Factor affecting Malaysian consumers' intention to play and to pay for electronic games

BY:

LIM CHIN HAN

A Study of Consumers' Intentions to Play and to Pay for Electronic Games in Malaysia

ABSTRACT

Electronic games market in Malaysia has been growing since 2010 and in 2018, Malaysia electronic games market revenue surpassed USD 100 million and projected to hit USD 168 million in 2023. Despite with the significant revenue size in Malaysia, game developers in Malaysia still far behind compare to overseas game developers and Malaysians generally prefer to play games developed by overseas game studios. Malaysia game developers can only benefit from the huge revenue potential if they know what users are looking for while playing an electronic game and reasons to pay for the electronic games. This paper examined which attributes of the games influence consumers to play and pay for them. The quantitative research methodology was applied and data was collected from 233 respondents through an online Google Form distribution due to Covid-19 epidemic in Malaysia. Sample selection was electronic games users in Malaysia in the age group of 18 years old and above. Convenience sampling was used in this study by posting questionnaire in online Facebook groups such as PS4 & PS5 Malaysia, PS4 Malaysia Community, and PC Gaming Community Malaysia. After collecting the data from the respondents, normality and reliability test were done on the data by using SPSS software. Subsequently, Confirmatory Factor Analysis and variance analysis were done. Lastly, overall model fit and structural equation modeling (SEM) were used to test the model. The results indicate that the variables challenge and social interaction influence the intention to play games, while the construct fantasy, control and immersion have no significant impact on the intention to play. In this research, we also find construct/variable good price has no significant impact on intention to play and pay for electronic game. Furthermore, we also observed that motivations that had the highest impact was challenge attribute that should be considered by game developers and industry while designing their games for Malaysia market. This paper provides fundamental insights for game developers in Malaysia to develop the right contents and monetize from the created contents.

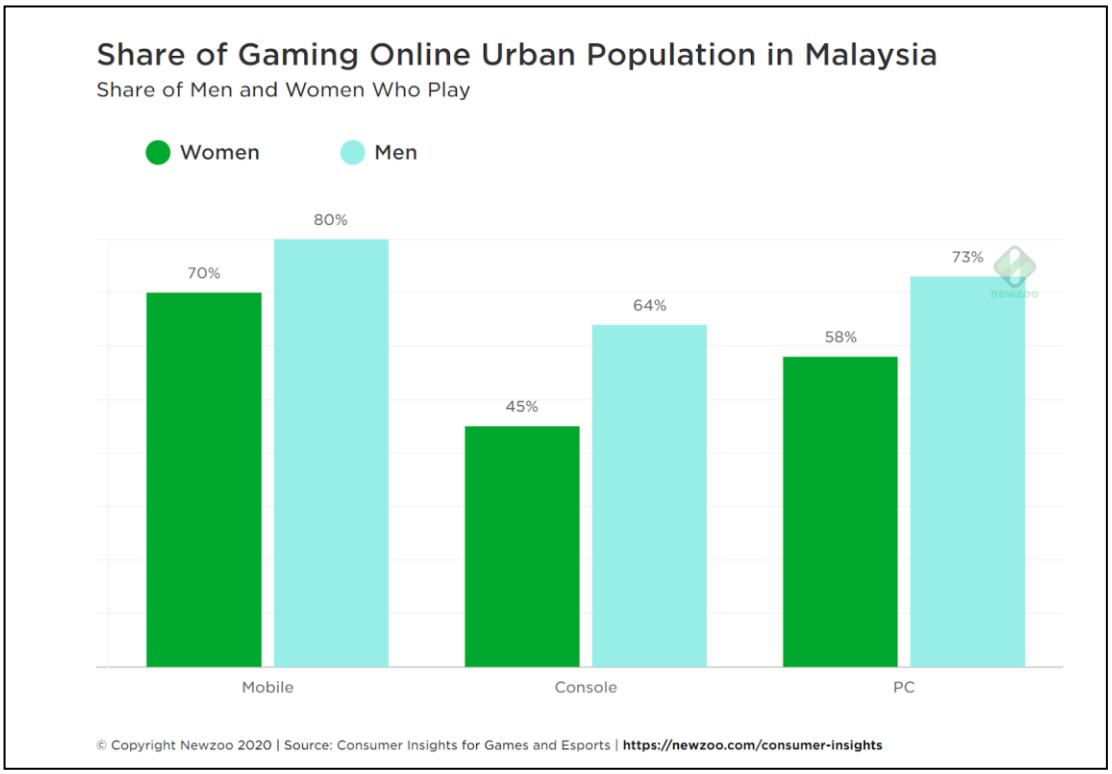
Contents

List of tables, charts and figures

CHAPTER 1. INTRODUCTION

1.1 INTRODUCTION

Electronic games or video games industry has been increasingly receiving attention globally because the revenue size for this industry has been growing since the last decade. According to Newzoo (2020), the revenue for electronic games will hit USD 159.3 billion with 2.7 billion gamers and projected to surpass USD 200 billion by 2023. As of 2019, there were 20.1 million gamers in Malaysia with 75% playing games on smartphone, 66% playing games on PC and 55% playing games on console (Newzoo, 2020).



Source: Consumer Insights for Games and Esports | https://newzoo.com/consumer-insights

According to Malaysia Investment Development Authority (MIDA), the electronic games market contributed USD 100 million revenue and expected to show an annual growth rate (CAGR 2018-2023) of 10.9%, which will result in USD 168 million market volume by 2023 and Malaysia ranked at 21st worldwide in term of electronic games revenue (MIDA, 2020). This industry has become an important industry in Malaysia and The Malaysian National Creative Industry Policies, governed by the Ministry of Communications and Multimedia (MCMC) has identified the electronic games industry as one of the ten main categories in the Creative Industry (MIDA, 2020). During the budget 2019, Malaysia government through Youth and Sports Ministry had allocated RM 10 million to develop esports and aim to become the hub of esports in South East Asia region (MIDA, 2020). The growth of the electronic games market in Malaysia has attracted the attention from Malaysia government to get involved and play an important role to ensure this industry will benefit the country economically. Since electronic games industry has become so important in Malaysia, it is worthwhile to examine the consumer behavior of electronic games players in Malaysia. Consumer

behavior is a very broad field and the research can be done by applying diverse research methodologies. The goal is typically to understand the behavior of individual as they interact with one another and their environment in a consumption context (Morales, et.,al, 2017). This paper will narrow the scope of the consumer research to understanding the attributes that influence consumers' intentions to play and to pay for electronic games in Malaysia. This study will be conducted across smartphone users, gaming console users and PC desktop users because as per industry report by Newzoo, the market share for each gaming platforms in Malaysia is quite significant. By understanding the intentions, electronic game companies will have consumers' insights to benefit from fast growing trend.

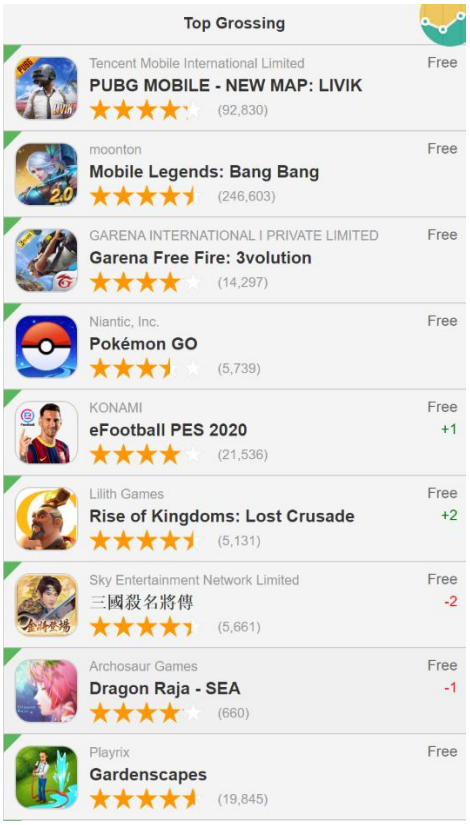
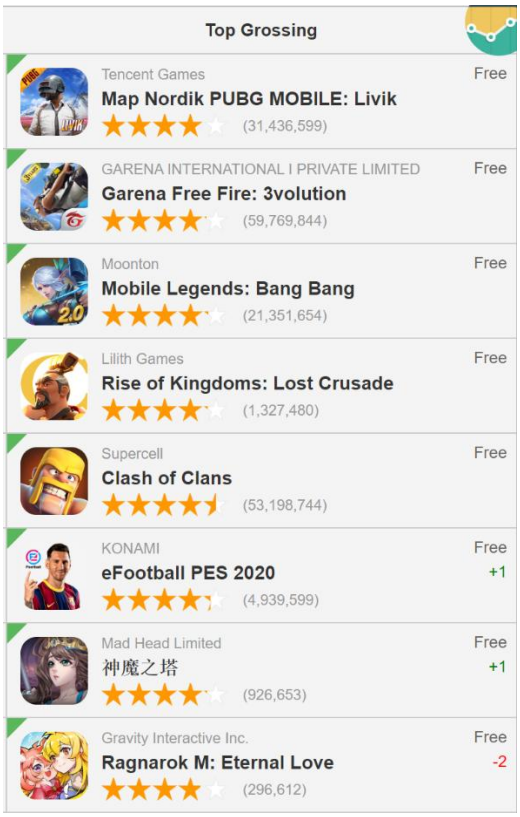
1.2 Research Background

