



How Are Purchase Intentions of Virtual Items in Multiplayer Online Games Affected? A Thematic and Structural Analysis

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ABSTRACT

Multiplayer online games have generated good revenue through the sale of various items. Providing the appropriate in-game products and increasing revenue from the sale of items is possible by better understanding the factors affecting players' purchasing intentions. A review of past research in the field of multiplayer online games indicates that a comprehensive framework of factors influencing the intention to purchase virtual items has not been established by previous studies, and key variables are not well defined. Therefore, the present study provides an exploration to find and classify the factors influencing the intention to purchase virtual items in multiplayer online games and evaluates the influence of variables to discover the key factors. A mixed methods approach was used in this study. Experienced Iranian gamers who met the study's inclusion criteria participated in semi-structured interviews. Purposeful sampling was employed via a large-scale Telegram gaming channel. Thematic analysis was used to extract 18 influencing factors, categorized into individual, social, and platform-related dimensions. Subsequently, structural analysis, using the MICMAC technique, was applied to evaluate the relative influence and dependence of these factors. The study reveals that monetary benefits, friends' opinions, and out-of-game interactions are the most influential drivers of in-game purchases. Additionally, factors such as competition, character identity, and self-protection were examined in more detail, yielding novel findings. This research provides a comprehensive framework for understanding in-game purchase decisions, incorporating both qualitative depth and quantitative structure. It extends existing literature by introducing emerging factors, and delivers actionable implications for game developers aiming to enhance monetization strategies through deeper consumer insight.

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1. Introduction

As one of the important entertainment industry sectors, the gaming industry could reach a total revenue of \$184 billion in the global market in 2023, growing 0.6% over the previous year (Wijman, 2023). The revenue generated by the global online gaming sector was approximately \$26.14 billion in 2023 (Statista, 2024). Multiplayer online games are networked digital games that enable players to interact within shared virtual environments, either synchronously or asynchronously, and often feature persistent worlds that extend beyond a single play session (Freeman, 2018). Players typically pay for a variety of virtual items that multiplayer online game producers have made available. Virtual items are defined as a subset of virtual assets that can be offered, bought, and sold like traditional mass-produced consumer goods. These items include various in-game features, characters, and currencies in multiplayer games (Cai et al., 2019). Some virtual items are functional, enhancing players' performance and gameplay, while others are non-functional, acquired primarily for reasons such as aesthetic appeal or personal expression (Marder et al., 2019). Online games today are offered through various devices, such as computers, mobile phones, and game consoles, such as Xbox, PlayStation, and Nintendo. The practitioners and academics in the gaming industry have become interested in this topic due to the quick rise in popularity of online gaming and the potential for generating income (Sharma, 2020).

The studies conducted on multiplayer online games revealed various factors that influence virtual item purchase intentions. Chen and Chen (2020) highlighted that virtual items allow players to compare themselves with others, demonstrate their skills, and project a desired self-image. However, their study primarily emphasizes symbolic and self-presentation aspects, without addressing broader motivational or technological factors. Marder et al. (2019) demonstrated that hedonic, social, and utilitarian motivations significantly shape players' intentions to make in-game purchases. However, their study was restricted to a single topic, the free-to-play game (League of Legends) and focused on non-functional items, thereby limiting the generalizability of the findings. Building on a different perspective, Wang et al. (2021) found that the monetary, enjoyment, and social values of in-game items predict purchasing behavior. However, their work focused mainly on value perceptions, overlooking the role of psychological or identity-related drivers. Chang et al. (2019) demonstrated that utilitarian, hedonic, and social motivations shaped purchase intentions for virtual items. While valuable, their findings are limited to general motivational categories and do not explain how design or interaction features might reinforce these motivations. Addressing this dimension, Wu and Hsu (2018) revealed that aesthetic design, avatar identification, and co-creation behavior significantly influence both gameplay intention and virtual item purchases. However, their analysis is confined to game-specific design factors and does not incorporate broader consumer behavior theories. Flow experiences have also been highlighted as important experience, with Ghazali et al. (2023) reporting a strong relationship between flow and purchase intention among Dota 2 players in their study. King et al. (2020), in their study of Fortnite, emphasized the centrality of social influence in driving in-game spending. These studies have still focused on a single game. Taken together, prior studies underscored key determinants of virtual item purchases but remained fragmented, highlighting the need for a more comprehensive framework incorporating behavioral, social, technological, and psychological perspectives. Despite growing interest in this domain, the literature still lacks a comprehensive thematic model applicable across diverse multiplayer game contexts. To address this gap, the present study draws on extensive qualitative data from players of various multiplayer online games to develop a robust framework of factors shaping purchase intentions. Based on in-depth interviews, we not only identify these factors but also explore their interrelationships, evaluating their relative levels of influence and dependence. By addressing key research questions and establishing this framework, the study advances understanding of consumer behavior in online gaming environments and provides a solid foundation for future research.

The research questions that this paper aims to address are as follows:

RQ1: What factors influence the purchase intention of virtual items in multiplayer online games?

RQ2: What pattern emerges from the analysis of factors influencing purchase intention of virtual items in multiplayer online games?

RQ3: What is the position of the identified factors in terms of influence and dependence?

2. Theoretical Framework

Purchase intention is the decision to act on a potential purchase when a consumer has formed a real desire to act on a product or brand (Perdana & Tjokrosaputro, 2023). Different theories of consumer behavior contribute to understanding virtual product purchasing. One prominent framework is the Consumption Values Theory, developed by Sheth et al. (1991). This theory posits that product purchase decisions are driven by five distinct types of values: 1. Functional value: the perceived usefulness derived from the functional, utilitarian, or physical aspects of a product, such as in-app functionality, the quality of game experience, and tangible benefits in the game context (Hsiao et al., 2020; Yu & Huang, 2022). 2. Emotional value: the perceived desirability of arousing feelings or emotional states, including enjoyment, fun, and excitement within the gaming environment (Wang et al., 2021). 3. Social value: the perceived usefulness gained from association with specific social groups, exemplified by social interaction and peer engagement (Syahrivar et al., 2022). 4. Epistemic value: the perceived usefulness that arises from curiosity, novel experiences, or the desire for knowledge, such as encountering novel game items or innovative features (Marder et al., 2019). 5. Conditional value: perceived desirability driven by particular situations or conditions, including item exclusivity or limited-time events (Cleghorn & Griffiths, 2015).

Regarding motivations, utilitarian and hedonic motivations have a strong impact on consumer purchasing behavior. Utilitarian motivations are related to satisfying consumer needs and include ease of use and achieving positive outcomes, while hedonic motivations may include enjoyment of the shopping experience (Akram et al., 2021). Factors such as adventure-seeking and exploratory tendencies have been highlighted as central hedonic motivations, particularly in studies examining players' shopping experiences within gaming environments (Hussain et al., 2025). Factors such as convenience, efficiency, and time savings, on the other hand, reflect utilitarian motivations, encouraging users to engage more actively with games and increasing their likelihood of making purchases on gaming platforms (Yu & Huang (2022). According to the unified theory of acceptance and use of technology (UTAUT) (Venkatesh et al., 2003), performance expectancy, effort expectancy, and social influence are predictors of behavioral intentions. Studies on behavioral use in the gaming domain have demonstrated that effort expectancy exerts a significant and positive influence on both purchase intention and actual game usage; That is, when users perceive that playing a game or making in-game purchases is straightforward and requires minimal time or effort, they are more likely to form purchase intentions and translate them into actual purchasing behavior on these platforms (Ericaska et al., 2022). From the perspective of flow theory (Csikszentmihalyi, 1990), during flow, attention is freely devoted to goal achievement, as there are no distracting factors that can capture an individual's attention, and there are no threats to defend against. Research indicates that when players are deeply engaged and enjoying the game, they are more likely to make purchases that enhance their gaming experience (Chou et al., 2023).

