Gamers' Reasons for Purchasing Gaming Virtual Products: A Systematic Review

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Abstract

With the development of the gaming industry, the trend of gaming virtual goods consumption is gradually growing, and online gaming goods consumption has become a hot topic. Players spend a lot of money purchasing virtual items. Why do people buy these items? Therefore, we conduct a systematic literature review to investigate the reasons for purchasing virtual goods in games. We use the "The Preferred Reporting Items for Systematic reviews and Meta-Analyses" (PRISMA) statement to guide the data collection, analysis and reporting project for the systematic review. This article obtained 37 papers from the Web of Science (WOS) and Scopus databases. The article covers research during the period 2013-2023. We review the independent and dependent variables, research methods, theoretical background, and findings involved in the relevant literature. The study finds that the "enjoyment", "social attributes" and "functional value" of gaming products often play a key role in consumer purchases at certain times and among certain user groups. It is the hope of this paper that these findings will increase gaming companies' understanding of what drives players to purchase virtual items. Game designers can grasp the needs of game users and better convert ideas into payment points so that game companies can get higher profits.

Keywords: online game, virtual items, purchase intention, behavior

1. Introduction

Game virtual goods have become one of the major consumer categories in the online environment over the past decade (Wu & Andrizal, 2021). Game merchandise trading is the primary revenue model for online gaming. Game goods trading is the main revenue model for online tours. In-game products and services are digital items that exist in the online environment, such as disguise costumes, weapons, virtual furniture, currencies, characters and tokens (Moher, 2019). With the popularity and player acceptance of these payment models, users' in-game purchase habits are slowly developing. A recent report published by NikoPartner states that "China, the world's largest gaming market, with a total PC and handheld game market revenue of $45.5 billion in 2022, expects the gaming market to continue to grow in the future" (Nikopartners, 2022).

As a response to the popularity of gaming virtual goods, early studies used qualitative designs to introduce how virtual goods are traded and some concepts (Harviainen & Hamari, 2015). In the aftermath, increasingly quantitative studies emerged, and scholars began to explore the reasons why players purchase game virtual goods and the ethical issues that may arise from such transactions (Jin et al., 2017; Hsieh & Tseng, 2018; Sharma et al., 2021; Yusoff & Razak, 2023). Game virtual product research is beginning to shift from inductive to deductive approaches. Quantitative research applies a variety of methods to study this new phenomenon. But there is a lack of synthesis studies to map the overlap and differences between these different approaches.

In addition, the real problems faced by the game industry cannot be ignored. The challenges faced by the game virtual goods market, however, are becoming increasingly serious, plagiarism and imitation, vicious competition and other undesirable phenomena are emerging, the marketing ability is insufficient, and the profitability is accumulating (Tobon et al., 2020). Against this background, it is necessary to study the influencing factors of gamers' paying behavior. For game developers, understanding the reasons why people consume online game goods is a real problem (Stefany, 2014). How online game companies can improve their core competitiveness and stand out in the fierce market competition has become a problem in online game design, development and operation (Kim & Lee, 2020).

Therefore, to fill the research gaps and solve the real problems, we conducted a systematic literature review. We reviewed the literature and showed the main theories, mechanisms and elements included in game consumption

research, analyzed where the major features and problems, motivations and influences of online game virtual product consumption lie.

The purpose of this paper is to explore the reasons for the popularity of online game product consumption and its influencing factors. By systematically reviewing previous studies, we hope to provide future researchers with an international perspective, find new research directions, and expand the breadth and depth of game consumption research. In this paper, we also hope that the results of the study can provide countermeasure suggestions for the development, design and operation of online games. Therefore, this paper presents the following five questions based on the above background analysis and research objectives:

RQ1: What are the characteristics and trends of articles related to the purchase of gaming products published between 2013 and 2023?

RQ2: What are the main research questions?

RQ3: What are the purchase motives of game consumers?

RQ4: What are the influencing factors that affect consumers' purchase intention?

RQ5: How can online game companies increase consumers' intention to purchase?

Question 1 focuses on identifying the characteristics and trends of articles. We consider factors such as country of origin, journal source and publication timeline. This analysis will highlight key contributors and temporal patterns in the field.

Question 2 summarizes the main theories, mechanisms and elements included in the study of game product consumption. This analysis demonstrates the plausibility of aligning the functional, research subject, and disciplinary dimensions of the theory.

Questions 3 and 4 will shed light on the common barriers and facilitators that influence online game consumers' willingness to buy. By examining these dimensions, it aims to reveal valuable insights that will help gaming companies in the development and design of paid game services.

Question 5 demonstrates the countermeasures and recommendations proposed by the research findings at the practical application level. On top of the scientific and reasonable investigation and research to show the direction for the development of game products.

2. Method

This section demonstrates the different steps involved in conducting a systematic literature review (SLR). To answer the research questions and to ensure replication of the study, we followed the PRISMA guidelines for reporting (Moher, 2019). PRISMA provides a standard peer-approved methodology that describes article selection criteria, search strategies, data extraction and data analysis procedures (Moher et al., 2009). In this paper, these entries were strictly adhered to for the review of six major parts of the paper, namely, title and abstract, introduction, methods, results, discussion, and other information, respectively. After completing the literature search and collection, we managed the results using Excel. Zotero was used to read, edit and organize the bibliography. VOSviewer was used for the bibliometric analysis to create a nodal map of the research on the purchase of virtual products in games for subsequent systematic research.