In recent years, electronic games industry has been gaining a lot of attentions globally as one of the most profitable in leisure segment (Souza and Freitas, 2017). Due to the attentions, there were many academic research had been conducted to understand the consumer's motivation that leads to intentions of playing and paying for electronic games by using various theories and approaches globally and specifically in Malaysia. As early as in 2014, there was a research conducted in Malaysia on a specific electronic game namely Second Life and the research objective is examine which value matters to drive game players to play and pay for the electronic games. This research was done by applying PERVAL framework and the authors suggested that customer perceived values varies among electronic games (S. Rezaeia and S.S. Ghodsi, 2014). Later on, an exploratory study was conducted on online games among 1584 university students in Malaysia by using the theory of planned behavior suggested that perceived enjoyment has the strongest influence on the actual use while other variables found to influence actual usage include the level of perceived behavioral control, flow experience, subjective norms, attitude and flow experience (Alzahari, et, .al, 2017). In a separate study conducted among university students in Sabah, Malaysia to examine the linkages between students' multidimensional experiential motives and intention to use online games by using convenience sampling technique for sample selection of 210 voluntary respondents suggested social affiliation was found as the most influential factor in the objective to play online games among students and enjoyment insignificantly related with the purpose to play online games (Pang, et,.al, 2017). Consumer's behavior and motivations to continue playing electronic game was conducted on a specific electronic game namely Pokémon GO (PG) to understand PG consumers' intentions to continue playing and subsequently pay for the game service in Malaysia. This study was conducted from perspectives of psychological, social and gaming motivational factors by assessing 362 validated respondents in Malaysia (E. Ghazali, et.,al, 2019). In Brazil, the research to understand attributes influence intention to play and to pay for electronic games was conducted by applying structural equation modeling on 8 attributes of games features which were considered important to influence consumer's behavior (Souza and Freitas, 2017). A specific game players research namely Tower of Savior was conducted in Taiwan to understand the in-app purchase intention for the game by examining the relationship between perceived value and loyalty towards intention to pay (Hsiao and Chen, 2016). The motivation factors that lead to intention to pay for electronic games had also been conducted in Indonesia by examining relationship between extrinsic motivations, intrinsic motivations, general purchase and actual purchase behavior (Stefany, 2014). In China, a research has also been conducted to explore the influencing factors of consumer's behavior to play and to pay for electronic games. The results from this paper suggested that the

cognitions on the advantages, disadvantages, quality advantages, and quality disadvantages of electronic game and individual variables of player are all significant influencing factors on consumer behavior of online game (Y. Zhang and W. Huang, 2019). The numbers of research conducted to examine the factors that influence the consumer's intention to play and to pay for electronic games in various countries suggest that it is important to understand consumer behavior of electronic games.

1.3 Research Rationale

While the electronic games revenue is growing in Malaysia, this market is dominated by the providers from overseas especially from Europe, North America, China, Japan or South Korea. According to sensortower.com, there is no game provided by Malaysia game company that is listed on the Top Grossing chart either on Apple Store or Google Play. That means Malaysians are consuming electronic games from overseas providers which is not good for the country economy in the long run.

Google Play Top Grossing Games	Apple App Store Top Grossing Games
	

Source:
https://sensortower.com/android/rankings/top/mobile/malaysia/game?iap=all&watch_enabled&rankings_type=free&min_cost=0&max_cost&date=2020-08-09&show_store_data=true

According to Malaysia Digital Economy Corporation (DNA, 2019), Malaysia electronic games companies are still very small but growing and the local companies need to ensure the sustainability of the business in the long run and many Malaysia founded game companies failed to sustain its business due to the lack of understanding of consumer behavior when developing games. Hence,

this research will give insights to Malaysia game companies to understand Malaysia consumers' intention to play and to pay for electronic games and assist them to develop the right electronic games for Malaysia generally whether on PC, Console or Mobile platform.

1.4 Problem Statement

A study from electronic games from users' perspective in Malaysia is important because only by knowing the attributes that influence users' intentions to play and pay for electronic games, then game developers in Malaysia can develop the right contents for this market. The previous studies on consumer behavior of electronic games in Malaysia were too narrow, they were either specific to a game title such as Ghazali, et,al (2019) on Pokémon GO or Alzhahari, et.,al (2017) on conducted among university students. Hence, the results from these studies will only do little help to assist electronic games companies in Malaysia to develop the contents. In electronic games market, users will not choose to play an electronic game which they used to experience because this industry already evolved into network effect phenomenon where existing successful titles will hold on the community with their resources and very hard to copycat to compete (Bright Black, 2019), which means studying previously successful game in Malaysia can only tell us why users chose to play and pay for those games but the results cannot be used to develop new game title. Therefore, a more holistic research need to be done and provides sufficient info which narrow down to specific factors/attributes of an electronic games and its impact on users' intentions. Besides that, Malaysia game companies are relatively small and known to no one (allcorrectgroup, 2017), that means the local companies have small capital and don't have enough resources to try and error in developing electronic games for this market, hence, this study will help them to gain more insights from consumer behavior perspective to develop more relevant contents and benefit from the substantial market size of Malaysia.

1.5 Research Objective

The purpose of this study is to analyze the electronic game attributes that influence consumers' intentions to play and to pay for electronic games in Malaysia. As proposed in previous research by Souza and Freitas (2017), Hsiao and Chen (2016), Sweetser and Wyeth (2005) and Stefany (2014) among others, game attributes which have positive relationship with intentions to play and pay are challenge, control, fantasy, immersion, good price, social interaction. To achieve the research objective, previous studies will be examined and only confirmed attributes from the previous studies will be used later in this study.

1.6 Research Question

- What is the impact of challenge on intentions to play electronic games?
- What is the impact of control on intentions to play electronic games?
- What is the impact of social interaction on intentions to play electronic games?
- What is the impact of immersion on intentions to play electronic games?
- What is the impact of good price on intention to play and pay for electronic games?
- What is the impact of fantasy on intentions to play electronic games?

1.7 Structure of the Thesis

Chapter 1. Introduction

This chapter is to give an introduction of the electronic games market in Malaysia and review some previous research as background of this research, discuss the research rationale, outlining the problem statement, research objective and the questions that this research wants to answer.

Chapter 2. Literature Review

In this chapter, key concepts will be defined and critical review will be done on 6 related theories for this study. Besides that, research gaps will be discussed and existing research will be linked to this paper.

Chapter 3. Research Methodology

This chapter will show research design, research method, procedure and data collection, data collection method, data collection tool, questionnaire, target population and sampling methods and data analysis plan.

Chapter 4. Analysis, Results and Discussion

This chapter will include demographic analysis, reliability and validity, factor analysis, descriptive statistics, correlation analysis and regression analysis. The results from the analysis will be discussed under this chapter.

Chapter 5. Conclusion and Recommendations

In this chapter, conclusion and recommendations will be given based on the results from the analysis. Besides that, limitations in this research will also be highlighted and suggestions for the future research will be given.

CHAPTER 2. LITERATURE REVIEW

2.1 Definitions of Key Concepts

2.1.1 Electronic Games

An electronic game is a virtual world whereby the environment representing the space in which the interaction occurs. Typically electronic games have audiovisual representation. The players interact with the game have control of specific over the environment and usually a game character known as avatar or others are possible (A.S Bastos, et al, 2017). There are 4 categories of electronic games in the market, first is online and mobile games, second is console and PC, and third is internet-delivered games and serious games (Souza and Freitas, 2017). Over the years, the business model of electronic games evolved into paid and free digital business model and developers monetize the content through micro-transaction (freemium), subscription, in-game advertisement and pay per download (Davidovici, 2014). Game players (gamers) can be divided into 2 groups, the first group prefer more complex games and second group prefer simpler and easier games, hence, there are different type of games with different objective. And it is important to understand the reasons that drive consumers to choose one game instead of another (Souza and Freitas, 2017).

2.2 Critical Review of Key Theories

Consumers' motivation

Consumers' motivation can be understood as the drive that satisfy both physiological and psychological needs through product purchase and consumption. Consumer motivation give insights on why people purchase certain product (Schiffman and Kanuk, 2010). Motivation also can be defined as to be moved to do something. A motivated person is energized and activated towards something, for examples, everyone works or plays with others is motivated accordingly (Ryan and Deci, 2000). In the same paper, the authors discussed that they are 2 types of motivation namely intrinsic and extrinsic which can move people to do something.