According to Tajfel and Turner's (1979) social identity theory, people define themselves by belonging to certain groups. This idea holds that people divide themselves and others into social groups according to factors such as religion, nationality, and occupation. As people try to boost their self-esteem by having good attitudes toward their group, this contributes to the formation of their social identities and breeds in-group favoritism and out-group discrimination. Massively multiplayer online role-playing game players internalize their gaming experiences into their self-concept, according to research in the gaming industry. Research indicates that strong in-game group identification significantly increases willingness to purchase non-incremental products, such as skins or cosmetic items (Fang & Chung, 2024). Social comparison theory (Festinger, 1954) states that people have an innate tendency to evaluate themselves, often in comparison to others. When people lack objective tools for self-evaluation, they tend to compare themselves with others to assess their abilities. This comparison can be upward (the individual can be encouraged or discouraged by comparing themselves with those who are in a better situation) or downward (the individual can improve their self-esteem by comparing themselves with those who are in a worse situation). According to Festinger (1954), this social comparison is most effective when individuals perceive other people as similar or equal to them. In the field of gaming, these social comparisons can affect the perceived enjoyment and self-efficacy of players and increase the players' willingness to continue playing (Steves et al., 2021).

3. Methodology

A mixed-methods research design is used in this study. Semi-structured interviews were employed to collect data for the first phase of the study. Thematic analysis was used to identify themes and sub-themes. In the second phase, structural analysis was used to show the relative positions of the identified factors in terms of influence and dependence.

3.1. Data Collection

The first part involved in-depth, semi-structured interviews conducted by a member of the research team who possessed detailed knowledge of the multiplayer online games. Participants were selected after completing a screening survey, assessing the following criteria: Participants had to be over 13 years old, to play at least one online multiplayer game, to have purchased virtual items in an online multiplayer game at least once previously, and to spend at least 10 hours playing per week. Players who play for over 20 hours per week are considered hardcore players (Baumann et al., 2018). Since this study seeks to find comprehensive results, it covers both moderate and hardcore gamers. The survey was sent through the Telegram channel of online gaming fans in Iran. Therefore, a purposive sampling approach was used through a large-scale Telegram gaming channel, ensuring a diverse membership across different game types, combined with referrals to identify eligible participants. This method enabled us to capture a broad and relevant cross-section of the multiplayer online gaming community, encompassing different ages and genders, while focusing on individuals directly engaged in in-game purchases. A total of 224 complete responses have been received. After applying the selection criteria, 82 eligible participants were identified and invited for interviews. In addition, participants were asked if they would suggest other people who met the requirements for an interview.

At the beginning of the interviews, participants were given a brief description of the research and then asked about their in-game purchases. As these were semi-structured interviews, other questions were asked depending on the participants' answers to obtain a more precise and clear understanding of the concepts. After 61 interviews, the researchers concluded that the interviewees were not mentioning new factors, and for greater certainty, four more interviews were conducted to confirm theoretical saturation. Interviews lasted between 20 and 60 minutes, and participants were assured that their identifying information would not be disclosed in published reports. Of the 65 participants, 41 were male (63%) and 24 were female (37%). Appendix A provides the participant details. All of the interviews were audio recorded and then converted into text transcriptions. The interview guide was reviewed by two academic experts to ensure content validity and was piloted with three participants. Feedback from the pilot was used to refine question wording and sequence, thereby enhancing clarity and reliability.

3.2.1. Thematic Analysis

At this stage, the data collected by the researchers were analyzed using thematic analysis to obtain themes and sub-themes. Thematic analysis is a flexible and useful research tool that can provide comprehensive, detailed, and complex representations of data (Braun & Clarke, 2006). The method described by Braun and Clarke (2006) has become the most widely used thematic analysis method in qualitative research (Kiger & Varpio, 2020). A computer-assisted qualitative data analysis software, called MAXQDA 2020, was used in this study. MAXQDA has many reflection tools and a user-friendly working interface. The software allows you to assign multiple codes and comments to data segments, thereby preserving the unique characteristics of each data segment (Consoli, 2021). This study used thematic analysis based on Brown and Clark's (2006) framework, including six phases:

Phase 1: Familiarizing with your data

In the first stage, the researchers converted the collected data into text. sources were reviewed multiple times to resolve ambiguities and provide more precise data. All data were transferred to MAXQDA software as text. To strengthen the researcher-data relationship and enhance interpretive power, the texts were read several times.

Phase 2: Generating initial codes

In the second step, the latent concepts in the data were extracted, and based on the researcher's interpretation, initial coding was performed. Codes refer to the most basic parts or elements of data or

raw information that identify features interesting to the analyst (either semantic or latent content), and can be evaluated in a meaningful way for the phenomenon. The extracted codes were reviewed multiple times to obtain the best interpretation and provide accurate primary codes.

Phase 3: Searching for themes

The third step began when a long list of different codes was provided. The researcher subsequently analyzed which codes could be grouped as themes. The different codes were grouped into separate categories and linked to potentially relevant themes. Then, sub-themes were created, with each main theme containing relevant sub-themes. The researcher's interpretation of which codes were most relevant to a particular concept gave rise to these sub-themes.

Phase 4: Reviewing themes

The generated themes were examined to assess the internal and external consistency of the generated categories. The codes for each theme should be interrelated, but different themes should be clearly distinguishable from one another. The codes were reviewed several times, and revisions were made where necessary. Finally, major themes and sub-themes were presented in more detail until a consistent pattern of data was established.

Phase 5: Defining and naming themes

In the fifth phase, the presented topics were defined and reviewed again. The definition or label chosen for each theme should express the essence of the theme as a whole. Therefore, a detailed analysis of the data provided a good definition of the main themes and sub-themes.

Phase 6: Producing the report

At this stage, the final analysis was performed, and the results were presented in a concise, coherent, logical, and non-repetitive report. Table 2 provides a summary of the themes emerging from the thematic analysis. Three main themes and eighteen sub-themes were found following the completion of the thematic analysis.

3.2.2. Structural Analysis

Structural analysis is a method that identifies the key variables influencing the object of study. Strategic factors and their relationships are identified using the structural analysis technique known as MICMAC (Matrix of Cross Impact Multiplications Applied to Classification) (Benjumea-Arias et al., 2016). A committee consisting of experts in the field related to the subject under study was established, and the analysis procedure was divided into three phases (Balouli, 2022). The Delphi method was employed to gather expert opinions, a structured technique involving repeated rounds of questionnaires to combine and refine expert opinions and reach consensus on complex issues. This method is widely used in decision-making, forecasting, and priority setting in research and practice (Linston & Turoff, 2002). Experts were selected based on having at least five years of research or industry experience in digital game studies, with prior publications or professional involvement in game analytics, and familiarity with structural analysis. To ensure a comprehensive understanding of the study, the research was thoroughly discussed with the experts prior to scoring. Appendix B provides details on the demographic characteristics of the panel of experts.

Phase 1. Listing variable: The first step is to make a list of every variable that defines the system. According to the factors obtained from thematic analysis, this list included 18 factors.

Phase 2. Description of the relationships between variables: Completing the matrix enables committee members to debate and share their opinions on the subject.

Four levels correspond to the degree of influence:

1. 0: no direct influence
2. 1: low direct influence
3. 2: medium direct influence
4. 3: high direct influence

Kendall's coefficient of concordance (W) was computed to assess the inter-rater reliability among the five experts who evaluated the influence of each variable on a 0–3 scale. The results indicated a

strong agreement among the five experts ($W = 0.94$), suggesting the consistency and reliability of the experts' ratings.