2.1 Databases and Research Strategy

We decided to use Scopus and Web of Science databases and as our main data source. Scopus is the largest abstract and citation database in the academic literature. Scopus also includes AIS, ACM, IEEE and Science Direct libraries etc. Web of Science databases are internationally recognized as large, comprehensive, multidisciplinary, core journal citation indexing database, which includes SCIE, SSCI and other citation indexing databases. This is the reason why we used them in our research. To ensure the quality of the study and the literature data, this paper also manually searched the reference lists of the included articles as well.

We systematically searched 2 electronic databases. We used a Boolean operator to search the keywords. To identify as many eligible studies as possible, we expanded our search terms and strategies.

In the search, the keywords we identified based on the research questions and objectives mainly include: ("online game" OR "mobile game") AND ("virtual products" OR "goods" OR "items") AND ("buy" OR "consume" OR "purchase" OR "pay") AND ("intention" OR "willingness" OR "behavior").

2.2 Include Criteria & Exclude Criteria

In order to ensure the accuracy and reliability of the results of the literature analysis, this paper has developed appropriate literature inclusion and exclusion criteria for the literature initially retrieved Table 1.

Table 1. Criteria

Number	Index	Include criteria	Exclude criteria
1	Topic	Online Game Product Consumption	Irrelevant to the theme of game product consumption
2	Language	English	Non-English
3	Years	2013-2023	Out of time
4	Type	Journals	Books, conference papers, reports, review articles, etc.
5	Access	Available	Not available
6	Number of occurrences	1 time	Repetition
7	Pages	More than 3 pages	Less than 3 pages
8	Research Methods	Empirical research	Non-empirical research
9	Research design	The research process consists of a clear research question, research methodology and conclusions.	The research process did not address a clear research question, research methodology, or research conclusions. methodology and conclusions of the study.

We selected English-language journal-type articles for the period 2013-2023. Firstly, considering the different development status of the game industry in each country and to ensure the timeliness of the literature, we chose articles from the last ten years. Second, English was chosen because with the accelerated pace of internationalization, increased research results from academia are published in English, so that we can better grasp the international innovative research results. Next, journal articles are our first choice, which cover a wide range of high relevance and open access. For authors, journal articles are more convenient for research. Finally, we reviewed the study design to ensure the completeness and standardization of the included articles.

2.3 Process of Selecting Data

All searches in this paper were conducted in October 2023. We conducted a manual search and selected only papers that included empirical analyses influencing online gaming consumer decisions. We followed PRISMA's systematic literature review of articles selected table for recording as in Figure 1.
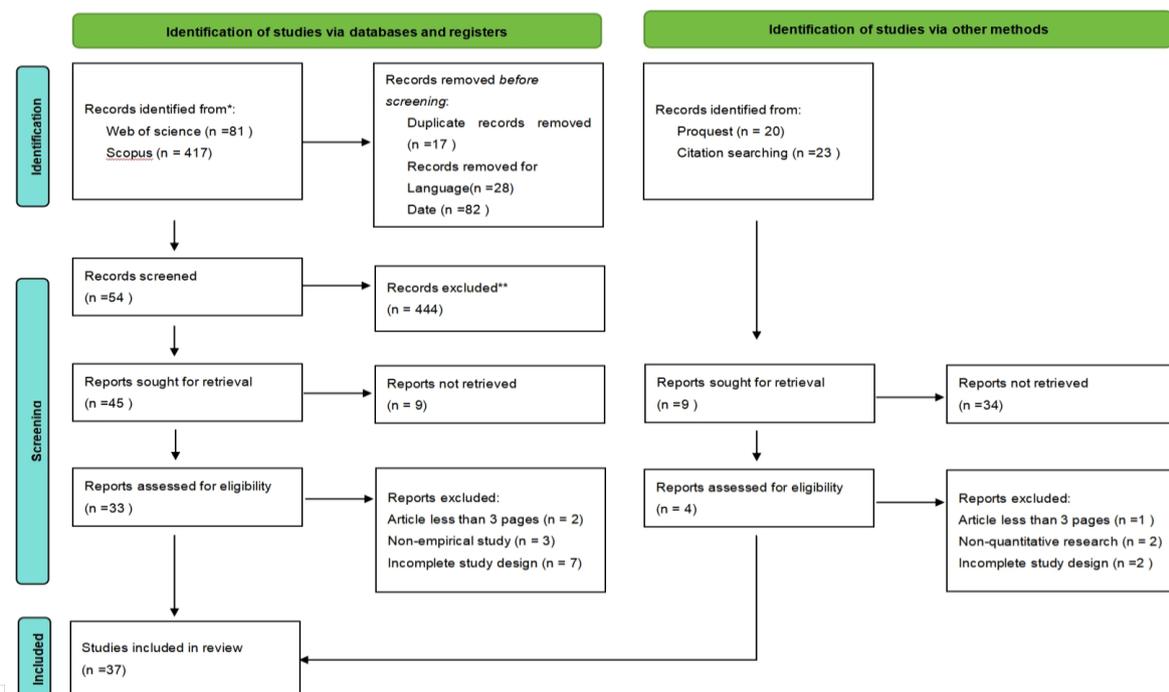

Figure 1. PRISMA flow diagram

Specifically, our article selection process goes through three processes.