Intrinsic Motivation (IM) can be understood as an individual does the activity because it is personally rewarding, satisfying or enjoyable. Intrinsically motivated action is not contingent upon any outcome separable from the behavior itself. Rather, the means and end are one and the same. For example, a child may play outdoors – running, skipping, jumping – for no other reason than because it is fun and innately satisfying (Legault, 2016). Factors that promotes intrinsic motivation are curiosity, challenge, control, recognition, cooperation, competition and fantasy (healthline, 2019).

In the electronic game context, intrinsic motivation has been suggested to positively associate with gaming behavioral intention, in a study conducted gamification and the impact of extrinsic motivation on needs satisfaction in a workplace found that competency and autonomy satisfaction was associated with the intentions through intrinsic motivation and intrinsic motivation has positive association with behavioral intention in workplace gamification use. (Mitchell, et al, 2020). Enjoyment, immersion and preference for future play are found positively influence the intentions

to play in many research and they are intrinsic motivation (Uysal and Yildirim, 2016). Intrinsic motivation to play electronic games which are curiosity and fun are proven to have positive association with behavioral intention in Hedonic-Motivation System Adoption Model (HMSAM) which was proposed by Lowry, et al (2013).

Self-Determination Theory suggest that to encourage high quality form of motivation, there are 3 intrinsic needs to be satisfied namely autonomy, competence, and relatedness (Deci & Ryan, 1985). Autonomy refers to the choices people make and why they make them and perceived high autonomy when choices are made because ones are interested into it not fear of punishment or doing it for external rewards (Ryan and Deci, 2000). Competence refers to the ability to be challenged appropriately. This happens when individuals are given a challenge that matches their skill level. The challenge cannot be too difficult or easy to create anxious (Ryan and Deci, 2000). Relatedness refers to a connection to and support from others. It has to do with ones' development and maintenance of close personal relationships (Ryan and Deci, 2000). In the context of electronic games, to achieve high autonomy, an electronic game needs to satisfy players with "meaningful choice" such as choosing different goals, strategies, actions, customization, background stories that provide rationales for activity, wide-open with explore able worlds and the possibility to create and inhabit a character that is highly congruent with one's ideal (Deterding, 2016), and these criteria are closely related to fun, fantasy and curiosity of intrinsic motivation. In the context of electronic games, competence refers to a player must feel like the goals they are attempting to reach in the game is obtainable either through progression systems or practice, thus, opportunities to unlock new skills or abilities, challenging or bonus objectives and control(s) technique that can be mastered can satisfy this innate need and these criteria are related to challenge of intrinsic motivation (Gamasutra, 2017). In the context of electronic games, relatedness is associated with chatting system, guild function, and social interaction which leads to real world friendship (Tyack and Wyeth, 2017) and these are associated with cooperation or social interaction of intrinsic motivation.

Intrinsic motivation is further discussed in Flow Theory. According to Flow Theory, when someone is concentrating so intently on an activity they are said to be in a state of full immersion (Csikszentmihalyi, 2000). Immersion is defined as someone experiencing an intense and focused concentration on the present moment, awareness and action merging, a loss of reflective self-consciousness, a sense of control over the undertaking actions, feel the time past faster than normal, and experiencing the activity as intrinsically rewarding, where often the end goal is just an excuse for the process (Nakamura, & Csikszentmihalyi, 2009). According to the same authors, for someone to enter the state of immersion, 3 criteria must be fulfilled. First, the activity must have clear goals and clear progress towards goals as this adds and structure. Second, the task at hand must have clear and immediate feedback. This helps us to make choices and adjust our performance in order to maintain the flow state. And third, the task can't be too difficult or too easy. It needs to have a good balance between the perceived challenges of the task with perceived skills.

Flow theory has been explored in electronic game research and GameFlow model was proposed to better understand the enjoyment of electronic games that drives consumers to play. GameFlow consists of 8 elements which are concentration, challenge, skills, control, clear goals, feedback, immersion, and social interaction (Sweetser and Wyeth, 2005). Through the research by using

GameFlow Model, the authors concluded GameFlow can be used as a tool to distinguish high and low rate games. High rated games are the ones that consumers attracted to, while low rated games are the one won't be chosen by consumers.

Extrinsic motivation can be defined as the action is performed when people want to be rewarded or avoid punishment not because they are enjoying the action or in other words, whenever an activity is done in order to attain some separable outcome (Ryan and Deci, 2000). In the context of electronic games, extrinsic motivation is closely associated with rewards gained in the virtual or real world after completing certain task or another activity such as money, incentive, compliment or recognition from other people (Banyte and Gadeikiene, 2015). It is a contrast to intrinsic motivation and, in addition, it very much depends on the level of autonomy (Ryan & Deci, 2000) and induces a person to strive for utilitarian value (Roberts et al., 2014) as opposed to joy and pleasure (Lin et al., 2012). Extrinsic motivation has 4 sub types. First one is external regulation, associated to behavior controlled by certain external means such as incentive (Ryan & Deci, 2000). Second type is introjected regulation, associated to behavior control through internal personal processes such as excitement, feeling of guilt or pride, thus it reflects partial internalization. Lafreniere et al. (2012) provided an example of introjected regulation as a situation that he/she would feel irritated if not involved in game-playing. Third type is identified regulation, refers to a person behaves in one way or another due to the behavioral is related to personal goals even if the behavior as such is not pleasant (Ryan & Daci, 2000). For instance, Lafreniere et al. (2012) suggested that one of the reasons why players are motivated in such a way is their wish to maintain/develop relationships with their friends. Fourth type is integrated regulation, also associated to behavior without personal wish. In this case regulation becomes a part of person's habitual functioning and self-perception or self-assessment (Ryan & Daci, 2000). Extrinsic motivation has been argued as less important to drive intentions' to play. In experiential motive for playing online game research, Koo, et al (2007), suggested that extrinsic motivation does not trigger the intentions to play because people play electronic games for pleasure and enjoyment. Another research conducted in United States on electronic games by adopting intrinsic and extrinsic motivation also resulted that extrinsic motivation has insignificant influence on the intention to play (Kang and Tan, 2014). However, in a separate research in Taiwan on in-app purchase intentions of mobile games by examining perceived value and loyalty suggested that perceived value has significant influence on intentions to pay (Hsiao and Chen, 2016). Perceived value was group as extrinsic motivation by Stefany (2014). Perceived value in the context of electronic games refers to good price that consumers pay for game service because they believe the cost worth game service received (Hsiao and Chen, 2016). In the same study, Hsiao and Chen (2016) suggested good price and in-game rewards have positive influence on the intentions to pay for electronic games. Perceived value positive relation with intentions to pay also confirmed by Stefany (2014) because game players view the benefits gained from the virtual items purchased can help them to progress in-game. Hence, it is safe to argue that intrinsic motivation influence intentions to play and to pay for electronic games, while extrinsic motivation only influence on consumers' intentions to pay for electronic games.

2.3 Identification of Research Gap

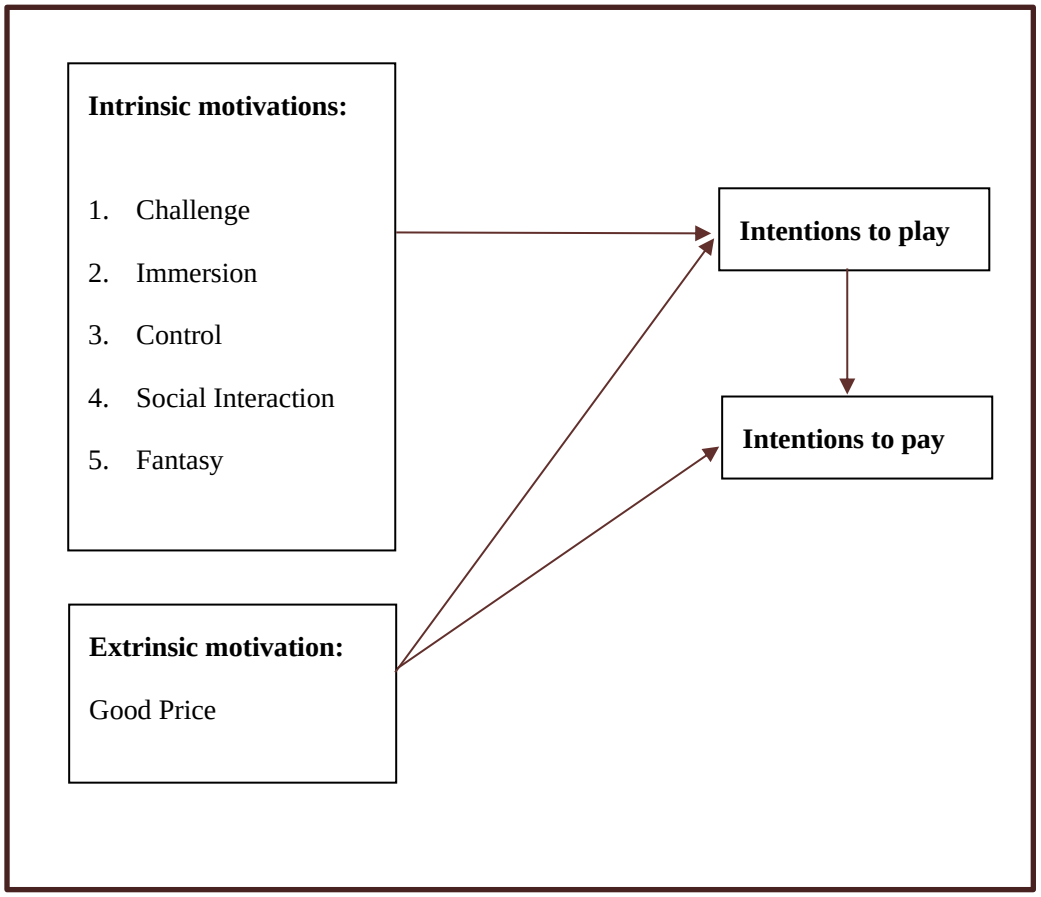
There are many research have been conducted to explain and understand the consumers' intentions to play and to pay for electronic games globally. However, in Malaysia, there is no evidence this research topic has been conducted to benefit game developers.

