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Inside the Game: Gaming Addiction Shapes the Spending Habits of Malaysian Generation Z Players

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Abstract

This study takes a closer look at how gaming addiction is shaping the way Malaysian Generation Z players spend their money. With the rise of digital gaming, Generation Z gamers are increasingly exposed to environments that encourage impulsive spending. The time frame of Generation Z covers the period from 1997 to 2012, which means that the age span of this group in 2023 is 11 to 26 years old. Generation Z, also known as the Internet generation, is greatly influenced by technological products such as the Internet, smartphones, and tablets. Therefore, this study aims to investigate how gaming addiction influences purchase intention with online mobile games of Malaysian Generation Z Players. The Self-Determination Theory and Technology Acceptance Model have been applied to examine the relationship between satisfaction, enjoyment, price, and ease of use on purchase intention with online mobile games among Malaysian Generation Z. The data collected are analyzed through Statistical Package for the Social Sciences (SPSS) for the research result. The findings of this study could provide insights for marketers and game developers seeking to target this demographic by understanding the factors that influence their purchasing decisions.

Keywords: Generation Z; Impulsive spending; Self-determination theory; Technology acceptance model

1. Introduction

Few industries have grown as fast and achieved as much as the mobile gaming industry over the past few years (Gentle, 2022). The rise of modern smartphones, the development of digital advertising, the discovery of new markets worldwide, and the changes in the perception of "gamer" groups have jointly bred and spawned mobile games and pushed the industry forward (Gentle, 2022). In 2022, mobile games will account for as high as 51% of the global game market, and this proportion is expected to continue to rise in the next few years (Go-Globe, 2022). Game addiction is a special addiction that is characterized by excessive playing of games that affects everyday life (Cleveland Clinic, 2022). The World Health Organization categorized it as a mental illness in 2017, and patients with a diagnosis will be excessively relying on games and ignore other interests and daily activities (World Health Organization, 2020). The main reason for this disease is the lack of self-control when playing games. Purchase intention refers to the propensity of consumers to purchase goods and serves as an indicator of their actual shopping behavior. Usually, based on the consumer's attitude towards a particular product or brand, coupled with the effect of external factors, constitutes the consumer's purchase intention (SurveyMonkey, n.d.).

According to Marchand and Hennig-Thurau's (2013) research, gamers purchase virtual items in games to enhance the game experience and make the game more interesting. In order to sell virtual items, mobile game companies that adopt the freemium model usually provide a variety of in-game purchase methods to attract game players to consume (Firdaus and Rahadi, 2021). With the development of technology, the mobile phone has become an indispensable item in the life of Generation Z. Based on the online newsletter, the time frame of Generation Z covers is from 1997 to 2012, which means that the age span of this group in 2023 is 11 to 26 years old (Mulroy, 2023). Generation Z, also known as the Internet generation, refers to a generation that is greatly influenced by technological products such as the Internet, smartphones, or tablets. The growth period of this generation is almost consistent with the formation and development period of the Internet.

According to intelligence data in 2024, Tencent's mobile game "Honor of Kings" has a total global revenue of 1.86 billion US dollars, ranking first in the global mobile game best-selling list. The second place on the list is "Monopoly Go", with a total revenue of 1.58 billion US dollars. The third place is "Royal Match", also from Tencent Mobile Games, with a total revenue of 1.46 billion US dollars (Curry, 2025). According to global statistics, game users spend an average of 7.6 hours per week playing mobile games, equivalent to more than an hour per day for the average player (Severin, 2022). The survey showed 61% of Malaysian users spend an average of 6 to 10 hours per week playing smartphone games (Statista, 2022). The data shows that compared to other types of mobile applications, mobile games are one of the most popular mobile applications among Malaysian users.