In the first step, we get 498 articles by searching keywords through the WOS (n=81) and SCOUPS (n=417) databases. We removed 453 articles that did not meet the criteria with the help of online database tools and the exclusion criteria

(1-7) in Table 2.1. After the initial screening, we obtained 45 documents.

In the second step, we conducted an additional search of the ProQuest database and the reference list. We obtained 43 literatures by snowballing the search. After online screening by the researcher, a total of 34 papers that did not meet the inclusion criteria were excluded, and finally 9 papers remained.

In the third step, we read the abstracts, research methods, and findings of the 54 papers obtained from the initial screening and additional search. The researchers eliminate an additional 17 papers with non-empirical studies and incomplete studies. Finally, we conducted a systematic literature review of the resulting 37 papers. As shown in Table 2.

Table 2. Articles for review

Number	Author & Year	Title
1	(Balakrishnan & Griffiths, 2018)	Loyalty towards online games, gaming addiction, and purchase intention towards online mobile in-game features
2	(Beltagui et al., 2019)	Overcoming the monetization challenge in freemium online games
3	(Bisberg et al., 2022)	The Gift That Keeps on Giving: Generosity is Contagious in Multiplayer Online Games
4	(Boghe et al., 2020)	Exploring the Effect of In-Game Purchases on Mobile Game Use with Smartphone Trace Data
5	(Camarero et al., 2021)	The Effect of Use, Overuse, and Appeal of Mobile Game App on Add-Ons Purchases and Players Recruitment
6	(Chou & Kimsuwan, 2013)	Factors Affecting Purchase Intention of Online Game Prepayment Card – Evidence from Thailand
7	(Cleghorn & Griffiths, 2015)	Why do gamers buy 'virtual assets'? An insight into the psychology behind purchase behavior
8	(Evans & Bang, 2019)	Extending Expectancy Violations Theory to Multiplayer Online Games: The Structure and Effects of Expectations on Attitude Toward the Advertising, Attitude Toward the Brand, and Purchase Intent
9	(Freeman et al., 2022)	Pay to Win or Pay to Cheat: How Players of Competitive Online Games Perceive Fairness of In-Game Purchases
10	(Gawron & Strzelecki, 2021)	Consumers' Adoption and Use of E-Currencies in Virtual Markets in the Context of an Online Game
11	(Gong & Huang, 2023)	Finding love in online games: Social interaction, parasocial phenomenon, and in-game purchase intention of female game players
12	(Hamari, 2015)	Why do people buy virtual goods? Attitude toward virtual good purchases versus game enjoyment
13	(Hamari et al., 2017)	Why do players buy in-game content? An empirical study on concrete purchase motivations
14	(Han & Windsor, 2013)	An investigation of the smartphone user's in-game purchase intention
15	(Hsiao & Chen, 2016)	What drives in-app purchase intention for mobile games? An examination of perceived values and loyalty
16	(Hsieh & Tseng, 2018)	Exploring social influence on hedonic buying of digital goods - online games' virtual items
17	(Jang & Chung, 2021)	What drives add-on sales in mobile games? The role of inter-price relationship and product popularity
18	(Jiao et al., 2021)	An Exploratory Study of Play Duration and In-App Purchase Behavior in Mobile Games
19	(Jin et al., 2017)	Why users purchase virtual products in MMORPG? An integrative perspective of social presence and user engagement
20	(Kao & Chiang, 2015)	Research on Virtual Item Purchase Intention in Taking Part in Mobile Device Games: Taking the Middle and Old Aged Players for Example
21	(Kim & Lee, 2020)	Effect of Mobile Commerce Interaction Characteristics on Game Advertising Effect and Game Re-purchase Intent
22	(Kordyaka et al., 2017)	MOBA as a Stage: Explaining Purchase Behavior through different Strategies of Self-Presentation
23	(Lee et al., 2018)	Irrational Factors Affecting the Purchase of Online Game Items
24	(Li & Joo, 2023)	The Mediating Effect of Psychological Ownership on the Relationship between Value Co-Creation and the In-App Purchasing Intention of Mobile Games Players
25	(Limanto et al., 2018)	Factors Affecting the Purchase Intention of Virtual Goods in Mobile Game Clash Royale
26	(Prakosa & Sumantika, 2022)	The Roles of Unobstructed Play and Motivation to Compete in Influencing

27	(Purnami & Agus, 2020)	In-Game Virtual Goods Purchase: A Preliminary Study The effect of perceived value and mobile game loyalty the effect of perceived value and mobile game loyalty on in-app purchase intention in mobile game in on in-app purchase intention in mobile game in Indonesia (case study: Mobile legend and love nikki) Indonesia (case study: Mobile legend and love nikki)
28	(Ravoniarison & Benito, 2019)	Mobile games: players' experiences with in-app purchases
29	(Rehman et al., 2022)	Investigating male gamers' behavioral intention to play PUBG: Insights from playful-consumption experiences
30	(Salehudin & Alpert, 2022a)	Perceived aggressive monetization: why some mobile gamers won't spend any money on in-app purchases
31	(Salehudin & Alpert, 2022b)	To pay or not to pay: understanding mobile game app users' unwillingness to pay for in-app purchases
32	(Sharma et al., 2021)	For it is in giving that we receive: Investigating gamers' gifting behavior in online games
33	(Stefany, 2014)	The effect of motivation on purchasing intention of online games and virtual items provided by online game provider
34	(Syahrivar et al., 2022)	Pay to play in freemium mobile games: a compensatory mechanism
35	(B. Wu & Andrizal, 2021)	Perceived value and willingness to consume in online mobile games
36	(S.-L. Wu & Hsu, 2018)	Role of authenticity in massively multiplayer online role-playing games (MMORPGs): Determinants of virtual item purchase intention
37	(Zhao & Qiu, 2017)	Social tie strength and virtual goods purchase decisions of online game players

2.4 Quality Assessment

Data extraction and article quality assessment in this paper were carried out independently by 2 researchers. Two researchers performed a basic screening based on search data criteria, after which articles were read for careful screening.