Author (Year)	Methods	Variables	Context
Lim (2021)	Primary Data - Quantitative Sample size - 200 Descriptive research Consumer motivation theory	Dependent variables - Intention to Play and Intention to Pay Independent variables – Intrinsic and extrinsic motivation	Malaysia Console, mobile and PC gaming platform Intentions to play Intentions to pay

The study conducted by Alzhahari, et al (2017) among university students in Malaysia, very focused on mobile platforms and did not discuss the intention to pay for electronic games. S. Rezaeia and S.S. Ghodsi (2014) conducted study on perceived value using PERVEL framework to understand consumers' intention to play an electronic game namely Second Life. However, this research is limited to a specific game community. E. Ghazali, et al (2019) conducted a research to understand why consumers continue to play a game named Pokémon GO and subsequently pay for it. However, this research again narrow to a specific game and cannot be used to represent the game players' intentions in Malaysia. A study conducted to examine the linkages between students' multidimensional experiential motives and intention to use online games by Pang, et al (2017) is also too narrow because it was done among university students and the results cannot be used to represent Malaysia games market. The study conducted by Souza and Freitas (2017) discussed the intention to play and pay for electronic games, however, it was only being conducted in Brazil. Lowry, et al. (2013) conducted research by proposing HMSAM theory for electronic games, however, the theory only explains the behavioral intention to use and immersion, while, income for game developer is very essential to ensure the sustainability of the service E. Ghazali, et al (2019). Hsiao and Chen (2016) conducted research on factors that influence users' intention to pay for electronic games through loyalty, emotional value, performance value, social value, and value for money and other control variables. However, they did not discuss the intention of users to play electronic games and their focus is on mobile games only. Shan and Peng (2014) in the study also discussed intention to play electronic games by using a combination of network externalities and user gratification theory. However, this study also doesn't discuss the intention to pay for electronic games and the focus is on social games which are only available on mobile game platforms. And there is no evidence that electronic game research conducted in Malaysia to benefit the game developers locally.

2.4 Proposed Conceptual Framework

The framework below shows the hypotheses relationship between independent variables of intrinsic and extrinsic motivation with intentions to play and to pay.



Framework 1: Proposed Conceptual Framework for this study

2.5 Linking Current Research to Existing Research

According to GameFlow model (Sweetser and Wyeth, 2005), challenge is one of the attributes trigger the intentions to play. Challenge in the electronic game context is the interaction that the games required the players to complete with certain cognitive ability which can be acquired through previous experience or learn from others (A.L Cox, et, .al, 2012). Positive relationship between challenge and intentions to play is later on confirmed in a study to find out the role of challenge and gaming experience (A.L Cox, et al, 2012). This attribute is later on used in separate study in Brazil to find the intentions to play and to pay for electronic also suggested that challenge positively related to intentions to play (Souza and Freitas, 2017). Hence, this paper hypothesize challenge positively related to intentions to play.

H1: Challenge has significant impact on intentions to play

Immersion is another important attribute of electronic games lead to intentions to play according to the Flow Theory because it is intrinsically rewarding (Nakamura, & Csikszentmihalyi, 2009). And GameFlow model also suggested that immersion positively related to intentions to play (Sweetser and Wyeth, 2005). Hedonic-Motivation System Adoption Model (HMSAM) by Lowry, et al (2013) also suggested that immersion as intrinsic motivation to trigger the intentions to play in the study while proposing HMSAM. Hence, this paper hypothesize immersion positively related to intentions to play.

H2: Immersion has significant impact on intentions to play

Control is an attribute of electronic games that positively related to intention to play according to Flow Theory (Nakamura, & Csikszentmihalyi, 2009). There are 4 types of control in electronic games which are fully controlled, probabilistic control, emergent control and uncontrolled. Each category corresponds to different amount of control the player has in the game and the game experience. The level of control determines the outcome in the virtual which influence users' intentions to play (Toprac, 2013). In a separate study in Jakarta, control also showed positive relationship with intentions to play electronic game, specifically Perfect World – an online game (Stefany, 2014).

H3: Control has significant impact on intentions to play

Social interaction is also another attribute positively related to intentions to play according to GameFlow Model (Sweetser and Wyeth, 2005). In the said model, social interaction is important because some people play game for social interaction and strong social interaction is suggested in an electronic games such as chat, share, guild and etc. (Sweetser and Wyeth, 2005). The positive relationship between social interaction and intentions to play also confirmed by Souza and Freitas (2017) in their study of Brazil electronic games market. Another study on Pokémon GO games in Malaysia by E. Ghazali, et al (2019) also suggested that network externalities and community involvement positively related to the intentions to continue playing the said game. Hence, this paper hypothesize that social interaction positively related to intentions to play

H4: Social Interaction significant impact on intentions to play

Fantasy is closely related to concentration as per GameFlow model. Fantasy in electronic games refers to possibility to make one dream comes true such as being a superhero or driving a F1 Formula car or simply being someone else in the virtual world (Souza and Freitas, 2017). GameFlow model said when the virtual world offers stimulus scenario that worth attending to, then it will quickly grab one's attention to focus on the game (Sweetser and Wyeth, 2005). In a separate study, story of an electronic game which also related to consumers' fantasy and desire show positive relationship with intentions to play (Stefany, 2014). Story in the game is a key component that motivate consumers to play and keep coming back to see the development of the character and considered entertaining. (Stefany, 2014).

H5: Fantasy has significant impact on intentions to play

Intentions to play is always associated with intentions to pay in many studies. For example, through the study on consumers' intentions to play and to pay for electronic games in Brazil, the result supported that intentions to play positively influence the intentions to pay (Souza and Freitas, 2017). The study on effect of motivation on purchase intention conducted on online game "Perfect World" also supported this result (Stefany, 2014). And study on in-app purchase intention for mobile game in Taiwan on an electronic game named Tower of Savior also supported this result (Hsiao and Chen, 2016). The same result is supported by research on Pokemon GO community in Malaysia where the intentions to continue playing the said game will turn consumers to do in-app purchase (E. Ghazali, et al, 2019).

H6: Intentions to play has significant impact on with intentions to pay

Good price is associated with intentions to pay for electronic games supported by previous research. For instance, Stefany (2014) research accepted that perceived value of a virtual item in the studied game positively influence the intentions to pay. This is also explain in separate research on MMORPG in Malaysia that electronic games consumers are very sensitive to the price-value (S. Rezaeia and S.S. Ghodsi, 2014). Hsiao and Chen (2016) explained when game provider run discounted promotion on the game virtual items, the game player would have intentions to pay. It is worth to note that all the research was done based on specific game electronic. Hence, this paper hypothesize that Good Price has positive relationship with the intentions to pay but the consumers have intention to pay for the games that they are already playing or intended to play in case of pay to download business model.

H7: Good Price has significant impact on intentions to play and pay.

CHAPTER 3. RESEARCH METHODOLOGY

3.1 Research Design

This study will use descriptive research in order to understand electronic games market in Malaysia. Descriptive research is best used to address "what" question of characteristic of a population and this research paper's questions are "what" (Shields, et al, 2013). The main goal of this type of research is to describe the data and characteristics about what is being studied. Hence, using descriptive research in this study will be able to answer our research question. Prior to writing descriptive research, is to conduct a survey investigation. Besides that, the research of similar topic in Brazil also used descriptive research to understand the Brazil electronic games market (Souza and Freitas, 2017). And research to find out in-app purchase for mobile games in Taiwan also using descriptive research (Hsiao and Chen, 2016).

