings contradict with that of Chae et al. (2020) who discover that perceived scarcity (limited edition goods) positively influence perceived value. Further, this study result demonstrates that perceived scarcity significantly influences the purchase intention of virtual goods. This findings accord with that of Kartika (2019) who confirmed that perceived scarcity influence the purchase intention. In a condition where players believe that specific virtual goods are limited, they will feel insecure about their ability to get the desired virtual goods, which will automatically boost their desire to purchase virtual goods. Self-presentation was found significantly influence the perceived value and purchase intention of the virtual goods. This findings getting along with that of Chen & Chen (2020), Kim et al. (2011) and Shang et al. (2012) who illustrated that self-presentation significantly impact the perceived value and the purchase intention of virtual goods. This study further contrast with Li et al. (2015) who found no significant effect among self-presentation and purchase intention. By using virtual goods, players enhance their self-presentation via online games, as well as their self-confidence and engagement with other people. Additionally, avatar provides players with an excellent opportunity to demonstrate their achieved or purchased virtual goods, which enhance their self-image, increase their self-expression, improving their self-value through social comparison, thereby strengthening players' ability to positively control their image in the eyes of others. In general this study in the line with previous studies Kim et al. (2011), Lehdonvirta (2012) and Mahfuzra et al. (2019) who discovered that people buy virtual goods to enhance their appearance in online games (social value).

Finally, this dissertation results demonstrated that perceived value meditates the relationship between quality, achievement, aesthetics, customization, enjoyment, self-presentation, and the purchase intention of virtual goods. Perceived value, as defined by Yoo & Park (2016), refers to the many benefits of goods from the consumer's perspective. When players enjoy utilizing virtual goods, see their superior performance, earn virtual goods via gaming level achievement, and present themselves appropriately, they perceive the virtual goods to have a higher value, which increases their willingness to purchase the virtual goods. Thus, quality,

achievement, aesthetics, customization, enjoyment, self-presentation influence perceived value and in turn, increase purchase intention of virtual goods. Whereas perceived value did not mediate the relationship between price, social presence, perceived scarcity, and purchase intention. Further, this study results indicated that price, and social presence have direct effects on purchase intention. However, concerning the indirect effects through perceived value have not. Previous literature suggests that the formation of purchase intention is more complex than might have been expected and these factors in addition to perceived value may deserve more investigation (Dodds et al., 1991; Zeithaml, 1988).

5.2. Theoretical Implications

This study provides a number of significant theoretical contributions. Firstly, the application of "consumer value theory" (CVT) is expanded by employing it in the context of virtual goods purchase. The customer value theory has been shown that it is important in clarifying the motives that individuals purchase products and services in offline and online contexts, while its usage in the virtual environment, notably virtual goods purchase, is insufficient. This research applies CVT to evaluate and clarify the motivations for purchasing virtual goods in online games, as well as to discover the important components that impact the desire to buy virtual goods, therefore expanding the theory's application breadth and it is understanding. Particularly, the role of online games attributes in improving players perceived value and virtual goods purchase intention through price, quality, achievement, enjoyment, aesthetics, customization, social presence, perceived scarcity, self-presentation has been investigated. Although previous research has used customer value theory to reflect players purchase intention of virtual goods in social networking community service (Kim et al., 2011), however being effective and efficient in online gaming still is challenging. According to the “social exchange theory” (Emerson, 1976), perceived value is stemmed from mutual exchange transactions that involve an exchange ratio of tangible and intangible activities. Thus, perceived value is often described as customers' overall evaluation of the usefulness of a product or trade-off based on their expectations of what they are providing and what they are getting. (Zeithaml, 1988). In the context of online games, utility, usefulness, and interaction help players achieve more benefits by using virtual goods, engaging, and presenting themselves

inappropriate ways, and enjoying using virtual goods and online games, which contributes to customer value theory.

Second, this dissertation establishes how the online game atmosphere encourages the willingness for using and purchasing virtual goods from three aspects of utilitarian, emotional and social. Particularly, the motives of user's engagement in online games are that games developers create virtual environment and virtual goods to meet with players utilitarian, emotional and social needs. Players varies in context of gratifying their needs. This dissertation contributes to the literature by elucidating how the distinct needs of the players may be solved from these three aspects. This study considered as one rare study which explored that virtual goods purchase intention achieved for utilitarian reason (through price and quality) and confirmed the importance of emotional and social reasons as well. From these findings, we can understand how individuals transformed their perceptions of the virtual world from fantasy or science fiction to reality. Individuals became an effective part of this virtual environment and virtual world as a result of the development and implementation of technology such as virtual reality, augmented reality, social media, online games, and metaverses that enhances the perception of reality, and improves their perception of virtual goods as means to satisfy utilitarian needs which developed to be similar to their perception of utilitarian needs satisfied by real products. Thus, our study explained the utilitarian, emotional, and social values approaches, and their sub-values compensate and contribute to a better understanding and strengthen the explanation of consumer value theory in the context of online games.