Titles and abstracts were independently reviewed by two researchers (HUO & LI) who used the above criteria to determine the eligibility of papers for inclusion in the study.

They then reviewed the full text of potentially relevant studies for final inclusion. The data extracted from each study by both researchers were recorded in the evidence tables. All discrepancies were resolved by consensus with one of the researchers.

2.5 Characteristics of Included Studies

In organizing the articles, we have categorized them through journals. The primary areas of knowledge covered by the studies included in this paper are psychology, social sciences, business management, economics, arts and humanities, and decision sciences. The more frequent years in which these studies entered our statistics and analyses were 2021 and 2022, as shown in Figure 2.
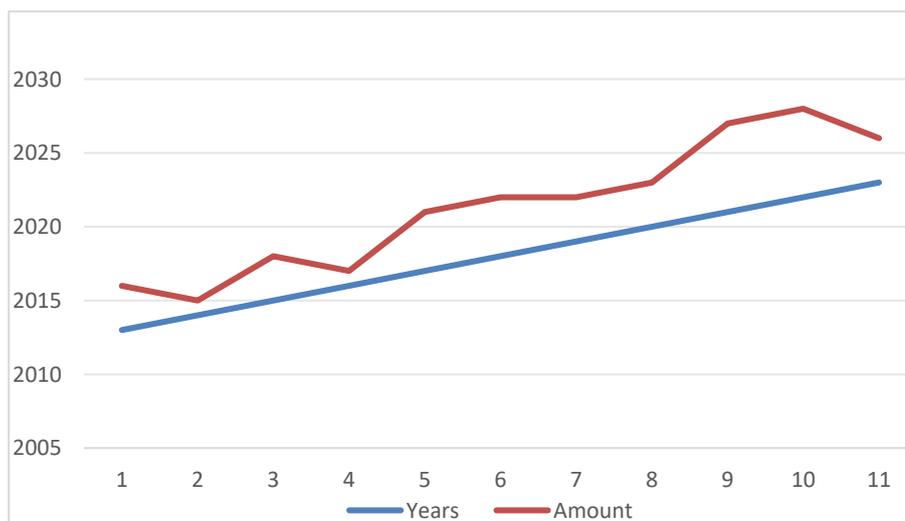
Figure 2. Research timeline

According to Figure 2, the number of articles on gaming virtual products has increased accordingly each year over the past 10. We predict that in the future, with the advancement of technology and the development of game types, there will be increased game virtual products to attract players for consumption. When that happens, academics will pay further attention to research related to the gaming industry. This trend has led to an increase in the number of articles on related research. Not only that, we also statistically analyzed the titles and keywords of the articles and obtained Table 3.

Table 3. Word Frequency Index

Keywords	Frequencies
Purchase behavior	9
Game items	12
App purchase	13
Game purchase	14
To purchase	16
To pay	18
Freemium games	21
Virtual items	22
Online games	26
Mobile game	35
Intention to purchase	38
Virtual goods	49
Purchase intention	50

These themes are the current hotspots of research, and the researcher can find the future research direction through avoidance and convergence.

Furthermore, regarding the methodology, we found that quantitative studies dominated (n=30). However, there was a more balanced distribution between qualitative and mixed-methods studies, with qualitative studies showing three results and mixed-methods studies showing four results. Statistical analysis of the data collection methods used in the studies shows that most scholars used questionnaire methods to obtain data (n=29); followed by content analysis (n = 8); followed by interviews (n=3); and followed by experimental methods (n =1). In summary, the current research on the consumption of game virtual products is still mainly carried out through the questionnaire survey method, the research method is more and concentrated, and does not involve too many other research methods and instruments.

3. Results

In this section, we present the results of the systematic review based on the research questions. First, we demonstrate the current state of research on consumer behavior of gaming products its characteristics through a bibliometric analysis. Then, we report the different types of influences and theoretical underpinnings in the analyzed literature. These results are used to answer questions about the design of game-like virtual products, as well as to provide recommendations and strategies to researchers and game developers.