3.2 Research Method

This research will be using primary quantitative research method to collect data from respondents for this paper. Quantitative research focuses on gathering numerical data and generalizing it across groups of people or to explain a particular phenomenon (Creswell, 2013). The goal of this paper to conduct quantitative research study is to determine the relationship between independent variables and dependent variables or outcome within the gaming population in Malaysia (Creswell, 2013). Quantitative research is replicable due to its high reliability. In quantitative research the research questions are clearly defined to seek for the answers. All the aspects of the study are carefully designed before data is collected. In other words, quantitative research is to classify features, count them, and construct statistical models in an attempt to explain what is observed (Creswell, 2013).
Other reasons to collect primary data is previous research on this topic in Malaysia too narrow to specific game or sample which cannot be used in this paper to achieve the objective.

3.3. Procedure and Data Collection

This research will adopt two-stage of seven-point Likert scale. This procedure and data collection had been adopted in similar topic of research by Souza and Freitas (2017) in order to understand electronic games market in Brazil. Likert scale is one of the most fundamental and frequently used psychometric tools in educational and social sciences research to represent people's opinions and attitudes to a topic or subject matter. It employs questionnaires, often used interchangeably with a rating scale (Joshi, et al, 2015). In first stage, respondents will consider if they agree or disagree to a certain statement and then they will have to consider the level of agreement or disagreement which can be slightly, strongly or completely (Joshi, et al, 2015).

3.4 Data Collection Method

There are 3 main data collection methods in quantitative research namely self-reports, observation and bio- physiological measures (Sadan V, 2017). In this study, structured questionnaire will be designed with answers provided in the questionnaire for respondents to answer (Sadan V, 2017). A survey will be conducted online by distributing questionnaire through social media and communication messenger in electronic games group such as WhatsApp or FB Messenger. It is also important to adhere ethical norms in this research to ensure moral integrity and the findings are trustworthy and valid (The Ethics of Social Research). Hence, in this study, The Participant Information Sheet (PIS) and Participants Consent will be obtained prior to the actual questionnaire to adhere Malaysia Data Protection Act. The questionnaire will be constructed using Google Form. Face to face interview will not be possible due to Covid-19 pandemic which makes our data collection heavily relies on online distribution. The questionnaire will be designed in only 1 language which is English because English is one of the official languages in Malaysia and most of the electronic games in Malaysia available in English. Hence, it is logical to only have English language for this paper because this paper is going to collect data from existing electronic game users.

3.5 Data Collection Tools

3.5.1 Questionnaire:

Variables	Adaptation	Authors
Challenge	I feel proud when I master an aspect of an electronic game I find it very rewarding to get to the next level of an electronic game I enjoy finding new and creative ways to work through an electronic game	Souza and Freitas (2017)
Immersion	I become less aware of surroundings and less worried about everyday life or self I feel the time past faster when I play an electronic game I feel emotionally involved in the game	(Sweetser and Wyeth, 2005).
Control	I feel a sense of control over their characters or units and their movements and interactions in the game world	(Sweetser and Wyeth, 2005).

	I feel a sense of control over the game interface and input devices I feel a sense of control over the game shell (starting, stopping, saving, etc.)	
Social Interaction	My friends and I use electronic games as a reason to get together Often, a group of friends and I will spend time playing electronic games I play electronic games to relate to other people	Souza and Freitas (2017)
Fantasy	I play electronic games because they let me do things I can't do in real life Electronic games allow me to pretend I am someone/somewhere else I like to do something that I could not normally do in real life through an electronic game	Souza and Freitas (2017)
Good Price	The game service are reasonably priced The virtual items are good relative to the price The game service are economical	Hsiao and Chen (2016) Stefany (2014)
Intentions to play	I am willing to play electronic games I will give playing mobile electronic games a try I can begin and stop playing electronic game at any time	Souza and Freitas (2017)

3.7 Target population and Sampling method

The target respondents for this study are end users who play electronic games in Malaysia with no restriction on specific location or city and they must to be in the age of 18 and above. There is no restriction on the specific electronic gaming platforms, they either play electronic games through smartphones, PC/Desktop, gaming consoles or all of them. The reason to choose more generic of respondents as sample is to align with our research objective which is to find out the impact of each attribute of electronic games on the intentions to play and pay in Malaysia. And by choosing more generic samples, the result can give an overall picture the gaming market on the intentions to play and pay, rather than, the results that too specific to a particular gaming platforms or game title which will be less useful for game developers to design new electronic games. The similar concept of target population and sample selection were chosen in a study on the intentions to play and pay for electronic games in Brazil by Souza and Freitas (2017). The sampling method will be convenience sampling method because there is no statistical procedure done to choose the sample (Souza and Freitas, 2017). And one of the most important condition is that the sample respondents are already electronic games players which fit the objective of this research. The other reason to choose this sampling method is due to Covid-19 epidemic in Malaysia and the researcher will post the questionnaire on social media group or other online gaming community. In this scenario, convenience sampling is best apply because it is not possible to determine samples. Besides that, convenience sampling is cost-effectiveness, ease of availability of the sample, speedy and easy (Henry, 1990). Sample size targeted for this paper is 200 respondents. According to Statistics Solutions, the recommended respondents per variable is 10 and in this paper, there are six variables to be analyzed, hence, 200 respondents' feedbacks are adequate to run regression analysis later on in this paper. Besides that, timeline given to finish this study is limited, hence, the responds from 20% to 30% of total population cannot be applied.

3.8 Data Analysis Plan

After collecting the data process, this paper will start with various statistical data analysis methods to establish the relationship between variables through Statistical Package for Social Science (SPSS). By using SPSS, the data analysis will run descriptive analysis, normality analysis and reliability test. This paper will proceed to Confirmatory Factor Analysis (CFA) and variance analysis, then followed by Structural Equation Modelling (SEM) to measure the overall fit of the model and finally hypothesis testing. AMOS will be used to run CFA, variance analysis, SEM and hypothesis testing.

Analysis	**Rule of thumb**	**Reasons**	**Sources**
Descriptive analysis	N/A	To explain the basic info or features of the data in a research, provides summaries about the sample and the measures by using simple graphics	Trochim (2021)

		analysis to form the basis of virtually every quantitative analysis of data	
Normality test	skewness and kurtosis between -2 and +2	To check if the data collected from the population is normally distributed. It is critical to be able to come out with the accurate and reliable conclusion about the reality.	Ghasemi and Zahediasl (2012) D'Agostino, et,.al (1990) George and Mallery (2010).
Reliability test	Cronbach's Alpha Score between 0.511 to 0.930	Reliability is the "consistency" or "repeatability" of the value of data which researchers going to measure which in the end will produce similar outcome	Trochim (2006) Taber (2018)
CFA / SEM	CFA	To examine structural validity, be it is unidimensional or multidimensional.	Harrington (2009)
SEM	Sample size is 10 to 20 times of the variables	it estimates the multiple and interrelated dependence in a single analysis (As a rule of thumb is that the	Statistics Solutions (2021)

Table 1: Data Analysis Plan

CHAPTER 4. ANALYSIS, RESULT AND DISCUSSION

4.1 Introduction

In the previous chapter, this paper already discussed research design, research method, procedure and data collection, data collection method, data collection tools, questionnaire development, target population and sampling and data analysis plan. This chapter will be analyzing and discuss the findings from the survey done. Descriptive analysis coupled with statistical methods are used to analyze the conducted survey. By using SPSS v.17, the Reliability and Normality test were performed in the first stage utilizing SPSS 17 and in the later stage, Confirmatory Factory Analysis (CFA) and variance analysis were obtained in the subsequent stage. Structural Equation Model (SEM) was developed using AMOS 20 with maximum likelihood estimation to assess the internal consistency, convergent validity and discriminant validity to determine the overall fit of the measurement model.

4.2 Descriptive Analysis

Descriptive Analysis or Descriptive statistics are used to explain the basic info or features of the data in a research. They provide simple summaries about the sample and the measures by using simple graphics analysis to form the basis of virtually every quantitative analysis of data (Trochim, 2021). In this paper, the basic demographic data gathered from respondents are age, whether or not they play electronic games and gaming platform. According to Trochim (2021), the distribution under Univariate Analysis can be used to explain the basic demographic data and for this research, this technique will be applied to explain the basic demographic data to make it easier for researchers or industry people to understand the scope of this research.