Gamers are spending more time and money on games than ever before. Especially those of Generation Z, as they are a digital generation that relies heavily on smartphones and social media. Generation Z is more likely to pursue higher education than other generations (Tjiptono et al, 2020). As Warren (2022) found, 57% of people aged 18-21 were enrolled in college in 2018. Parker and Igielnik (2022) described that teens and young adults in Generation Z are more likely to be studying than working than previous generations. Compared with other generations of Millennials (71%) and Generation X (79%), Generation Z has the lowest percentage of working. From these analyses, it shows that many Generation Z individuals still need their parents for financial support in education, living, and other spending. Furthermore, Chamarro et al. (2020) stated that players who are addicted to video games will spend more time and money than those who are not addicted to mobile games. Cao and Huang (2022) mentioned that players who are addicted to certain games will spend more money to achieve the best game effects, especially minors who are immature in their consumption. Moreover, Kapahi et al. (2013) stated that excessive gaming is a key factor in gaming addiction. The reason that people are addicted to online games is that the interactive environments of gaming platforms provide a sense of wonder and awe in fantasy worlds.

The Star online newsletter, written by Chia (2022), reports that Lim's 18-year-old daughter spent more than RM61,936 on a mobile game called Genshin Impact, and the transaction was charged to her father's credit card debt. Moreover, Lim's daughter's top-up mobile game is to get the items to boost her avatar. However, this behavior has been considered online gambling by Lim's parents. From this perspective, addicted gamers will keep increasing their purchases to satisfy themselves with a better gaming experience. Moreover, according to Zhang and Wen's (2018) research, the ease of use of online mobile games will also affect gamers' willingness to spend on mobile games. From exposure to a game, to becoming familiar with a game, to finally mastering a game, every link in the game players' experience will have an impact on whether they continue to pay attention to this game (Zhang and Wen, 2018). In

mastering the game, players gain a sense of accomplishment (Smith, 2022). Once players like a game, they are willing to spend money to buy it to enhance the gaming experience (Cao and Huang, 2022).

In 2020, the COVID-19 pandemic spread to territories worldwide. The Malaysian government had urged all Malaysians to implement the Movement Control Order (MCO) (Tay et al., 2021). During the MCO period, Malaysia's online mobile gaming market kept increasing, since the young population was spending more time playing online mobile games as a leisure time activity to avoid boredom at home. Furthermore, Wijman (2022) stated that COVID-19 measures result in higher consumer spending on mobile games, where mobile gaming revenues in 2020 will increase 13.3% from 2019, which amounts to $77.2 billion. In addition, mobile gaming revenues in 2021 will increase 7.3% compared to 2020, which amounts to $93.2 billion (Wijman, 2023). Regarding the growth of global mobile game revenue in 2020 and 2021, we assume that mobile games can meet the needs of players, and they will be willing to buy virtual items to obtain more perceived value from games.

Therefore, this study aims to investigate how gaming addiction influences purchase intention with online mobile games. Self-Determination Theory and the Technology Acceptance Model have been applied to examine the relationship between satisfaction, enjoyment, price, ease of use, and purchase intention with online mobile games among Malaysian Generation Z.

2. Literature Review

Enjoyment (EN)

EN is sometimes a synonym for happiness, pleasure, flow, usefulness, or ease of use (Lin et al., 2008). Lin et al. (2008) mentioned that the concept of EN is seemingly familiar. However, arriving at an accurate and generally agreed-upon meaning is not easy. De Schutter and Brown (2016) stated that EN is the outcome of success fulfilling three intrinsic needs of self-determination theory (SDT), such as autonomy (the ability to act out of self-determination), competence (experiencing a sense of control), and relatedness (social connection through meaningful relationships with others). Thus, when the three intrinsic needs of SDT are met, the customers can be led to the highest EN (Paul et al., 2015).

Satisfaction (SF)

Giese and Cote (2000) stated that there is no specific meaning of customer satisfaction, because there is disagreement about the character of the SF concept. After summarizing, one of the meanings of SF is based on an evaluation of product attributes, benefits, performance, purchase experience, and customer-derived focus (customer needs, wants, decisions, expectations) (Giese and Cote, 2000). Moreover, SF will meet more consumer expectations, giving the company a higher chance of repurchase (Wong and Sohal, 2003). Leninkumar (2017) found that most research confirms that SF customers are more likely to make repurchases and communicate positively with an organization.