3.1 Research Trends

Firstly, we have summarized the articles that have been published in 16 countries across the globe based on the location of the study, as shown in Figure 3.
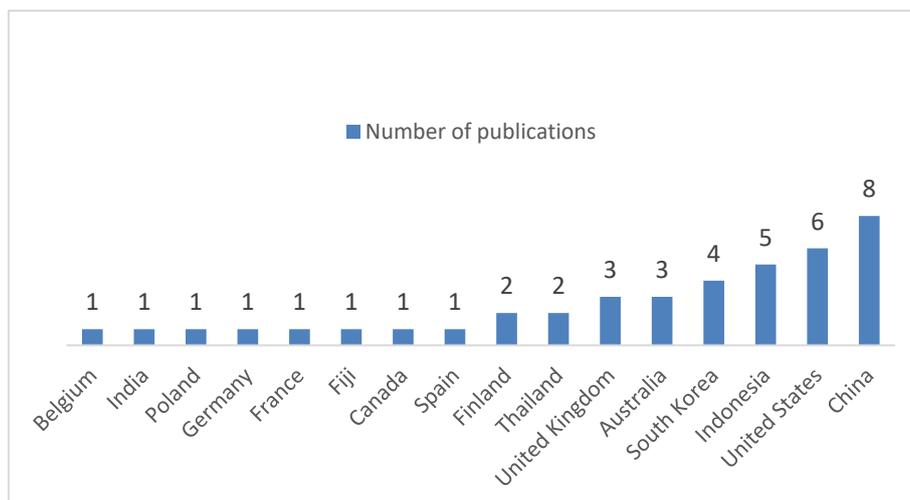

Figure 3. Research in different countries

A look at these results makes it clear that Asian countries are where most of the research on these topics has been conducted in the last decade. Of the selected papers, 20 are based on surveys conducted in seven Asian countries (China, India, Indonesia, South Korea, Thailand); nine are based on studies conducted in six European countries (UK, Finland, Belgium, Poland, Germany, Spain); seven are based on studies conducted in two North American countries (Canada, USA); and four are based on studies conducted in two countries in Oceania (Australia, Fiji) .

One of the papers is based on analyses of the United States and Australia, so statistics are available in both countries and on their respective continents. The other paper is based on analyses of three Asian countries - China, South Korea and Thailand - and is therefore counted in all three countries. China (Mainland, Taiwan and Hong Kong) stood out with 8 papers; the USA followed closely with 6 papers; and Australia and the UK both had 3 papers. Asian countries are mainly concentrated in Southeast Asian countries, with a more even distribution of papers in Europe. Thus, the data shows a predominance of Asia, with little prevalence in Europe and the Americas, and almost no studies in Africa.

We found about 90% (n=20) of the articles in the questionnaire focused on 18–35-year-olds (mostly college students), and only one article placed the study in the older age group (45+ years old) (Kao & Chiang, 2015). And in the descriptive statistics analysis section, we see that 60% of the articles (n=12) noted that on average, more than 80% of the respondents were male, and that they were more likely to purchase products in the game. Particularly noteworthy is the fact that there was only one study that targeted women and analyzed the factors that influenced their purchasing behavior in B-girl games (Gong & Huang, 2023).

In addition, we found that researchers have analyzed mostly games in the category of role-playing. The main game genres are currently categorized as: action, arcade, role-playing, puzzle, shooting, and sports (Jang & Chung, 2021). We found 21 articles that explicitly specified research studies on users of role-playing games. Among them, 18 articles are analyzed for users within specific 1-3 game programs; 4 articles are analyzed for users of more than 5 games; the largest number of game types studied is up to 1042 games, and the researcher statistically analyses the records of Android users who have purchased software for the games.

We also found that countries in Europe and the United States prefer to use content analysis to quantify the behavioral records (comments, online hours, spending) of a large number of game users (average sample of 20,000), and then analyze players' purchasing behaviors across different gaming platforms (Bisberg et al., 2022; Boghe et al., 2020; Freeman et al., 2022; Salehudin & Alpert, 2022a, 2022b). Scholars in Asia, especially in China and South Korea, focus more on purchase intention in a single game brand, e.g., King's Honor or League of Legends, with an average sample size of around 300. In addition, in 37 studies were analyzed based on games released before 2019.

3.2 Research Questions

To better analyze the relevance of these studies we also import the articles into the VOSviewer tool to collate current research questions and theories used.
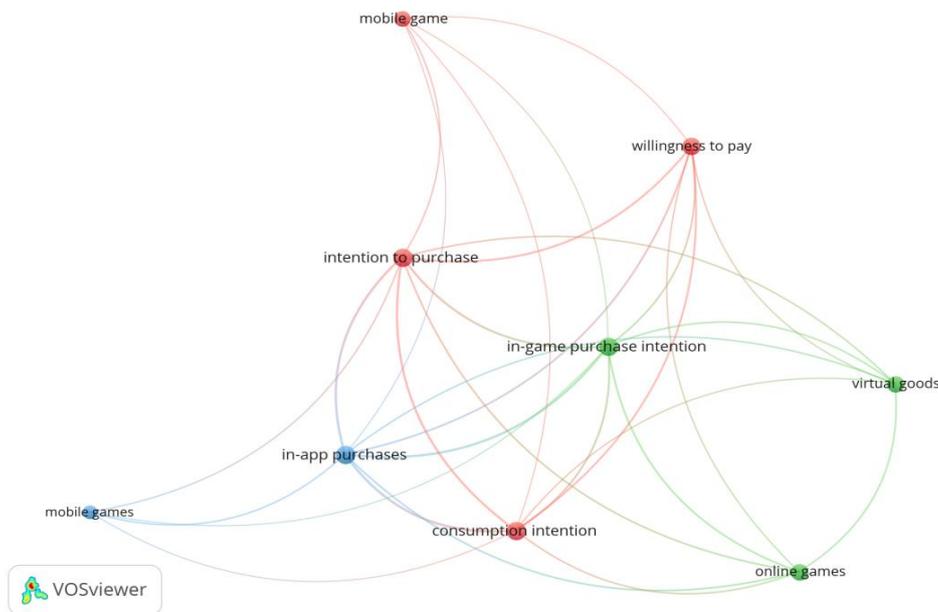

Figure 4. Literature Keyword Correlation

In this study, the frequency of keyword co-occurrence for all articles was viewed using VOS. A total of 139 keywords

were obtained. The minimum criteria for keyword occurrence were 8 and keyword length was 2. A total of 9 keywords met the criteria, as shown in Figure 4.