Finally, this study also contributed by defining the connection among determinants and purchase intention of virtual goods through perceived value. Zeithmal (1988), Sheth et al. (1991), and Sweeney & Soutar (2001) have argued for decades that the perceived value played an crucial role in forming the purchase intention. They believe that consumers can be satisfied and increase the high utility from products or services that occur through high perceived value obtained from that products or services. Subsequently, perceived value is introduced in this study as the key aspect and plays a direct effect in determining the virtual goods purchase intention, whereas the role of the indirect effect of perceived value stays doubtful. Therefore, our research thus contributes to the literature by understanding the

mediation impact among determinants and virtual goods purchase intention in online games.

5.3. Managerial Implications

This study and its findings have a variety of implications for online game providers as well as developers. The findings will provide critical information to online games companies on virtual goods sales, players' perceptions of value and their intention to purchase virtual goods.

As can be observed from the findings, behavior intentions are determined by perceived value. For that reason, online game providers and developers of free-to-play games should increase the perceived value of virtual goods in the eyes of players and optimize the performance of the gaming platform, ultimately increasing the perceived value of benefits obtained from using virtual goods in the players' minds.

Further, the findings of this research reveal that online gaming players have developed an interest in utilitarian value (price and quality). As a result, it will be critical for online game providers and developers to improve the quality and performance of virtual goods. Neglecting the utility perception of virtual goods quality could have severe consequences for online game companies and result in low expectations for virtual goods performance in players' minds. On the other hand, gamers demonstrate a sensitivity to the price of virtual goods. Commonly, consumers tend to achieve their desire to get a product or service by sacrificing an amount of money. If players believe that the cost of obtaining virtual goods would be too high, they will automatically prevent from purchasing virtual goods. Therefore, online game providers and developers must apply effective pricing tactics and strategies in order to attract players and reduce feelings of sacrifice and guilt.

Moreover, the findings reveal that player enjoyment and aesthetics are critical factors in influencing virtual goods purchase intention. Online game providers and developers should understand the vital nature of controlling players' expectations and experiences in order to maximize players' benefit. Additionally, they should prioritize the design and attractiveness of virtual goods. Further, to increase player engagement and pleasure, online game providers and developers should create a gaming

application that incorporates a variety of aspects, such as an appealing design, social interaction, accomplishment, and challenge.

On the other hand, due to the fact that robust relationships with friends and a sense of belonging in a team influence players' sense of social presence and connections, which in turn influence their intention to purchase. Therefore, online game providers and developers, should place a greater importance on designing mechanisms that support and improve players interactions and connections. To foster friendships, online game providers and developers should expand collaborative tasks that need the participation of several players, during which a user and his or her friends might discuss tactics and exchange experiences and thoughts. Further, individuals' need for self-presentation and social presence motivates them to buy virtual goods in order to create the image they seek and to have the sensation of engaging with a virtual physical presence. For that reason, online game providers should encourage their players' craving for online self-presentation and social presence. To accomplish this aim, our study proposes that online game providers should seek to promote player engagement and optimize the game atmosphere in order to improve better player experience.

Finally, since the outcomes of this research demonstrate that perceived scarcity has an effect on players' buying intentions of virtual goods. We recommend that online game providers and developers should employ both scarcity tactics (promoting product scarcity, limited time, and limited quantity tactics). Because when customers consider a product to be rare, their intention to purchase virtual goods will increase.

5.4. Limitations and Future Research

Despite contributions and management implications, this research is certain to have some limitations. First, we had a quite small sample size for our research. Without a doubt, this research's findings would be more reliable with a bigger sample size. Additionally, while this study focused on the developed county (USA), future research should examine players' purchase intentions of virtual goods in developing countries. Additionally, it would be beneficial to do a comparative analysis of developed and developing countries regarding virtual goods purchase intention. Further, this study focused on players above 18 years old. We advise future research to integrate the segment of players under the age of 18. Since the fact that online

games serve as venues for connection and contact with others. We suggest that future studies should examine the impact of peer pressure on purchase intention of virtual goods among players under the age of 18. Players under 18 are required because peer pressure is a cost of group membership since a person, whether consciously or unconsciously, conforms to the dominant characteristics of his peers in forming his own traits and it commonly occur among adolescent (Clasen & Brown, 1985).

Second, we examine purchase intention through the lens of a research methodology that includes perceived values as a mediator. Future research may examine these phenomena utilizing a broader range of variables and theoretical frameworks, such as Uses and Gratification Theory. Further, previous studies show that a relationship may appear among the variables (Kim et al., 2011). Therefore, future research should address the relationships between factors themselves and the purchase intention of virtual goods.