Price (PC)

PC is defined as the amount that customers pay for a product or service and the benefits after using the product or service. Moreover, PC is important for a company to retain loyal customers who are willing to pay a high price rather than a low price for their products. The importance of PC as a purchasing stimulus is a key role in price management, because the PI may change under the influence of price (Gogoi, 2013). Therefore, selecting pricing objectives and related strategies is an important function for business owners and a component of the business planning process (Faith and Edwin, 2014).

Ease of Use (EU)

According to TAM, the EU is one of the models related to using new technology. Moreover, Suleman et al. (2021) stated that the EU can directly affect consumer purchase intentions. The impact of the EU on enjoyment has been proven in experimental studies in mobile and gaming contexts (Hsu et al., 2007). Merikivi et al. (2017) stated that if the virtual goods interface of mobile games is difficult to use, it will affect the player experience, affecting the player's PI. Balakrishnan and Griffiths (2018) stated that if the purchase process of virtual goods is perceived as EU, potential buyers are more likely to feel good about it and consider purchasing it. Therefore, mobile games are usually played as a pleasure, and time will not pass enjoyably if the game is considered challenging to use (Merikivi et al., 2017).

Purchase Intention (PI)

According to Gogoi (2013), PI is a complex process related to consumer behavior, perceptions, and attitudes. According to Peña-García et al. (2020), online PI is defined as the willingness or plan of a consumer to purchase products through an online store. Morwitz et al. (2007) mention that the PI is a better predictor for selling existing products than new products. Moreover, Mirabi et al. (2015) stated that PI is a decision to investigate consumers' decisions to purchase a specific brand. However, PI may change due to price, perceived quality, and value. Hence, consumers can be influenced by internal or external motivations during the purchase process (Gogoi, 2013).

Self-Determination Theory (SDT)

Self Determination Theory was introduced by Ryan and Deci (2000), and the purpose of SDT is to explain motivation and behavior based on individual differences in motivation orientations, contextual influences, and interpersonal perceptions (Hagger and Chatzisarantis, 2008). In addition, SDT is a well-used framework in video games that the satisfaction of three basic needs of autonomy, competence, and relatedness during activity engagement enhances enjoyable experiences and increases repetition and potential addictive behaviors (Hussain et al., 2021). Meanwhile, three basic needs in SDT relate need satisfaction to intrinsic motivation and the regulation of extrinsic motivation (Adams et al., 2017). Ryan and Deci (2000) stated that intrinsic motivation is important in understanding the sources of

positive aspects of human nature. Figure 2.1.1 describes the motivation continuum from extrinsic to intrinsic and includes the type of regulation associated with each motivation.

Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) was developed by the American scholar Davis (Davis, 1989) in the field of information systems/computer technology based on the Theory of Rational Action (TRA) and is used to explain and predict people's acceptance of information technology. TAM advocates that people's use of information technology is affected by their behavioral intentions and is used to explore the impact of external factors on users' internal beliefs, attitudes, and intentions, which affect the use of information systems situations (Davis, 1989). Fishbein and Ajzen (1975) also suggested that behavioral intentions can be determined by considering a person's attitude toward the actual behavior and the subjective norms associated with the behavior in question. Davis proposed that user behavioral intention comprises three factors: perceived usefulness, perceived ease of use, and attitude. In this model, attitude is used to determine perceived usefulness and ease of use, the strongest predictors of user approval or rejection of a system (Chauhan et al., 2021).

TAM is also suitable for explaining user acceptance and purchase intention of online mobile games (Lee and Tsai, 2010). According to Hsu and Lu (2004), game quality, usefulness, ease of use, and game experience will affect players' intention to use online games. As the use of mobile games increases, players' involvement in mobile games continues to increase (Brockmyer et al., 2009). This will cause players to gradually develop the habit of online mobile games, eventually leading to game addiction (Chou and Ting, 2003). In Lee and Tsai's (2010) study, players' attitude towards online games significantly mediates between immersive experience and online game usage intention.