We can find that the terms most frequently used by researchers are Purchase intention, Intention to consume, Intention to pay, which are hot topics in the academic research on gaming products. Two common variables used to measure "purchase" in the literature are purchase intention and purchase behavior. The study of people's attitudes and behaviors in purchasing virtual goods is the main research path to explain users' acceptance of products. Under this path, scholars are concerned with the influence of three factors on consumers' attitudes: motivation, personal norms and objective factors (game design and social pressure).

Of these, intention to purchase virtual goods is used by most studies, and it refers to how strongly users perceive their intention to perform a given behavior soon (Salehudin & Alpert, 2022b). Purchase intention studies are a little more relevant to the perceived value theory. Most scholars choose to use the perceived value theory (n=10) as a theoretical framework. Perceived value as a theoretical framework mainly analyses the utility and price factors of game products. The results of the study illustrate that perceived price and perceived risk have a negative impact on the intention to consume game products, while perceived product functional value and hedonic have a positive impact on the intention to consume (Hamari, 2015; Han & Windsor, 2013; Hsiao & Chen, 2016; Purnami & Agus, 2020).

Some other scholars use sociological theories to analyze the objective factors on the impulsive factors of players' shopping in games, including: social influence theory, the theory of Sense of community, Parasocial interaction, Self-presentation , Social ties , Social identity and Social exchange theory (Jin et al., 2017; Hsieh & Tseng, 2018; Jang & Chung, 2021; Sharma et al., 2021). These studies illustrate the role of objective factors such as social pressure, interaction needs and identity in the purchase of virtual products by gamers. In comparison only one article was studied under the guidance of pure communication theory.

Overall, consumers' psychological decision-making processes and behaviors are replicated, and therefore current research basically uses a multidisciplinary cross-section of theories to frame the study, with 90% of articles using two or more theories to illustrate consumers' behaviors or intentions.

3.3 Motivations of Online Game Consumers

Table 4 shows that the main motivations for game users to consume at present are: socializing, to achieve the effect of relationship maintenance; pastime and entertainment, to alleviate the pressure of work and life; self-presentation, to obtain network identity; and to enhance the game experience, to improve the ranking and efficiency within the game. A comparison between Asia and Europe and the US reveals that interest and character experience are common goals for game consumers. Users in Asia are more interested in the function of human-computer interaction, while those in Europe and the US are more interested in the added value and functionality that games bring. Consumers in all countries are interested in entertainment, but with different emphases.

Table 4. Motivations and Factors (No. Reference Table 2)

Article number	Motives	Subjective factors	Objective factors
[1][2][3][6][7][8][10][11][14][15][16][19][23][30][34][35][36]	Social motivation, interaction factors, relationship maintenance, interpersonal interaction	Length of play, play expectations, play beliefs	Gameplay, functionality, ease of use, utility, access flexibility, quality
[2][3][4][5][9][10][11][13][16][17][18][20][23][24][30][33][36][37]	Game experience, game ranking, game efficiency, smooth game play, ability acquisition	Gender, age, economic factors	Competitive environment, social groups, information, reputation, fairness, ranking, win rate,
[3][4][7][9][11][12][14][15][17][21][22][24][25][31][32][35][36]	Self-expression, identity, self-presentation, showing off	Autonomy, trust, sense of belonging, addiction level, contagiousness	Price, currency strategy, offers, rewards, added value, value-added services
[1][4][6][7][8][12][13][14][20][21][22][25][30][33][34][37]	Interest, aesthetics, entertainment, stress relief, satisfying novelty needs, fantasy and entertainment, happiness, anxiety relief	Personal preferences, habits, values, lifestyle	Aesthetics, Design, Decoration, Visuals

3.4 Influential Factors on Players' Purchase of Game Virtual Products

There are two main factors affecting the consumption of game products, which are subjective and objective factors.

Subjective factors mainly include game consumption beliefs and awareness, personal habits, economic level, life and work pressure, and time cost. Consumers' game beliefs and addiction level play a decisive role in the consumption of

game products, and when players spend more time and money within the game, then they will be prone to top up in the game (Balakrishnan & Griffiths, 2018; Jiao et al., 2021; Li & Joo, 2023). Of course, consumers' own economic level and values constrain their actual consumption behavior, and not having enough more disposable time and money leads to a lack of cost for players, which also affects game consumption (Hamari et al., 2017; Jang & Chung, 2021; Purnami & Agus, 2020). A number of players believe that in the face of intense work, interpersonal relationships, and the pressure caused by the family, the game has become a good channel to release pressure (Chou & Kimsuwan, 2013; Hsieh & Tseng, 2018; Rehman et al., 2022; Zhao & Qiu, 2017).

Objective factors mainly include the sports price factor, the competitive environment, the added value of the game, and the design of the game product.