4.2.1 Age Group

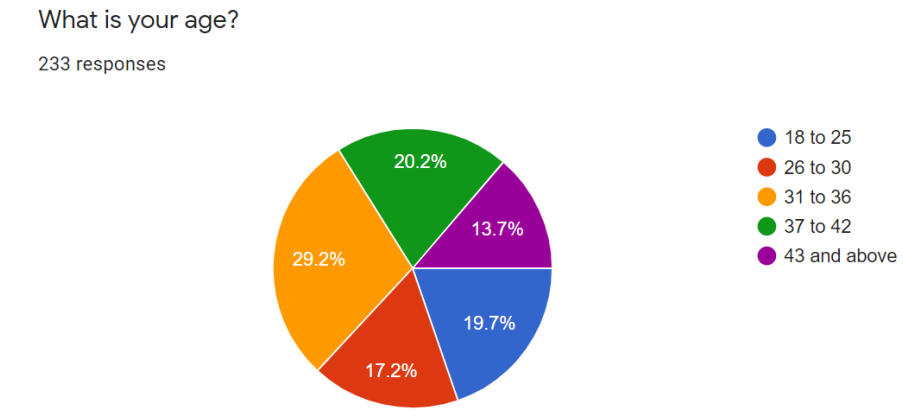


Chart 1: Age Group Distribution of 233 respondents

According to the respondents of this survey as per chart above, the highest age group distribution is respondents from the age from 31 to 36 at 29.2%, then the second highest age group distribution is from the age group from 37 to 42 at 20.2%. The third highest respondent age group distribution is from 18 to 25 at 19.7%. The fourth highest respondent age group distribution is from 26 to 30 at 17.2% and the fifth highest distribution of age group is from 43 and above at 13.7%.

The distribution of the age group according to percentage ranking can also be seen as table below:

No	Age Group	Frequency	Percentage
1	31 to 36	68	29.2%
2	37 to 42	47	20.2%
3	18 to 25	46	19.7%
4	26 to 30	40	17.2%
5	43 and above	32	13.7%
	Total	233	100%

Table 2: Source: Google Form

From the survey results, Malaysia's gaming population is in the age of with stable income and profession. This might indicate the game businesses in Malaysia is profitable since people in the age of 30s tend to be interested to play electronic games.

4.2.2 Play Electronic Game Distribution

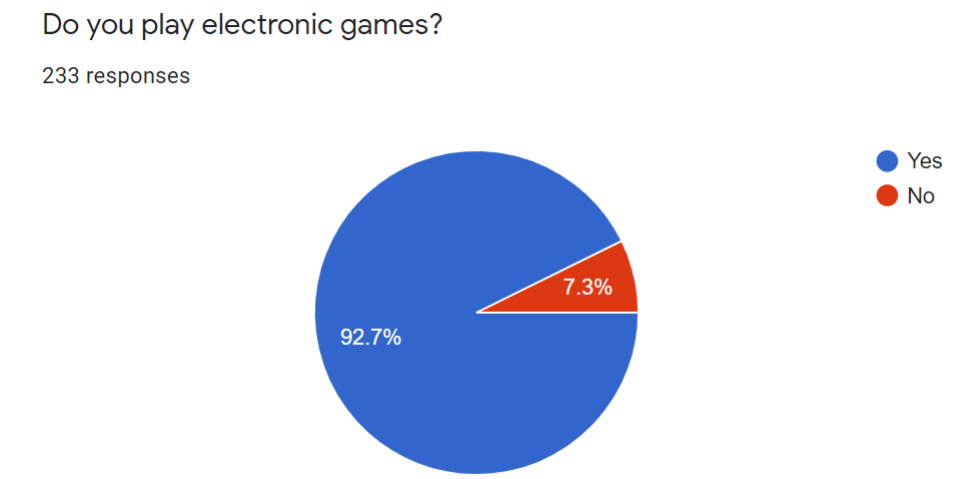


Chart 2: Respondents' feedback on whether or not they play electronic game(s).

According to the survey results from 233 respondents, the majority of the respondents do play electronic game(s) which stands at 92.7% or 216 respondents confirm that they play electronic games while a smaller percentage of the respondents did not play electronic games. The results fulfilled the target set in chapter 2 which to get respond from 200 gamers in Malaysia.

4.2.3 Distribution of preferred gaming platform(s)

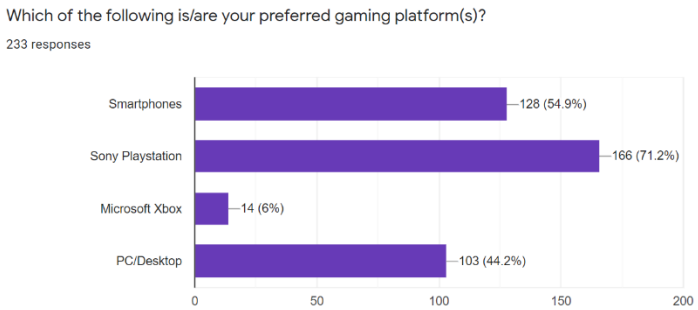


Chart 3: Preferred Gaming Platform(s) in Malaysia

According to survey results, Sony PlayStation is the most preferred gaming platform stands at 71.2%, followed by Smartphones at 54.9%. The third most preferred gaming platform is PC/Desktop stands at 44.2% and lastly Microsoft Xbox at 6%.

4.3 Normality Test

Normality Test is important to check if the data collected from the population is normally distributed and it is critical to be able to come out with the accurate and reliable conclusion about the reality (Ghasemi and Zahediasl, 2012). For sample size more than 50, it is recommended to use D'Agostino K^2 test because of the fine power and also the information supplied on non-normality (D'Agostino, et,.al, 1990). The values for skewness and kurtosis between -2 and +2 are considered acceptable in order to prove normal univariate distribution (George and Mallery, 2010). In this study, Normality Test was done by using statistical software named SPSS.

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
V6	233	1	7	5.73	1.345	-1.199	0.159	1.44	0.318
V7	233	1	7	6	1.173	-1.464	0.159	2.655	0.318
V8	233	1	7	5.99	1.158	-1.42	0.159	2.684	0.318
V9	233	1	7	4.56	1.795	-0.368	0.159	-0.722	0.318
V10	233	1	7	5.88	1.324	-1.227	0.159	1.384	0.318
V11	233	1	7	5.09	1.571	-0.675	0.159	0.013	0.318
V12	233	1	7	5.6	1.368	-1.096	0.159	1.171	0.318
V13	233	1	7	5.46	1.252	-0.737	0.159	0.503	0.318
V14	233	1	7	5.43	1.265	-0.474	0.159	0.007	0.318
V15	233	1	7	4.85	1.893	-0.619	0.159	-0.674	0.318
V16	233	1	7	4.68	1.981	-0.502	0.159	-0.931	0.318
V17	233	1	7	4.05	1.962	-0.073	0.159	-1.087	0.318
V18	233	1	7	4.83	2.073	-0.497	0.159	-1.063	0.318
V19	233	1	7	4.61	2.074	-0.45	0.159	-1.041	0.318
V20	233	1	7	4.93	2.05	-0.694	0.159	-0.744	0.318
V21	233	1	7	4.54	1.411	-0.27	0.159	-0.074	0.318
V22	233	1	7	4.28	1.59	-0.284	0.159	-0.319	0.318
V23	233	1	7	4.52	1.471	-0.276	0.159	-0.17	0.318
V24	233	1	7	6.01	1.291	-1.574	0.159	2.638	0.318
V25	233	1	7	5.31	1.619	-0.85	0.159	-0.002	0.318
V26	233	1	7	5.68	1.585	-1.097	0.159	0.412	0.318
Valid N (listwise)	233								

Table 3: Test of Normality – SPSS

The results from the survey are considered normal distribution after being analyzed using D'Agostino K^2 test because Skewness values are between -2 and +2.

4.4 Reliability Analysis

Reliability analysis is connected to the quality of measurement. Reliability is the "consistency" or "repeatability" of the value of data which researchers going to measure which in the end will produce similar outcome (Trochim, 2006). In this paper, Cronbach's alpha test was used to assess the reliabity of the data. According to Laerd statistics (2018), Cronbach's alpha test is the most common measure of internal consistency and used when there are multiple Likert questions in the survey. The range of the data reliability can be understood through Cronbach's alpha test as per table below:

Cronbach's Alpha Score	Internal Consistency
0.93 – 0.94	Excellent
0.91 – 0.93	Strong
0.84 – 0.91	Reliable
0.81	Robust
0.76 – 0.95	Fairly high
0.73 – 0.95	High
0.71 – 0.90	Good
0.70 – 0.77	Relatively high
0.68	Slightly low
0.67 – 0.87	Reasonable
0.64 – 0.85	Adequate
0.61 – 0.65	Moderate
0.58 – 0.97	Satisfactory
0.45 – 0.98	Acceptable
0.45 – 0.96	Sufficient
0.44 – 0.55	Not satisfactory
0.11	Low

Table 4: Taber (2018)

Reliability Statistics		
Variables	**Number of items**	**Cronbach's Alpha Score**
Challenges	3	0.85
Immersion	3	0.671
Control	3	0.87
Social Interaction	3	0.833
Fantasy	3	0.930
Good Price	3	0.848
Intentions to play	3	0.511

Table 5: SPSS Output on Cronbach's Alpha Score

According to the survey data analyzed by using Cronbach's Alpha, the score of all the variables is between 0.511 to 0.930. The results show the data is within "Acceptable" according to Taber (2018).