Table 1. Kendall's Coefficient of Concordance

N	5
Kendall's W	.740
Chi-Square	126.600
df	17
Asymp. Sig.	.000

Phase 3. Identification of the key variables with MICMAC: In this phase, the important variables that are crucial to the development of the system are identified. The output from the MICMAC includes maps and graphs indicating the relationships between variables based on their level of influence and dependence.

4. Results

Since this research involved two levels of analysis, the findings are presented in two sections: the results of the thematic analysis and the results of the structural analysis.

4.1. Results of Thematic Analysis

Following the thematic analysis of the collected data, three main themes were identified, each of which has several sub-themes. The main themes include individual factors, social factors, and platform-related factors, with 18 sub-themes providing the details of each theme. Table 2 provides a summary of the themes emerging from the thematic analysis. The following is a description of each theme and sub-themes obtained.

Table 2. Individual, Social, and Platform-Related Factors

Themes	Factors	Codes	Empirical Examples
Individual Factors	Self-protection	<ul style="list-style-type: none"> •Powerful defensive tools/weapons •Less vulnerable avatar size 	<p>"... but when buying a weapon, I try to choose a weapon that is more powerful to protect me better during the game." (M13)</p> <p>"I would buy that character if she were a girl because she is less likely to get shot." (M42)</p>
	Aesthetic	<ul style="list-style-type: none"> •Appearance beauty •Attractive physical movements •Design complexity •Cuteness of item •Gender appeal of the item •Attractive sound of weapons 	<p>"When I see a beautiful or cute skin, I would like to have it." (F11)</p> <p>"...If that is a really cool move, I would like to buy it." (M31)</p> <p>"The gun I bought was excellent... a really detailed design." (M58)</p> <p>"The item was really cute! ...I bought it." (M55)</p> <p>"I bought a pink headset because it was so cute and girly." (F46)</p> <p>"The sounds of the guns are really awesome." (M41)</p>
	Convenience	<ul style="list-style-type: none"> •Easier gameplay •Easier level up 	<p>"I pay for an item that makes the game easier when the game gets tough." (M23)</p> <p>"I sometimes buy items that help me get to the next level of the game." (M41)</p>
	Shopping habits	<ul style="list-style-type: none"> •Impulse shopping •Filling the shopping gap •Willingness to gamble 	<p>"There are skins or items that I do not need, but I bought them as I liked them in the moment and thought I wanted them. Sometimes I regret buying them." (M36)</p> <p>"If I have not bought anything in a few days, I usually buy an item." (F14)</p> <p>"I think buying loot boxes is very exciting." (F16)</p>

	Character identity	<ul style="list-style-type: none"> •Emotional attachment to the character/item •Customizing •Appropriate item for the character •Clothing brand •Character style •Being related to previous items •Unrelated items for fun •Favorite celebrity avatars •Favorite anime character 	<p>“I have been using the characters for a long time, I like them, and I even buy new items for them.” (F7)</p> <p>“I like to customize my car the way I like.” (M39)</p> <p>“I don't buy items that don't suit my powerful character.” (M42)</p> <p>“I like the Adidas brand, so I buy it for my character.” (F27)</p> <p>“My character's style is important to me and I buy items for them that match their style.” (M50)</p> <p>“When I buy an item, it is important that it matches to previous items I've bought for my character.” (M21)</p> <p>“Sometimes I end up buying an item that has nothing to do with my style. It becomes a funny contradiction.” (M18)</p> <p>“When I'm a fan of a celebrity, I would like to buy their character in-game.” (M45)</p> <p>“I will buy the anime characters I like if they're in the game.” (M38)</p>
	Attitude toward the game	<ul style="list-style-type: none"> •Desire to play •Intention to continue the game •Reciprocity to the game developer 	<p>“The more I like a game's story and the more time I spend playing, the more likely I am to spend money on items in that game.” (M57)</p> <p>“When I want to progress through the game, I buy more items for my character.” (M18)</p> <p>“I feel good about buying items because I like to help them by spending money.” (F33)</p>
	Financial resources	<ul style="list-style-type: none"> •Affordability •Gift from family or friends 	<p>“Because game item prices are in dollars, the closer the price fits my budget, the more likely I am to buy it.” (F10)</p> <p>“I have asked my family to buy me gift cards for birthdays and other occasions.” (M31)</p>
	Emotion	<ul style="list-style-type: none"> •Feeling of missing out •Attraction to funny items •Sadness •Boredom 	<p>“... I feel like I'm missing out on something if I don't buy items like Christmas or Halloween items.” (M18)</p> <p>“Sometimes I buy an item that is fun or ridiculous.” (M56)</p> <p>“I might feel sad one day and buy something for my character because it makes me feel better.” (F17)</p> <p>“When I get bored with a skin, I buy a new skin to cheer myself up.” (M5)</p>
	Novelty	<ul style="list-style-type: none"> •Buying new items •Cultural event items •Waiting for new items •Pre-purchase excitement 	<p>“Sometimes I don't need an item, but I buy it just because I want to have a new item, and this is a pleasant feeling.” (F34)</p> <p>“I buy Halloween, Christmas, or summer items; they are new and interesting, and I enjoy having them.” (M61)</p> <p>“It feels good to buy items that come out every season. I have waited a long time, and now I want to buy new things.” (F20)</p> <p>“I hope that pre-purchase will start when the trailer is released.” (M38)</p>
Social Factors	Competition	<ul style="list-style-type: none"> •Visual authority •Early purchase of a new item 	<p>“I bought a great item that other players don't have.” (M56)</p> <p>“I would like to buy new game items before everyone else.” (M45)</p>
	Cooperation	<ul style="list-style-type: none"> •Team decisions •Visual coordination of teammates 	<p>“We decided to all buy a specific item in the game.” (M42)</p> <p>“My teammates and I bought skins to look like each other.” (M21)</p>
	Friends' opinions	<ul style="list-style-type: none"> •Friends opinions •The closest friend's opinion 	<p>“During gameplay, my friends occasionally claim that this gun or axe is superior, and I usually purchase the item.” (M38)</p> <p>“I often play with one of my friends and sometimes ask for their opinion when buying an item.” (F51)</p>
	Allocation to other players	<ul style="list-style-type: none"> •Gifting •Mutual benefits 	<p>“To make my friends happy, I sometimes buy them the skin they like.” (M26)</p> <p>“I asked my friend to play a game I enjoy, and in return, I bought him a skin.” (M31).</p>

	Out-of-game interactions	<ul style="list-style-type: none"> • Gamers' opinions on related platforms • Famous gamers/streamers' opinions 	<p>“When buying game items, I sometimes consult with the members of the game in the Telegram group.” (M55)</p> <p>“I watch a few well-known players on YouTube, and if I see them using a specific item in the game, I might want to buy it as well.” (F47)</p>
Platform-related Factors	Monetary benefits	<ul style="list-style-type: none"> • In-game discounts • Bundles of items 	<p>“If I like an item and it's expensive, I'll wait for it to go on sale.” (M9)</p> <p>“I've purchased the bundles multiple times due to the good pricing.” (F54)</p>
	Corporate social responsibility	<ul style="list-style-type: none"> • Allocation to charity/humanitarian affairs • Ecosystem development 	<p>“I find it fulfilling that I can support the growth and development of the game ecosystem by buying game items.” (F63)</p> <p>“I bought an item in the game Rainbow that donates a percentage of its profits to charity, and it feels good to help others.” (M26)</p>
	Ownership restrictions	<ul style="list-style-type: none"> • Quantity limit of items • Time limit for buying items • Impossibility of ownership during game stages 	<p>“If I don't buy items in limited availability right away, they will most likely run out.” (F33)</p> <p>“There are some items that, if I do not purchase them now, will be unavailable later. Even though I might not have required them at the moment, I purchased them for later.” (M41)</p> <p>“Some items can be obtained by playing and leveling up, while others cannot, and must be purchased.” (M19)</p>
	Developing information and options	<ul style="list-style-type: none"> • Related items recommended by the item shop • Categorizing items and explaining the function in the item shop • The possibility of exchange after purchase 	<p>“I would like to buy items suggested by the game that are most suitable for my character.” (F43)</p> <p>“The explanations provided about the weapons helped me buy the most powerful one.” (M18)</p> <p>“I know that if I regret buying an item or get tired of it, I can exchange it with my friends.” (F46)</p> <p>“If I can sell the item later on in the market, I'll spend more money on it because I know I can sell it if I don't like it or it starts to get boring.” (M18)</p>