Finally, this study focus was on virtual goods sold in online games. There are hundreds of virtual goods available now in marketplace. NFTs are one of these virtual goods. Non-Fungible Tokens, or NFTs, may be regarded as "a unit of digital information (token) that is stored on a blockchain but is not interchangeable with other digital assets fundamentally (non-fungible)". The word fungible originates in economic and accounting literature and refers to anything that may be substituted with an identical or comparable product (Chohan, 2021, p. 1,2). Therefore, future research should address NFT's virtual contracts and consumer purchase intention of NFTs.

5.5. Conclusion

Online games have been progressively gaining popularity in recent years. Especially together with pervasive computer and mobile technologies, their expansion has demonstrated significant promise. The major purpose of our research was to understand which factors may impact the players' intention to purchase virtual goods by adopting the consumer value theory approach. The present study enables future applications of gaming communities by demonstrating the connections among price, quality, achievement, enjoyment, aesthetics, customization, social presence, perceived scarcity, self-presentation, and perceived value on virtual goods purchase intention. Understanding these linkages and the moderating effect of perceived value

on these interactions will assist gaming practitioners and academics in designing their strategies and manage gaming platforms and communities.

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Appendix 1. Scale item, and source.

Constructs	Items	Source
Price	The virtual goods sold in the online games are generally reasonably priced. The virtual goods sold in the online games offer value for money. The virtual goods sold in the online games are good products for the price. The virtual goods sold in the online games are considered economical in terms of price.	(Kim et al., 2011)

Quality	The virtual goods Sold in the online games have an acceptable standard of quality. The virtual goods sold in the online games are reliable in their performance. The virtual goods sold in the online games are good in terms of their overall excellence. The virtual goods sold in the online games possess a degree of quality which is satisfactory.	(Kim et al., 2011)
Achievement	I can beat/surpass other players in the online games due to purchasing virtual goods. I gain more power than others in the online games due to purchasing virtual goods. I get a higher status/degree than other players in the online games due to purchasing virtual goods.	(Li et al., 2015)
Enjoyment	I feel the activity of purchasing virtual goods is an interesting activity I am happy to purchase virtual goods in the online games. I am happy to use virtual goods that I purchased in the online games I enjoy using virtual goods that I purchased in the online games	(Li et al., 2015)
Aesthetics	The virtual goods sold in the online games are lovely. The virtual goods sold in the online games reflect beauty. The virtual goods sold in in the online games are aesthetically appealing. The virtual goods sold in the online games have attractive aesthetics feature.	(Kim et al., 2011)
Customization	I have more items in the game because I purchased virtual goods I can modify the appearance and many goods in the online game because I purchased virtual goods. I can change many things about my game in accordance with my preferences because I purchased virtual goods	(Teng, 2010)
Self-presentation	I use virtual goods in the game because it helps other players to perceive me as competent. I use virtual goods in the game because it helps other players to perceive me as socially desirable I use virtual goods in the game because it helps other players to perceive me as likable I use virtual goods in the game because it helps other players to perceive me as friendly. I use virtual goods in the game because it helps other players to perceive me as skilled. I use virtual goods in the game because it helps me to make a good impression. I use virtual goods in the game because it helps me to tell others a little bit about myself	(Lee et al., 2012)
	I can offer more help to others using the Virtual goods I purchased in the online games.	

Social presence	I am able to be myself and show what kind of player/person I really am by purchasing virtual goods in the online games.	(Li et al., 2015)
	I feel like I am a member of the online games community because of virtual goods I purchased.	
	I feel connected to other players in the online games due using virtual goods	
Perceived Scarcity	In my opinion, the limited virtual goods are going to be sold out soon.	(Chen & Sun, 2014)
	I think the limited virtual goods surely attract more people to buy than the available virtual items.	
	The number of the limited virtual goods is very limited.	
	It is difficult to acquire the limited virtual goods.	
	The limited virtual goods in the online game are scarce.	
Perceived Value	Using virtual goods in the online games is a good deal.	(Yang et al., 2016)
	Compared to the effort I make, using virtual in the online games is beneficial to me (or of value)	
	Compared to the time I spend, virtual goods in the online games are worthwhile.	
	Overall, using virtual goods in the online games delivers me good value	
Purchase Intention	I intend to purchase virtual items for my characters in the online games.	(Guo & Barnes, 2012)
	My willingness to buy advanced virtual items in the online games is High.	
	The likelihood that I would purchase advanced items in the online games is high	

Note. all items are measured using seven-point Likert scales ranging from "strongly disagree" (1) to "strongly agree" (7). Further, only F2P gaming participants could answer these questions.

Appendix 2. Ethical approval