Competitive environments such as ranking, reputation, win rate and fairness within the game force players to spend to secure their position in the game (Camarero et al., 2021; Gawron & Strzelecki, 2021; Prakosa & Sumantika, 2022). Secondly, price, promotional efforts, bundles (where the user receives a boost in virtual currency per dollar), and limited-time offers entice consumers to make impulse purchases with the aim of enticing users to make larger purchases and maximize the 'value' they receive for their money, aiming to maximize the expected regret of missing out on a deal in order to induce irrational consumption (Jang & Chung, 2021; Salehudin & Alpert, 2022a, 2022b; Sharma et al., 2021). In addition to this, functional or instrumental props that increase players' purchasing potential. Many consumers are willing to invest in virtual items to improve game performance, e.g., props that help players enhance their virtual character's attack or defense (e.g., to increase the speed of a car); decorative or expressive props that are used to change the appearance of a virtual character or to improve social relationships or communication (e.g., items that allow a player to announce his love or to congratulate other players). This suggests that aesthetics and product type design within the game is also a crucial factor (Hsiao & Chen, 2016; Wu & Hsu, 2018; Purnami & Agus, 2020).

3.5 Proposal for Gaming Companies

Through the analysis of questions 3 and 4, it can be found that the main feature and problem of the current consumption of online game products is that sports consumption is not rational enough. This leads to low consumption awareness of game users and a short consumption cycle of game products. Here are the suggestions we give from different perspectives.

Proposition 1: Development of female game products

Currently, there is a lack of novelty in female game consumption projects, especially the lack of female-oriented game design. According to the characteristics of female consumption, game enterprises can create more women's exclusive IP, increase the market share, and promote the generation of female game consumption behavior.

Game marketers should fully understand women's aesthetic tendencies and psychological needs. Romance has a positive effect on enhancing female users' persistent play intention and in-game purchase intention (Freeman et al., 2022). Therefore, practitioners of B-girl games need to create more immersive and interactive romantic plots to design characters' lines, costumes, and actions. These can attract female players and thus gain users' attention to the game (Gong & Huang, 2023).

Proposition 2: Promote game opinion leaders

In online games, consumers tend to view opinion leaders as people who own certain virtual items (Beltagui et al., 2019). Marketers can identify groups of consumers with high influence to deliver promotional messages about group members owning virtual goods. Such marketing promotions may enhance social influence and encourage herd behavior among these consumers, leading them to purchase the same virtual items with a view to winning group acceptance (Rehman et al., 2022).

Proposition 3: Strengthen social connections

Due to the fact that social relationships further influence purchase intention, operators should pay more attention to designing mechanisms that support and improve the interaction and connection between users (Hsieh & Tseng, 2018).

In order to enhance connections with friends, operators can for example develop co-operative tasks that require the participation of two or more players to complete, during which the user and his friends can discuss strategies and share emotions. When the relationships within the community become stable and close, it will make the users get used to the community, become familiar or even close to the friends they spend time with, and enhance the users' sense of honor and responsibility (Beltagui et al., 2019; Zhao & Qiu, 2017). This gives users a powerful sense of social connection in the game, which influences them to buy items and contribute to the team (Jin et al., 2017).

Proposition 4: Develop a sound pricing strategy

Game app publishers can increase the overall user conversion rate by reducing their monetization strategy. Aggressive

monetization strategies may generate more revenue in the short term, but can lead to reduced long-term profits by preventing more free users from converting to paid users and losing paid users faster (Chou & Kimsuwan, 2013). Therefore, application developers can offer promotional schemes with exclusive discounts or events to influence the purchasing decisions of MMO players (Gawron & Strzelecki, 2021). Attractive discounts are offered on the player's first payment so that the player is more likely to make a purchase.

Proposition 5: Increase the value of virtual products

Monetary value suggests that a gamer's intention to pay for an online game depends on whether it has value in exchange for a game item (Ravoniarison & Benito, 2019). There is a strong positive correlation between the perceived value of virtual goods and the intention to use them (Chou & Kimsuwan, 2013). Game developers can pay more attention to the role of virtual goods and create more fun from game props to trigger consumers' purchase intention (Ravoniarison & Benito, 2019). Suggest new characters/roles to players so that they are more likely to be attracted to purchase them (Syahrivar et al., 2022).

Proposition 6: Improvement of aesthetic design

The game payment model raises the requirements for game development; whether the payment point is set accurately, whether the plot can be compelling, whether the graphics are aesthetically pleasing, and whether the characters are richly characterized are all relevant (Evans & Bang, 2019). The results of empirical studies show that aesthetic design has a direct impact on authenticity; in this context, aesthetic design can be seen as a key factor influencing players' attitudes and behaviors towards game consumption (Beltagui et al., 2019).

Plot: It is because of interesting stories that MMOs can motivate players to explore the game and keep returning to the virtual world to see the game characters until the end (Wu & Hsu, 2018). Game designers can build attractive and engaging virtual worlds that inspire players to engage in relevant events, rituals, and relationships, such as a variety of virtual character choices, multicultural environments, compelling storylines, and challenging gameplay quests (Stefany, 2014).

Characters: Decorative virtual items can help players to adjust the appearance of the player's character (Stefany, 2014). Gaming companies should improve the attractiveness of avatars by improving the variety of available clothing as well as increasing the diversity of avatars and combat gear (Pangaribuan et al., 2021). For example, some categories of customization include appearance, accessories and color profiles (Wu & Hsu, 2018). This is because it may motivate individual players to spend more time and money to improve the performance of their avatars.