4.5 Confirmatory Factor Analysis – Initial Model

In this study, the conceptual model was assessed by using the same set of data. According to Harrington (2009), Confirmatory Factor Analysis can be used to examine structural validity, whether it is unidimensional or multidimensional. This is an important step before hypothesis testing (Anderson and Gerbing, 1988). For the assessment in this paper, AMOS was used as Confirmatory Factor Analysis (CFA) model. AMOS enables maximum likelihood which reduces non-normality effect and employs covariance analysis (Souza and Freitas, 2017).

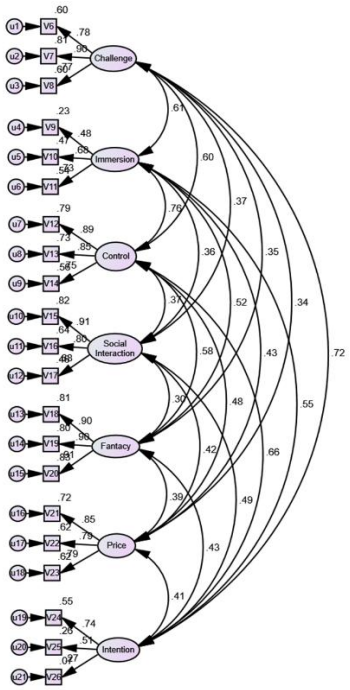


Figure 1: CFA Initial Model

CFA Indicator	Chi Square	GFI	CFI	IFI	TLI	RMSEA
Acceptance value	< 3.00	> 0.9	> 0.9	> 0.9	> 0.9	< 0.08
Default Model Value	2.089	0.874	0.93	0.931	0.92	0.68
Decision	Acceptable	Not acceptable	Acceptable	Acceptable	Acceptable	Acceptable

Table 6: Initial Model Fit Summary

After running the first CFA through AMOS, GFI (the Goodness-of-fit Index) is below 0.9, hence, elimination process need to be conducted to ensure GFI value is as closed to 0.9 or above.

4.5.1 Confirmatory Factor Analysis - Measurement Model with Model Fit

Elimination process was done in the validation initially to get a more accurate result and an acceptable fit. Variables value below 0.5 of the recommended value were removed. The results of CFA as per diagram below (Figure 2). Chi-square value over degree of freedom value between 1 and 3 (X^2/df), CFI (Comparative Fit Index), GFI (the Goodness-of-fit Index), IFI (Incremental Fit Index) of 0.9 equivalent or greater, and finally the equivalent value of 0.08 or lesser of the Root Mean Square Error of Approximation (RMSEA) value were used to specify the acceptable model fit.

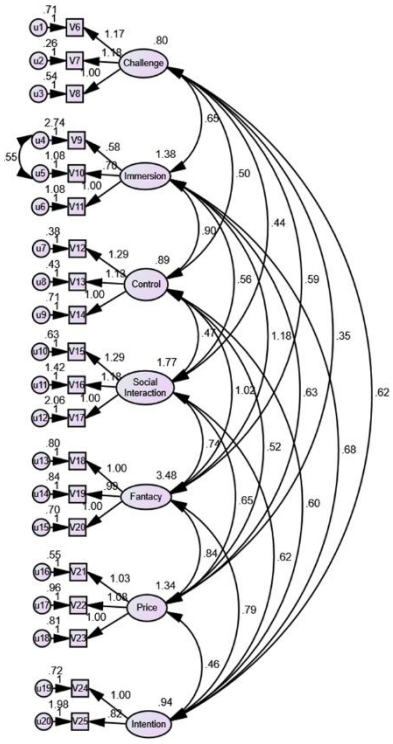


Figure 2: CFA Final Path Diagram

CFA Indicator	Chi Square	GFI	CFI	IFI	TLI	RMSEA
Acceptance value	< 3.00	> 0.9	> 0.9	> 0.9	> 0.9	< 0.08
Default Model Value	2.089	0.883	0.938	0.939	0.92	0.69
Decision	Acceptable	Marginal acceptable	Acceptable	Acceptable	Acceptable	Acceptable

Table 7: Summary of CFA Model Fit Results

According to Table 5 above, out of the six statistical analyses, 5 of them are within the acceptable value range. Only GFI is slightly below the recommended acceptance value. According to Halim

et,.al (2018), if the GFI value is below 0.9 but greater than 0.8, it is classified as marginal acceptable and still acceptable in a study. In the analysis, Chi Square value is 2.089 (acceptable), CFI value is 0.938 (acceptable), IFI value is 0.939 (acceptable), TL value is 0.92 (acceptable), RMSEA value is 0.69 (acceptable) and GFI value is 0.883 (marginal fit/acceptable). Since all the model fit measurement shows acceptable results, hence this study proceeds to hypotheses testing.

4.6 Structure Equation Modelling (SEM)

Structural equation modeling (SEM) is a multiple dependent variables leading to an outcome (multivariate) statistical analysis technique that is used to analyze structural relationships. This technique combines factor analysis and multiple regression analysis. And it is used to analyze the structural relationship between measured variables and latent constructs (variable). Researchers prefer this method because it estimates the multiple and interrelated dependence in a single analysis (Statistics Solution, 2021). As a rule of thumb is that the sample size is 10 to 20 times of the variables (Statistics Solution, 2021). In this study, SEM analysis was done using AMOS v.20 as shown in Figure 2 below.

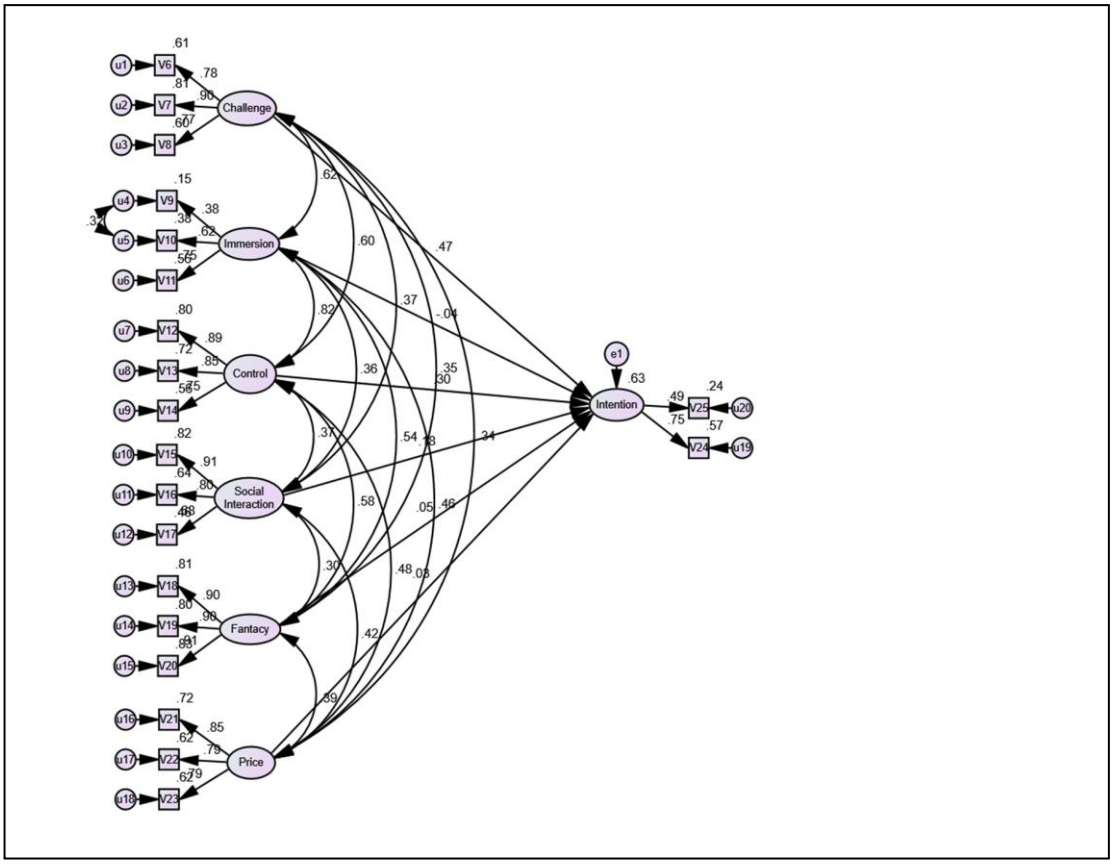


Figure 3. Model Structure Diagram Path

Significant relationships among the latent constructs (variable) are shown based on the significant coefficients from the output revealed above.