4.1.1. Individual Factors

Previous research indicates that factors such as habit and price value (Lestari & Andrianto, 2020), psychological needs (Jang et al., 2017), motivations (Shukla & Drennan, 2018), self-image and attitude (Hamari & Keronen, 2016) are drivers of purchase in digital games. In this study, factors related to an individual's feelings, characteristics, and abilities are included under the theme of individual factors. The nine different factors classified as individual factors are as follows.

4.1.1.1. Self-Protection

Self-protection is an investment to reduce the probability of loss (Hofmann & Peter, 2016). The collected data showed that users care about self-protection when purchasing items. The performance advantage of in-game purchased items, such as weapons, is valuable to players (Frank et al., 2015). Players buy an item that can better protect them while playing the game.

“... but when buying a weapon, I try to choose a weapon that is more powerful to protect me better during the game.” (M13)

Player M13 believes that when buying a gun, he should check its power to ensure the best protection.

“Avatars with bulky bodies are the worst choice in the game because the probability of getting shot is very high.” (M38)

Participant M38 cares about avatar size because an avatar with a smaller body volume is less vulnerable and has a higher chance of survival.

“I would buy that character if she were a girl because she is less likely to get shot.” (M42)

Since female avatars have slimmer bodies, male players also prefer to buy female avatars in games where their bodies are exposed to shooting or damage. This is one of the novel findings of this study.

4.1.1.2. Aesthetic

The aesthetic of virtual items in video games influences purchasing behavior, even when they do not provide gameplay benefits (Syahrizal et al., 2020). Many participants expressed that they purchase game items for aesthetic qualities. Wu and Hsu (2018) mentioned that aesthetic design in multiplayer games comprises elements beyond graphics and sound, which can affect the experience of different players.

“The gun I bought was excellent... a really detailed design.” (M58)

M58, a freefire player, considered the weapon interesting due to its intricate and detailed design.

“I bought a pink headset because it was so cute and girly.” (F46)

F46 spent money on a headset in Roblox because the pink color gives it a girly appeal. These expressions demonstrate that aesthetics include not only visual beauty but also sound, movement, or dance, design complexity, and the gendered appeal of items.

4.1.1.3. Convenience

Convenience influences purchase intentions and game play (Yoo, 2015). Many participants expressed that they purchased game items to make the game experience easier.

“Sometimes I buy items that help me get to the next level of the game.” (M41)

Player M41 provided the above response when discussing the type of item he paid for. This refers to items such as powerful weapons that increase the chance of advancing to the next level or reduce the time it takes to reach the next level.

“I pay for an item that makes the game easier when the game gets tough.” (M23)

This quote from M23 suggests that he purchases items to help him breeze through difficult levels.

4.1.1.4. Shopping habits

Consumer purchasing behavior involves not only rational but also irrational decisions. Therefore, their purchasing behavior is influenced by impulsive consumption and habitual consumption (Lee et al., 2018).

“If I haven't bought anything in a few days, I usually buy an item.” (F14)

The player, while playing Roblox, expressed that she wanted to buy an item because it had been a few days since her last purchase. It suggests she wants to fill the shopping gap. This is one of the novel findings of this research.

“There are skins or items that I don't need, but I bought because I liked them in the moment and thought I wanted them. Sometimes I regret buying them.” (M36)

M36 expressed that he spends money on items, and he sometimes regrets buying them. This highlights the notion that different people have their own unique shopping habits, and that is not necessarily a logical purchase decision.

4.1.1.5. Character identity

Many gamers surveyed in this study reported purchasing game items that match their gaming character.

“I will buy the anime characters I like if they're in the game.” (M38)

Consistent with prior research, these gamers' statements indicate that the identity of the character in the game influences their purchase intentions and how they spend money on different in-game items (Ko & Park, 2021).

4.1.1.6. Attitude toward the game

As stated in prior research, attitude toward a game influences the purchase intention of in-game items (Ravoniarison & Benito, 2019).

“The more I like a game's story and the more time I spend playing, the more likely I am to spend money on items in that game.” (M57)

M57 stated that, as he likes the story and gets involved in the game's journey, he tends to buy more items to make his experience more enjoyable.

“When I want to progress through the game, I buy more items for my character.” (M18)

M18 expressed that when the game has different seasons or stages, and he wants to continue playing the game, he will buy more items to customize his character.

4.1.1.7. Financial resources

Consistent with prior research, our investigation indicates that players place a high value on the financial factor. The financial aspect is one of the key factors when it comes to in-game purchases (Prakosa & Sumantika, 2022; Yoo, 2015).

“Because game item prices are in dollars, the closer the price fits my budget, the more likely I am to buy it.” (F10)

“I have asked my family to buy me gift cards for birthdays and other occasions.” (M31)

M31 expressed that he prefers gaming gift cards over other gifts, such as clothes and shoes, and his family pays for the gift cards when they want to give him gifts.

4.1.1.8. Emotion

Experiencing different emotions, such as stress or boredom, prompts users to purchase in-game items (Bae et al., 2019). Akin to previous research, our data showed that players' emotions influence in-game purchases.

“...I feel like I'm missing out on something if I don't buy items like Christmas or Halloween items.” (M18)

This quote from M18 adds support by suggesting that even when a player lacks a fundamental need for an item—or does not particularly like it—they may still purchase it to avoid negative feelings like missing out on an opportunity.

“I might feel sad one day and buy something for my character because it makes me feel better.” (F17)

From this statement by F17, it can be concluded that she sometimes purchases game items when she is not in a good mood. This is an example of how real-world emotions can affect people's behavior in the virtual world.

4.1.1.9. Novelty

Previous research has shown that novelty influences the purchase of game items (Jiao et al., 2022; Marder et al., 2019). Many participants expressed that they purchase items because of their novelty, and the following statements reflect this:

“I sometimes buy Halloween, Christmas, or summer items; they are new and interesting, and I enjoy having them.” (M61)

“...I hope that pre-purchase will start when the trailer is released.” (M38)

These statements indicate that gamers are seeking out new items and are excited to obtain novel experiences. Based on our findings, both acquiring an item that the player lacked previously and obtaining an item that the developer has just introduced into the game offer a sense of novelty.

4.1.2. Social Factors

The influence of social factors on users' purchasing behavior can be significant when it comes to multiplayer games. Social factors, such as community and social relationship support, have a significant impact on players' willingness to pay for virtual goods in online games (Chandra et al., 2021). Research indicates social values (Sheth et al., 1991) and social motivations (Marder et al., 2019) influence purchases in a multiplayer environment. The social factors that emerged from our analysis fell into five categories: competition, cooperation, friends' opinions, allocation to other players, and out-of-game interactions.