Conceptual Framework and Hypotheses Development

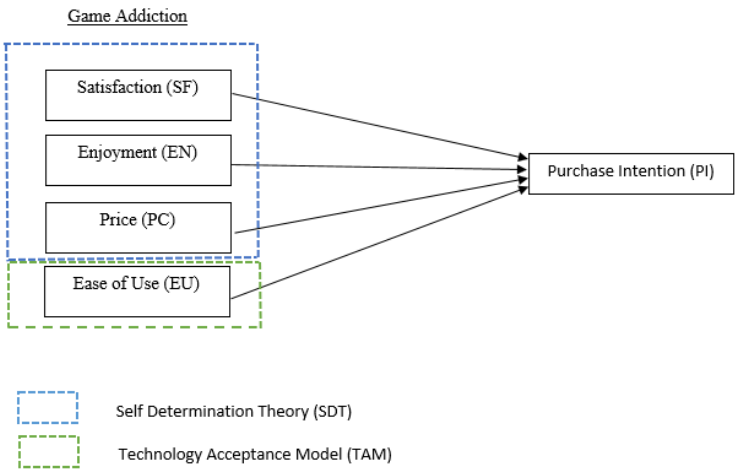

Figure 1: Conceptual Framework of game addiction and purchase intention

The four independent variables are satisfaction, enjoyment, price, and ease of use. To examine whether there is a relationship between these four independent variables towards purchase intention, the following hypotheses are developed:

H1: Satisfaction will positively affect Malaysia Generation Z's purchase intention in online mobile games.

H2: Enjoyment will positively affect Malaysia Generation Z's purchase intention in online mobile games.

H3: Price will positively affect Malaysia Generation Z's purchase intention in online mobile games.

H4: Ease of Use will positively affect Malaysia Generation Z's purchase intention in online mobile games.

3. Model, Data and Methodology

The self-administered questionnaire was constructed with two sections (Section A and Section B). Section A contained demographic data such as gender, age, education level, occupation, and monthly personal income. Section B contained psychometric data consisting of four independent variables: satisfaction, enjoyment, price, and ease of use, and one dependent variable, purchase intention. The psychometric data was measured by five statements for each of the variables.

For this study, the target population will be Generation Z, who will be between the ages of 11 and 26 in 2023 (Mulroy, 2023). The reason for choosing Generation Z as the target population is that 77% of Generation Z gamers prefer to play mobile games (Social Team, 2023). Besides, the Social Team (2023) found that 81% of Generation Z will make 2-4 game purchases in a year, and the amount of Generation Z invested in gaming will continue to increase after they start the workforce. Hence, Generation Z is the most appropriate target population for this study.

The questionnaire for this study was distributed via offline physical and online Google Form surveys. An online Google survey can get many responses (Verma, 2023). Evans and Mathur (2005) mentioned that online surveys are flexible, speedy, timeless, easy to enter, and analyze. Verma (2023) also stated that online distribution can help researchers collect respondents' data from different geographic areas. While the offline physical survey has limited geographic areas, it can directly help the respondents to explain the survey questions that they are confused about (Verma, 2023), especially those below the age of 15. Thus, the sampling location in this study will be more focused on the Malaysian area by using online methods to collect information on Generation Z and physical methods for respondents below the age of 15.

In this research, non-probability sampling was used to collect data. Nikolopoulou (2022) mentioned that non-probability sampling is a sampling method that involves non-randomly selecting a sample, and not everyone has the opportunity to be included. Based on the several types of non-probability sampling, judgmental sampling, also known as "purposive

sampling", is used, and the respondents are chosen based on the knowledge and judgment of researchers (Fleetwood, 2023). In addition, Nikolopoulou (2022b) also stated that judgment sampling is helpful for researchers to find informative cases or make the most of limited resources when there is a high risk of research bias. As a result, the judgmental sampling approach will be used to gather data from the target population.