4. Discussion

In this section we have discussed the findings of the study. We have highlighted the research objectives and conclusions as well as analyzed the shortcomings of the research process. We also give directions for future research.

4.1 Limitations

First of all, this paper identifies the characteristics and trends of research on "purchase intention or purchase behavior of virtual game products". We analyzed 16 different countries, which illustrates the international interest in this topic and the current state of research on gaming consumer behavior in different countries. According to our findings, from 2013 to October 2023, there has been a significant increase in the literature on this topic. The literature focuses on diverse topics of virtual goods purchasing behavior and intentions, such as gaming product purchasing behavior, virtual product consumption and distinct types of games.

It is important to emphasize results from around the world. However, in conducting the global regionalization analysis, we only used articles in English. This resulted in us only obtaining articles focusing on Europe, America and Asia. There were only 2 articles from Oceania and 0 articles originating from Africa. We ignored the results of some regions and countries due to language, a choice that may have led to under-representation of certain regions of the globe. This selection may lead to under-representation of some regions of the world. The results of the studies are less credible due to language constraints. In addition, we selected only two major databases to search, and given that different countries place different importance on what is published in these databases, we suggest that future studies may include other databases to find more sources of articles.

Secondly, we report on which factors stimulate player consumption, which factors are detrimental to the sale of gaming products, or which gaming product features should be considered more important to satisfy consumers' needs. The results of the study show that two types of independent variables, subjective and objective factors, are related to consumption behavior and intentions. Studies consistently show that hedonic factors are the main drivers for game consumers. Whereas consumers in Europe and the US are more influenced by objective factors such as added value and price of the game, consumers in Asia are more likely to be influenced by factors such as ranking and win rate in a competitive environment.

The problem that may arise from this discussion is that it ignores the variability in the degree of influence of the same factors in different environments.

There are inconsistent standards of fee levels for different types of gaming products, for example, the purchasing power of currency: $1 = 100 virtual currency and $1 = 10 virtual currencies. How are these factors developed and evaluated? Due to space constraints, we did not report and analyze the coefficients of the variables and influencing factors, which led to a lack of precision in our results. However, future work should analyze this in depth, using more sophisticated meta-analysis methods to synthesize the findings and produce more accurate estimates of effect strength.

4.2 Directions for Future Research

In the current systematic review, we identified problems with sample representativeness and research scope in extant studies. Future research should include alternative theoretical mechanisms, study populations, and game genres, and empirically compare their validity in relation to consumer behavior or intentions. We suggest three themes for future scholars.

Theme 1: Subject of the study

Since the main characteristic and problem of game consumption is the predominance of males in consumption, a large part of the research sample was male, and the results of the study could not validate the behavior and intentions of female players. Future research should validate the factors that influence female gamers.

In addition, most of the research was conducted with young people, who are the main target group for game use and consumption. Therefore, the results of the study are only applicable to 16- and 45-year-olds. Future research could attempt to analyze the intentions and behaviors of people over 45 years of age in terms of game consumption.

Theme 2: Types of games studied

Different game genres may involve different mechanics. The most common game genres played by millennial respondents were battle royale games and shooters, and future research could also investigate whether different game genres (e.g., puzzle and survival horror) could lead to similar conclusions or mechanics (Kordyaka et al., 2017). Current studies are based on game programs that were created before 2019. New research could consider selecting games that are popular after 2020.

When consumers evaluate products, they consider aesthetic attributes and functional attributes differently, but existing research has paid little attention to the aesthetic attributes of game exchange interfaces and character appearance design, so future researchers must pay attention to the impact of product aesthetics on consumers' gaming experience and consumption intentions (Syahrivar et al., 2022).

Theme 3: Research theories and models

Firstly, current research is more likely to analyze consumer purchases of gaming items based on perceived value and rational behavior models. However, the results of a small number of studies suggest that irrational purchases are more likely to act on consumers. Therefore, future research should explore multiple irrational factors in online consumers' consumption behavior. Future research could also use expectation models and continuous consumption models to predict and track changes in game consumers' intentions (Limanto et al., 2018).

Second, online game platform diversification, content storytelling, sociality and interactivity are increasing, and the game group's consumption motives, consumption attitudes and concepts are changing. Therefore, future research should consider more variables, such as the potency of reviews or suggestions, and the potency of reviews (i.e., positive or negative) can act as moderators to investigate how these variables affect consumers' attitudes and intentions.

Finally, we found that qualitative research accounts for a relatively small proportion of game consumption intentions, and future research scholars can enrich the system of game consumption research by adopting methods such as interviews, focus groups, and participatory observation.

5. Conclusion

The aim of this paper is to provide a systematic review of the factors that influence gamers to purchase virtual products for games. By using a systematic literature review approach, we have thoroughly researched articles on gamers' intention to purchase gaming products and their behavior around the world. In the literature review, we analyzed the theoretical background, research methodology, research sample and main variables covered in the study. This paper reports on the key features and issues, motivations, and influencing factors of game consumption. Enjoyment value and socialization are the main motivations for gamers to purchase virtual products. Habits, values and economic factors are subjective factors that influence consumers, and the price, value and ranking of the game are objective factors that consumers value. We also consider in depth how game companies can facilitate players' intention to spend money. This paper offers suggestions for game designers and future research that could accelerate the development of gaming virtual products.

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