4.1.2.1. Competition

Competition is one of the factors that drives players to purchase game items. Consistent with previous research, competition is a motivating factor for purchasing in multiplayer games (Hamari et al., 2017; Seo et al., 2019). Our findings indicate that participants occasionally require a sense of distinction from others, so they acquire items that enhance their perceived superiority. Visual authority is one way players compete in multiplayer games (Marder et al., 2019).

"I bought a great item that other players don't have." (M56)

"I would like to buy new items before everyone else." (M45)

Players attempt to establish a unique experience that distinguishes them from their peers in the game, as evidenced by these quotes.

4.1.2.2. Cooperation

Cooperation in multiplayer video games can cause cooperative conduct and trustworthy relationships among players (He, 2023). Many players reported purchasing in-game items through cooperation with other players. Team decisions and the visual coordination of teammates are factors affecting the purchase intention of game items. This is reflected in the following statements:

"...We decided to all buy a specific item in the game." (M42)

"My teammates and I bought skins to look like each other." (M21)

4.1.2.3. Friends' opinions

The interactions between players in the game affect how much money they spend in the game (Hamari et al., 2017; Park et al., 2018). Our findings indicate that the opinions of friends or teammates influence the purchase of in-game items. Friends can influence each other, both emotionally and through advice about how in-game items work.

"During gameplay, my friends occasionally claim that this gun or axe is superior, and I usually purchase the item." (M38)

"I often play with one of my friends and sometimes ask for their opinion when buying an item." (F51)

The aforementioned quote from F51 demonstrates that close friends typically play a role in purchasing an item.

4.1.2.4. Allocation to other players

Players can also purchase items in the game to give to friends or teammates. It's possible that their relationship or a prior agreement motivates this. Some players use gifts to strengthen their relationships in the game (Marder et al., 2019). The following sentence illustrates this:

"To make my friends happy, I sometimes buy them the skin they like." (M26)

This player mentioned that he has a closer relationship with some players, and he buys them items as a gift to make them happy without expecting anything in return.

"I asked my friend to play a game I enjoy, and in return, I bought him a skin." (M31).

Participant M31 asked his friend to spend more time playing his favorite game, and in return, he

bought him an item. This expression from this player indicates that players may have expectations of others in exchange for purchasing items for them. As a result, sometimes purchases are allocated to others without expectation while, in other cases, the donor expects compensation from the recipient.

4.1.2.5. Out-of-game interactions

The intention to buy virtual items is influenced by social interactions (Jang et al., 2021). In addition to relationships between friends or players in the game, interactions with communities and people outside of the game have an impact on in-game purchases. Our analysis indicates that gaming-related communities, such as YouTube, Discord, and Telegram channels, serve as platforms for influencing players. Participants expressed that their item purchases are influenced by the opinions of others, such as well-known streamers or other gamers on relevant platforms.

“I watch a few well-known players on YouTube, and if I see them using a specific item in the game, I might want to buy it as well.” (F47)

“When buying game items, I sometimes consult with the members of the game in the Telegram group.” (M55)

The statement above from player M55 demonstrates that he occasionally seeks out-of-game player feedback before purchasing an item. This can show how out-of-game communities affect in-game purchasing decisions of players.

4.1.3. Platform-Related Factors

In addition to factors that are influenced by the individual or society, factors related to the game itself and game developers, such as corporate social responsibility (Ghazali et al., 2023) and monetary value (Wang et al., 2021), can influence the intention to purchase game items. In the process of thematic analysis, factors emerged that were related to the characteristics of the game developer or the requirements of the game. These factors, called platform-related factors, are divided into five categories: monetary benefits, corporate social responsibility, ownership restrictions, basic technological requirements, and developing information and options.

4.1.3.1. Monetary benefits

Since price is a significant factor in purchasing game items, game developers use various strategies to make in-game purchases appealing. Previous research indicates that the purchasing of game content is highly influenced by its monetary value (Hamari et al., 2017). According to our findings, factors such as discounts and bundling affect players' purchase intentions.

“If I like an item and it's expensive, I'll wait for it to go on sale.” (M9)

This quote from M9 expresses that he typically waits until the sale season to purchase his favorite item at a reduced cost, just like many other participants.

Another strategy for selling game items is to sell multiple items in a bundle. Participants stated that since bundles provide a range of practical products at affordable prices, they are willing to purchase them. This is reflected in the following statements:

“I've purchased the bundles multiple times due to the good pricing.” (F54)

4.1.3.2. Corporate social responsibility

Consistent with previous research (Bae, 2019; Ghazali et al., 2023), some participants stated that corporate social responsibility makes them feel good about paying a game developer. Activities such as helping people in need and charity work, as well as developing the gaming ecosystem, are factors that participants mentioned. The following statements illustrate this point.

“I find it fulfilling that I can support the growth and development of the game ecosystem by buying game items.” (F63)

These statements suggest that corporate social responsibility, whether in the form of game development or charity work, can influence the intention to purchase game items by driving the desire to participate in these activities.

4.1.3.3. Ownership restrictions

Since the desire to possess virtual assets in the game affects the purchasing intentions of players (Jang et al., 2021; Tan & Yang, 2022), game developers employ ownership-restricting strategies to encourage players to acquire their desired products sooner. For example, the player has a limited amount of time to buy an item as it will be withdrawn from the game in later seasons.

“There are some items that, if I do not purchase them now, will be unavailable later. Even though I might not have required them at the moment, I purchased them for later.” (M41)

This quote from M41 indicates the time limit for buying items. Some items available now may not be accessible in subsequent seasons of games spanning multiple seasons. Customers should decide to purchase an item before the time runs out if they are interested in or worried about doing so.

“If I don't buy items in limited availability right away, they will most likely run out.” (F33)

In some games, certain products are available in limited amounts, so players interested in that item try to purchase it before it runs out of stock. This reflects the limitation on the quantity of the product.

“Some items can be obtained by playing and leveling up, while others cannot and must be purchased.” (M19)

This comment from player M19 expresses that certain items in the game are only available for purchase; they cannot be acquired by finishing the game's stages. As a result, the player can only obtain that item by making a payment if they are interested in.

4.1.3.4. Developing information and options

In line with prior research (Pratondo et al., 2023), our findings demonstrate that players' purchase intentions are influenced by lowering their ambiguities and that providing them with high-quality information on in-game items can affect their decision-making. The players' statements below illustrate this.

“I would like to buy items suggested by the game that are most suitable for my character.” (F43)

This player explains how the game item shop lists items that are more suitable for his character in the game, and how this feature can assist players in selecting more effective items. To help users compare various items, such as guns, some item shops also classify items and explain their functions. This is demonstrated in the following quote from player M18.

“The explanations provided about the weapons helped me buy the most powerful one.” (M18)

Another consideration raised by some participants was the option to sell or exchange the item after buying it. The following quotes state this.

“I know that if I regret buying an item or get tired of it, I can exchange it with my friends.” (F46)

Therefore, it can be concluded that if the game platform offers terms that permit users to exchange items with other players or sell them on a market, this option will influence players' purchase intentions.

4.2. The Results of Structural Analysis

Structural analysis is performed by MICMAC software based on the matrix of direct effects (MDI), and the output reports indicate the findings of the analysis. Table 3 illustrates the stability of the direct effects matrix. The variables are listed in Appendix C, along with the short labels applied to them.