This study used an online survey in Google Forms and an offline physical form. The language used in the survey form was English. The questionnaire will be divided into three parts: Section A, Section B, and Section C. Section A will use demographic questions to gather the respondents' background. In Section B, we prepared five general questions to ask respondents whether they play online mobile games and how much they spend on games. In Section C, 25 questions will consist of DV and IV in the study to collect the opinions of the target respondents. There are four IVs: SF, EN, PC, and EU, and DV is the PI of Gen Z in Malaysia. Each DV and IV has five questions, aiming to gather opinions on the impact of gaming addiction among Gen Z on the PI of online mobile games in Malaysia. In addition, the questionnaire design of Section C adopts a Likert scale, in which one (1) means strongly disagree and five (5) means strongly agree.

4. Results and Discussion

The demographic profile of respondents indicated that age, 11 – 15 years old (12.24%), 16 – 21 years old (33.9%), and 22 – 26 years old (54.17%). Next, the respondents' gender was almost equally distributed between males (47.4%) and females (52.6%). Meanwhile, how much money you have ever spent on online mobile games showed that most respondents spent less than RM50 on online mobile games, comprising 129 respondents (33.59%). Besides, there are 65 respondents (16.93%) who spent RM50-RM100, 54 respondents (14.06%) who spent RM101-RM150, 53 respondents (13.8%) who spent more than RM250, 52 respondents (13.54%) who spent RM151-RM200, and 31 respondents (8.07%) who spent RM201-RM250. The remaining 53 respondents spent more than RM250 on online mobile games, constituting 13.08%.

Table 1: Demographic Information of Respondents (n=384)

	Frequency	Percentage (%)
Gender		
Male	182	47.4
Female	202	52.6
Age		
11 to 15 years old	47	12.24
16 to 21 years old	129	33.59
22 to 26 years old	208	54.17
How much money have you ever spent on online mobile games?		
Less than RM50	129	33.59
RM50-RM100	65	16.93
RM101-RM150	54	14.06
RM151-RM200	52	13.54
RM201-RM250	31	8.07
More than RM250	53	13.80

Table 2 presents the reliability test findings. Based on the Cronbach alpha value, PI and EN are considered to have good reliability, with values of 0.816 and 0.880, respectively.

Meanwhile, SF and EU are considered to have excellent reliability, with values of 0.901 and 0.918, respectively. Finally, PC is considered to have questionable reliability, with a Cronbach's alpha of 0.697.

Table 2: Reliability Analysis Result

	Cronbach's Alpha
Purchase Intention (PI)	0.816
Enjoyment (EN)	0.880
Satisfaction (SF)	0.901
Price (PC)	0.697
Ease of Use (EU)	0.918

From the test in Table 2, the alpha level that more than 0.9 is considered as excellent reliability, from 0.8 until 0.9 is excellent reliability, from 0.7 until 0.8 is considered as good reliability, from 0.6 until 0.7 is considered as moderate reliability, less than 0.6 will be considered as poor reliability.

Table 3: Summary of the results of hypothesis testing

	T Statistics	**Sig.**	**Hypotheses**
Enjoyment (EN)	2.379	0.018	H_1 accepted
Satisfaction (SF)	3.484	<0.001	H_2 accepted
Price (PC)	12.076	<0.001	H_3 accepted
Ease of Use (EU)	0.927	0.355	H_4 rejected

Table 3 reveals that the t-values for SF, EN, and PC are 3.484, 2.379 and 12.076 respectively. Besides, the p-value for EN is 0.018, while those for SF and PC are both the same at 0.001, which is less than 0.05. Since the t-values for these three IVs are positive and the P-values are less than 0.05, it can be concluded that SF, EN, and PC have a positive correlation with PI. However, the P values for the EU are 0.355, and the P values were greater than 0.05. This shows that the EU does not have any significant relationship with PI.

The results show that EN is the most important factor in increasing Malaysian Generation Z's participation in online mobile games and influencing their PI. This result is consistent with the research of Al Amri and Amin Almaiah (2020), and the main reason is that Gen Z enjoys the pleasure and fun that playing online mobile games brings them. Again, this result is consistent with Baek and Touati (2017), who found that Generation Z enjoys being immersed in the virtual environment of games, enjoys the fun of role-playing, and enjoys the diversity of experiencing different identities and abilities in the game world. In addition, Kyung (2020) also found that Generation Z is willing to spend some money to improve the game experience, such as purchasing virtual currency, equipment, skins, characters, etc., to make the game more interesting and exciting.

The Malaysian Generation Z's PI is positively correlated with the SF, which has a P value less than 0.05. The research results of Hsiao and Chen (2016) show that player SF is an important factor leading to the PI of virtual goods in online mobile games. When players gain pleasure and SF in the game, they are more likely to have the willingness to buy virtual goods. The research results of Dash et al. (2021) found that the higher the player's SF with the game brand, the more inclined they are to buy virtual goods in the game. Players who achieve higher levels of SF in a game typically engage in the game longer, increasing the likelihood of purchasing virtual goods (Hamari, 2020). Numerous studies and market surveys have shown a strong link between player SF and PI. Therefore, good SF leads to positive PI.

According to the research results, the P value of PC is less than 0.05, which shows that PC has a significant relationship with the PI of Generation Z in Malaysia. The research results of Levrini and Santos (2021) show that a good price usually increases players' willingness to buy. The findings of Widodo and Balqiah (2020) and Zhao et al. (2021) found that there is a positive relationship between good PC and PI, which means that lower PC may increase PI, and higher PC may reduce PI. If players perceive a virtual item as having high value, they may still be willing to purchase it even at a higher price because they believe the purchase will enhance the gaming experience (Prakosa and Sumantika, 2022). Therefore, a good PC leads to a positive PI.

The P value of EU is bigger than 0.05, indicating that there is no significant relationship between EU and Generation Z's PI in Malaysia, hence, H4 needs to be rejected. The research results of Isma et al. (2021) and Xie et al. (2022) are consistent with the results of this study, and the EU has no significant direct impact on players' willingness to purchase virtual items in online mobile games. The EU of virtual goods interfaces for mobile games does not affect gamers' PI. According to Yang and Lin (2019), most purchases of in-game virtual goods can be completed with a few simple clicks, so the EU may not be a major factor in purchasing decisions. A possible explanation is that players may be more concerned about whether the purchase of virtual goods can improve the game experience, increase game content, obtain new rewards, etc., rather than the ease of the purchase process. Therefore, even with increased EU, the change in PI may not be significant.

5. Conclusions and Recommendations

Based on the result obtained, SF, EN, and PC among the four IVs all have a positive and significant effect on the online mobile game PI of Malaysian Generation Z gaming addiction. However, the effect of the EU on the PI of Generation Z in Malaysia does not seem to play a role. The result of this study could amaze the relevant practitioners about the factors that affect players' PI, and their marketing strategies will be further improved or developed. In addition, game developers also need to balance the difficulty of games for most players and to increase the enjoyment of mobile games. The limited geographic area of a mobile game may also affect the player's satisfaction. Since most of the mobile games only allow a limited number of countries to play, it will affect players' feelings that there are not many players to play against, and they will also get bored with players who are from the same country. In this situation, game developers need to expand their mobile games geographic area to allow other countries to participate. It allows players to easily meet new people and to increase chat interactions. Moreover, players can also challenge difficult levels with friends by learning from other players' skills and experience.

Some variables are not used in this study that can affect the impact of Generation Z's gaming addiction on purchase intention in online mobile games in Malaysia. Besides, four independent variables may increase the risk when multiple hypotheses are tested, and the significance level will not adjust accordingly. Hence, the other variables can be included in exploring the impact of Generation Z's gaming addiction on purchase intention in online mobile games in Malaysia.

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