Table 3. MDI Stability

Iteratio	Influence	Dependence
1	97 %	84 %
2	101 %	104 %
3	100 %	100 %

The influence/dependence map classifies all variables according to how much they depend on other factors and how much they influence them. This map, which can be observed in Figure 1, is divided into four quadrants. The first quadrant (points near the origin) represents variables with low influence and low dependence on other variables. The variables located in the first quadrant are called “autonomous variables” (Saxena et al., 1990). The three variables of ownership restrictions, developing information and options, and corporate social responsibility are located in this area. The second quadrant represents the low impact and high dependence of the variable on other research variables. The variables in this section are called “dependent variables.” This section contains the following five variables: aesthetic, self-protection, shopping habits, convenience, and allocation to other players. These variables are highly dependent on other research variables and have little effects. The third quadrant of the map represents the high influence and high dependence of the variable on other variables; the variables in this quadrant are called “linking variables.” The seven variables, including financial resources, character identity, attitude towards the game, novelty, competition, emotions, and cooperation, are included in this section. These variables not only greatly influence other research variables but they also heavily rely on them. The fourth quadrant in this map represents variables with high influence and low dependence. The variables located in this quadrant are called “independent variables.” The three variables —monetary benefits, friends’ opinions, and out-of-game interactions — are the independent variables of this study, having a high influence on other research variables but are least influenced by other variables.

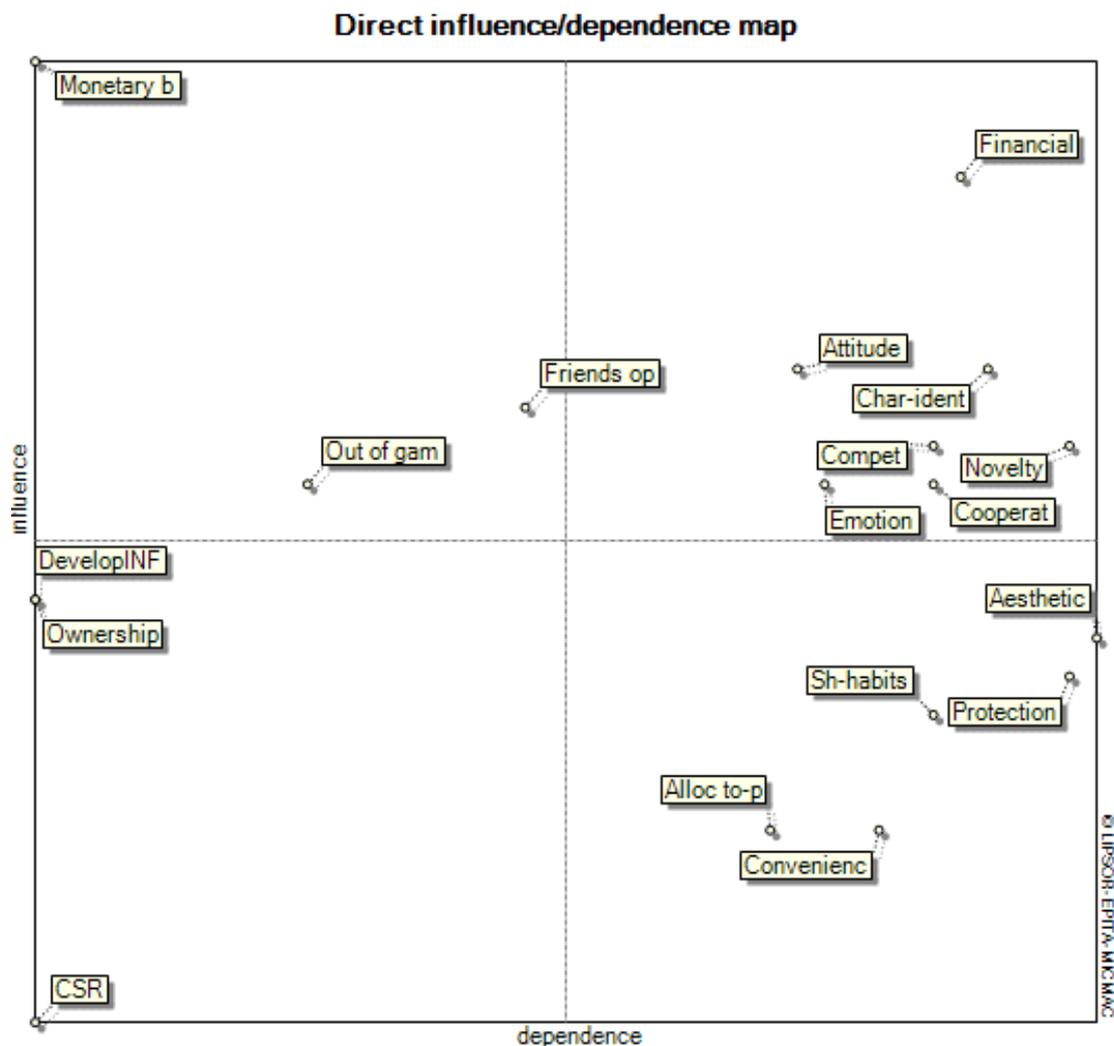


Fig. 1. Direct Influence/Dependence Map (Source: MICMAC)

Figure 2 presents the ranking of the variables' influence based on the matrix of direct influence (MDI) and the matrix of indirect influence (MII) calculations. The variables of monetary benefits, financial resources, and character identity have the greatest influence on other variables. In contrast, convenience, allocation to other players, and corporate social responsibility have the least influence.

Classify variables according to their influences

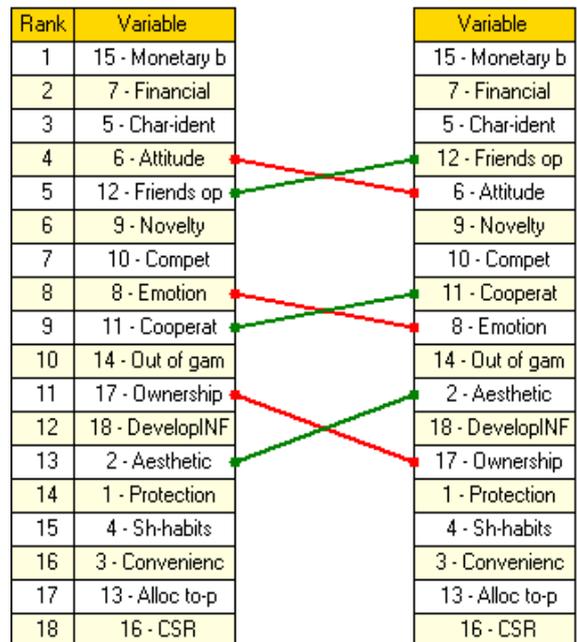


Fig. 2. The List of Variables Sorted by Influence (Source: MICMAC)

Variables can be ranked according to their dependence on other variables as well as their influence on them. Figure 3 shows the ranking of variables based on their dependence. As can be seen, while aesthetics and self-protection are the most dependent variables, corporate social responsibility, ownership restrictions, and developing information and options are the least dependent.

Ranking by dependency

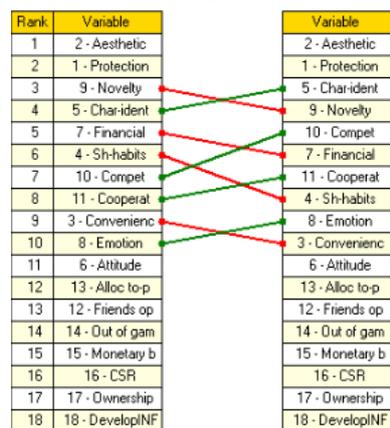


Fig. 3. The List of Variables Sorted by Dependence (Source: MICMAC)

How the variables affect each other is illustrated in Figure 4, called the direct influence graph. The red lines indicate the strongest effects.

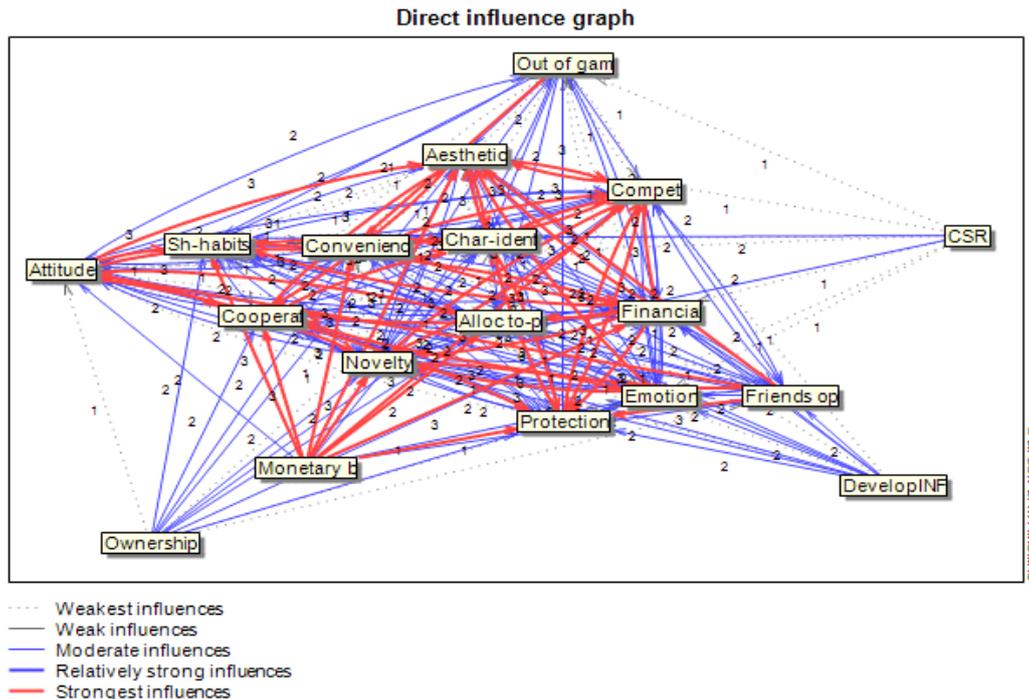


Fig. 4. Direct Influence Graph (Source: MICMAC)

5. Discussion

This study aimed to determine the factors influencing players' intentions to purchase in-game items in multiplayer online games by integrating thematic and structural analyses. The thematic phase yielded three overarching categories: individual, social, and platform-related factors, comprising eighteen sub-themes. These findings highlight that the purchase intention is not driven by a single dimension, but rather by a multi-layered interaction between psychological needs, social dynamics, and game design features. The results substantiate and extend several theoretical perspectives. From the lens of consumption values theory (Sheth et al., 1991), functional values (e.g., self-protection, convenience) and emotional values (e.g., novelty, fun, identity expression) were strongly represented among the identified themes. Social values were also prominent, reflected in the impact of competition, cooperation, and peer influence. Conditional and epistemic values were visible in players' responses to exclusivity, novelty, and cultural event items. This demonstrates that the purchase of virtual items is a multidimensional decision process consistent with, and simultaneously, broader than traditional consumption contexts. Similarly, UTAUT constructs (Venkatesh et al., 2003) are reflected in the findings. Effort expectancy resonates with convenience-related purchases, while performance expectancy is aligned with self-protection and progression-related motivations. Social influence directly emerges as one of the strongest independent variables, validating its explanatory power in multiplayer environments. In line with social identity theory (Tajfel & Turner, 1979), the results of this study indicated that cooperation components, such as team decisions and visual coordination of teammates, can influence the purchase intention of virtual items. Moreover, the role of flow theory (Csikszentmihalyi, 1990) is evident in the importance of immersion, novelty, and emotional engagement, which together explain why players experiencing high enjoyment and presence are more likely to make purchases.

A few of the variables found in this study are entirely novel or have not been discussed in the literature. This study suggests that the “less vulnerable avatar size” serves as a sort of player self-protection. In contrast, earlier research has emphasized the significance of self-protection in games but has concentrated more on weapon power (Frank et al., 2015). Previous research has shown that players' intentions to purchase virtual items are influenced by the character identity in the game, and they buy products that help them integrate their identities (Ko & Park, 2021). However, in this study, the factor of purchasing an “unrelated item for fun” revealed that gamers occasionally make purchases that diverge from the character identity they have developed in the game. Even though prior research

has looked at competition as a motivating factor for multiplayer game purchases (Hamari et al., 2017; Seo et al., 2019), specific factors like “the early purchase of a new item,” which was identified in this study, were not covered in those studies.

The structural analysis positioned all identified factors according to their influence and dependence, identifying monetary benefits, friends’ opinions, and out-of-game interactions as the most influential drivers. In contrast, factors such as aesthetics and self-protection emerged as highly dependent outcomes. Taken together, these findings suggest a conceptual framework where social and platform-related drivers (independent variables) exert influence on individual psychological and identity-related mechanisms (linking/mediating variables), which in turn mediate the effects on purchase intention (dependent outcome). Corporate social responsibility, ownership restrictions, and the development of information and options can be considered as moderator variables in different studies, appropriate to the research context. A conceptual model based on structural analysis is presented in Figure 5, illustrating the factors affecting the intention to purchase virtual items in multiplayer online games.

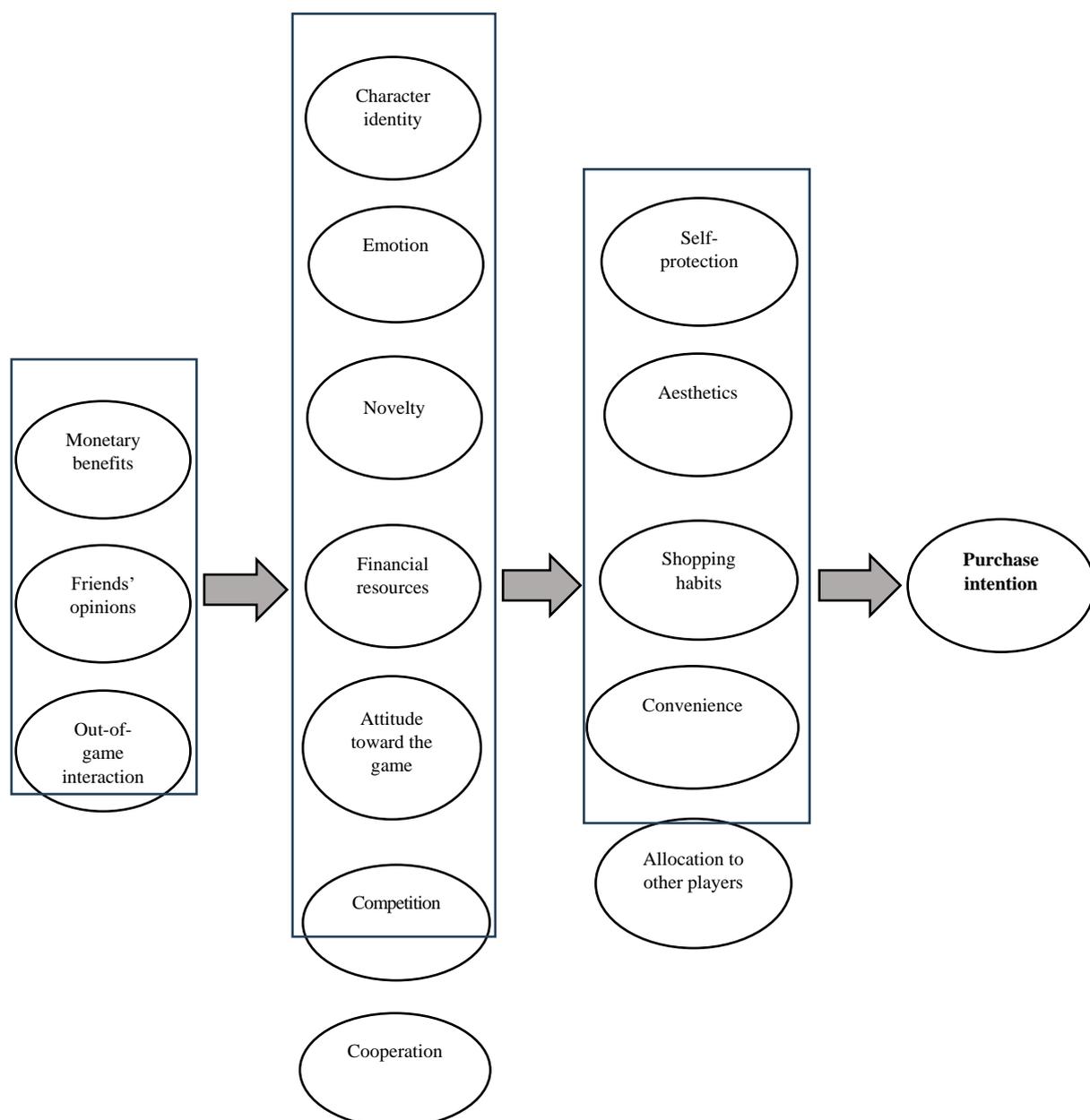


Fig. 5. Conceptual Framework of Virtual Items Purchase Intention in Multiplayer Online Games

This framework not only synthesizes the thematic and structural findings of the study but also provides a strong foundation for hypothesis generation and future empirical testing. The model enables researchers to design quantitative studies, comparative analyses, and longitudinal investigations that further validate or refine the proposed relationships.

6. Practical Implications

The findings of this study provide several practical insights for game developers and marketers. Since monetary benefits and pricing strategies emerged as the strongest independent drivers, developers should adopt dynamic pricing models, discounts, and bundle offerings to encourage higher engagement and spending. Given the importance of friends' opinions and out-of-game interactions, leveraging community platforms and influencer marketing can be an effective strategy to stimulate purchases. Integrating social features that highlight peer purchases or allow cooperative item acquisition may further enhance player motivation. New game items can be introduced and made available in a way that suitably responds to players' desire to obtain them sooner.

Additionally, game developers may be guided to consider user preferences for avatars with less vulnerability when creating them, such as in shooting games. Personalization and character identity were shown to strongly influence purchase intention. Since this study revealed that team members occasionally share or duplicate items, such as skins in the game, developers may consider creating these kinds of items or implementing variations to diversify availability to strengthen emotional attachment and identity congruence, which can lead to sustainable monetization. Additionally, incorporating items unrelated to character identity into the game can be appealing to players seeking more enjoyable experiences. The role of emotions and novelty suggests that introducing time-limited, seasonal, or event-based content is crucial to maintaining excitement and preventing player fatigue. By balancing competitive pricing, social engagement, and personalization considerations, companies can optimize revenue while fostering positive and lasting relationships with players.

7. Future Research and Limitations

Building on the findings of this study, several avenues for future research can be identified. Since this study was conducted in the Iranian gaming context, cross-cultural comparative research is needed to test whether the thematic framework and the structural relationships identified here hold true in other cultural settings. Such studies would improve the generalizability of the proposed model and reveal cultural contingencies in in-game purchasing behavior. Future research could employ large-scale quantitative methods to validate and extend the current framework. Survey-based studies or experimental designs could be used to test causal relationships between the identified independent, mediating, and dependent variables, and to evaluate the moderating role of autonomous factors such as corporate social responsibility and ownership restrictions.

Longitudinal research would provide deeper insights into how purchase intentions evolve. Examining how variables such as novelty, emotions, and character identity fluctuate across different game stages or seasons could shed light on the temporal dynamics of in-game purchasing. Future research should focus on the role of personalization and identity congruence. While this study highlighted character identity and aesthetic preferences as central drivers, further research could investigate how alignment between player self-concept and virtual avatars influences long-term engagement and spending.

The findings suggest the strong effects of social drivers such as friends' opinions, cooperation, and out-of-game interactions. Future research could explore these dynamics in different multiplayer formats (competitive vs. cooperative) and examine how social network structures or influencer endorsements shape purchase decisions. Ultimately, examining different aspects of purchasing behavior in the context of games can provide guidelines for sustainable business models that balance profitability with positive player experiences.

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Appendix A**Participant List**

Identifier	Age	Gender	Occupation	Minimum Time Spent Playing Per Week
M1	15	Male	Student	20
M2	13	Male	Student	20
M3	15	Male	Student	20
M4	17	Male	Student	30
M5	17	Male	Student	20
M6	16	Male	Student	20
F7	14	Female	Student	20
F8	13	Female	Student	20
M9	22	Male	Working	30
F10	18	Female	Student	10
F11	15	Female	Student	20
F12	21	Female	Student	10
M13	24	Male	Working	20
F14	16	Female	Student	10
M15	23	Male	Working	10
F16	21	Female	Student	30
F17	22	Female	Student	10
M18	16	Male	Student	10
M19	15	Male	Student	30
F20	17	Female	Student	10
M21	13	Male	Student	10
M22	15	Male	Student	20
M23	14	Male	Student	20
M24	26	Male	Working	20
F25	20	Female	Student	20
M26	22	Male	Student	30
F27	18	Female	Student	20
M28	19	Male	Student	20
F29	20	Female	Student	10
F30	24	Female	Working	20
M31	20	Male	Student	30
M32	14	Male	Student	20
F33	19	Female	Student	20
F34	20	Female	Student	20
M35	22	Male	Student	30
M36	25	Male	Working	10
M37	24	Male	Working	10
M38	16	Male	Student	30
M39	21	Male	Student	20
M40	14	Male	Student	20
M41	16	Male	Student	30
M42	16	Male	Student	30
F43	24	Female	Working	10
F44	25	Female	Working	10
M45	18	Male	Student	20
F46	13	Female	Student	30
F47	15	Female	Student	30
M48	23	Male	Working	20
M49	22	Male	Working	30
M50	20	Male	Student	20
F51	18	Female	Student	20
M52	26	Male	Working	10
M53	17	Male	Student	10
F54	16	Female	Student	20
M55	15	Male	Student	10
M56	17	Male	Student	10
M57	22	Male	Working	10
M58	24	Male	Working	10
M59	17	Male	Student	20
F60	18	Female	Student	20
M61	17	Male	Student	30
M62	14	Male	Student	30
F63	22	Female	Working	10
F64	23	Female	Working	10
M65	17	Male	Student	20

Appendix B

Demographic Characteristics of the Expert Panel

Education Level	Work Experience (Years)	Field of Activity	Gender
PhD	6	Digital game research	Female
PhD	6	Digital game research	Female
Master's	7	Digital game development and research	Male
PhD	8	Digital game research	Female
Master's	6	Digital game development and research	Male

Appendix C

Naming Variables in MICMAC

Number	Name of Variables	Short Label
1	Self-Protection	Protection
2	Aesthetic	Aesthetic
3	Convenience	Convenience
4	Shopping habits	Sh-habits
5	Character identity	Char-ident
6	Attitude to the game	Attitude
7	Financial resources	Financial
8	Emotion	Emotion
9	Novelty	Novelty
10	Competition	Compet
11	Cooperation	Cooperat
12	Friends' opinions	Friends op
13	Allocation to other players	Alloc to-p
14	Out of game interactions	Out of gam
15	Monetary benefits	Monetary b
16	Corporate Social Responsibility	CSR
17	Ownership Restrictions	Ownership R
18	Developing information and options	DevelopINF