CFA Indicator	Chi Square	GFI	CFI	IFI	TLI	RMSEA
Acceptance value	< 3.00	> 0.9	> 0.9	> 0.9	> 0.9	< 0.08
Default Model Value	2.089	0.883	0.938	0.939	0.92	0.69
Decision	Acceptable	Marginal fit	Acceptable	Acceptable	Acceptable	Acceptable

Table 8: SEM Model Fit Summary

Through the analysis, Chi Square value is 2.089 (acceptable), CFI value is 0.938 (acceptable), IFI value is 0.939 (acceptable), TLI value is 0.92 (acceptable), RMSEA value is 0.69 (acceptable) and GFI value is 0.883 (marginal fit). According to Greenspoon & Saklofske (1998), GFI value is considered good fit. The SEM Model Fit results also suggests the model is fit and we can proceed to hypotheses testing.

4.7 Hypothesis Testing Results

Table 9: Standardized Regression Weight of the Model

	Dependent variable		Independent variables	Estimate B	P	Hypothesis Decision
H1	Intention to play	←	Challenge	.468	***	Supported
H2	Intention to play	←	Immersion	-.040	.851	Not supported
H3	Intention to play	←	Control	.298	.104	Not supported
H4	Intention to play	←	Social Interaction	.179	*	Supported
H5	Intention to play	←	Fantasy	.053	.561	Not supported
H6	Intention to play and pay	←	Price	.031	.736	Not supported

***p<.001, *p<0.05

Results in Table 7 shows that proposed hypothesis H1 and H4 were supported. The path coefficient of the hypothesis were H1 (0.468, p<0.01) and H4 were (0.179, p<0.05). H2, H3, H5 and H6 were not supported by this testing.

4.8 Discussion of findings

The data collected had proven to be acceptable and valid after running through a series of tests such as normality test, reliability test, CFA and SEM model fit, and the tests show the outcomes are in an acceptable range.

4.8.1 Summary of hypothesis

H1: Challenge has significant impact on intentions to play

This hypothesis is supported and valid as illustrated in the Table 7. Challenge in an electronic game has positive relationship with intentions to play an electronic game by (β=0.468, $p<0.01$). That means the challenge in an electronic game has 46.8% impact on the intentions to play an electronic game when the challenges in an electronic game increase by 1%. This result is similar to researches which had been conducted by Sweetser and Wyeth (2005) in forming GameFlow model, later on confirmed by A.L Cox, et, .al, (2012) in a research to understand relationship between gamer's cognitive and challenges and finally also confirmed by Souza and Freitas (2017) in the research to understand users' intention to play and pay for electronic games in Brazil. Hence, Challenge in an electronic game is important to influence users' intention to play a specific electronic game and game developer in Malaysia should focus more on designing the challenges in the game. Game developers can refer to GameFlow model designed by Sweetser and Wyeth (2005) to better understand on how to design good challenges in an electronic game to attract more users to play their games. **Therefore, H1 is supported.**

H2: Immersion has significant impact on intentions to play

This hypothesis is not supported as illustrated in the Table 7. The finding shows that Immersion do not have positive relationship with intentions to play an electronic games because the impact is -40% when immersion increase by 85.1% (β=-0.4, $p<0.851$). With that being said, immersion is not important to influence the intention to play an electronic game in context of Malaysia. The reason for this result might due to majority of the respondents were in the age group of 31 to 42 (49.4%), that means they might choose to play an electronic game which is less immersive and more relaxing to balance pleasure time and real world life. This finding is contradictory with results from the Flow Theory by Nakamura, & Csikszentmihalyi (2009), GameFlow model proposed by Sweetser and Wyeth (2005) and Hedonic-Motivation System Adoption Model (HMSAM) by Lowry, et al (2013). To target age group of people above 31, this paper will propose that game developer in Malaysia should not focus on creating an electronic which is too immersive because it could deter potential users within this age group to play. **Therefore, H2 is not supported.**

H3: Control has significant impact on intentions to play

This hypothesis is not supported as illustrated in the Table 7. The finding show that Control is not an attribute of an electronic game that has positive relationship with intentions to play an electronic game because the impact is only 29.8% when this attribute increase by 10.4% (β=0.298, $p<0.104$). Hence, in the context of Malaysia, Control in an electronic game doesn't impact the intentions to play an electronic game. This finding is contradictory with the Flow Theory proposed by Nakamura, and Csikszentmihalyi (2009), Toprac (2013) and also a study in Jakarta by Stefany (2014). The

different might due to the respondents' preference on the gaming platforms are varies in this survey. The preferences are smartphones (54%), console (77%) and PC/Desktop platform (44%) from the 233 respondents. Moreover, the previous research were done in 2009, 2013 and 2014 respectively and back then, smartphones as a gaming platforms was not popular or available in certain countries. Smartphones' user preference might have caused the different results compared to previous studies. **Therefore H3 is not supported.**

H4: Social Interaction has significant impact on intentions to play

This hypothesis is supported as illustrated in the Table 7. The finding shows that Social Interaction is an attribute of electronic games that has positive relationship with users' intentions to play electronic games because the impact increase 17.9% when this attribute only increase by 5% (β=0.179, p<0.036). This finding is consistent with GameFlow Model proposed by Sweetser and Wyeth (2005), user's intention to play and pay for electronic games in Brazil by Souza and Freitas (2017) and another study on Pokémon GO games in Malaysia by E. Ghazali, et al (2019). From this finding, it is recommended to game developer in Malaysia to focus on social interaction attributes when designing their electronic games. Social interaction can include chat, guild/clan, friendship, private chat and also integration of social media such as Facebook, Instagram or YouTube features into the electronic games. **Therefore H4 is supported.**

H5: Fantasy has significant impact on intentions to play

This hypothesis is not supported as illustrated in the Table 7. The finding shows that Fantasy does not have has positive relationship with intentions to play an electronic game because the impact is only 5.3% when this attribute increase by 56.1% (β=0.053, p<0.561). This finding is not consistent with study done by Souza and Freitas (2017) in Brazil on the users' intentions to play and pay for electronic games, GameFlow model proposed by Sweetser and Wyeth (2005) and also a separate study conducted by Stefany (2014). Hence, Fantasy is not an attribute which can significantly impact users' intention to play an electronic games in Malaysia. The inconsistency with the previous studies might due to respondents for this study coming from age group ranging from 31 to 42. Respondents within this age group normally have steady work and choose to play games which is more relaxing and casual which lack of fantasy elements in the game. Hence, game developers in Malaysia, should they are targeting age group 31 and above, they can emphasize less on the fantasy because it won't have significant impact on the intentions to play. **Therefore, H5 is not supported.**

H6: Good Price has significant impact on intentions to play and pay.

This hypothesis is not supported as illustrated in the Table 7. The finding shows that Good Price does not have has positive relationship with intentions to play and pay for an electronic game because the impact is only 3.1% when this attribute increase by 73.6% (β=0.031, p<0.736). The finding is not consistent with studies did by Stefany (2014), S. Rezaeia and S.S. Ghodsi (2014) and Hsiao & Chen (2016). The inconsistency might due to high number of respondents contributed to the survey have preferences to play electronic games through console (77%) such as Sony PlayStation and Xbox. In console gaming, users need to purchase the game before they can play which means price do not affect their intentions to play. However, in the research conducted by Stefany (2014), S. Rezaeia and S.S. Ghodsi (2014) and Hsiao & Chen (2016), they focused on FREE to Play games either on PC/Desktop or smartphones. And in the previous researches, the

respondents can enjoy the game first before deciding to do purchase in the game. Hence, in the overall electronic games context of Malaysia, price do not trigger intentions to play and pay. It is recommended to focus less on the pricing if they decided to offer paid per download model because it won't have the significant impact on the intentions to play and pay. **Therefore, H6 is not supported.**

Chapter 5. Conclusion and Recommendations

5.1 Conclusion

This section focuses on the objectives stated in Chapter 1 in order to discuss and draw conclusion on the positive relationship of independent variables (challenge, immersion, control, social interaction, fantasy and good price) on users' intentions to play and pay for online electronic games in Malaysia after conducting various tests in Chapter 4 with the data collected from 233 respondents.

The objective of this paper is to analyze the electronic game attributes that influence consumers' intentions to play and to pay for electronic games in Malaysia. To achieve the objective, previous studies was examined and confirmed attributes which were challenge, immersion, control, social interaction, fantasy and good price used to analyze the users' intentions in Malaysia. By analyzing the relationship between the variables and intentions to play and pay, we are able to answer:

1. Which attributes of electronic games has significant impact on intentions to play?

According to analysis done in Chapter 4, Challenge and Social Interaction have positive relationship with intentions to play electronic games in Malaysia. **Challenge** in electronic games can be understood as the interaction that the games required the players to complete with certain cognitive ability which can be acquired through previous experience or learn from others (A.L Cox, et, .al, 2012). There are 4 game challenge factors namely physical, analytical, socio-economical and insight (Vahlo and Karhulahti, 2020). Game developers in Malaysia can put more resources to design a complete challenge system in electronic games to trigger the users' intentions to play the electronic game. Moreover, it is understandable that if an electronic game is lack of challenge, then the game users will get bored and will not have intentions to play the game further. From users' perspective game developers can enhance the problem solving, precision, fast reaction, finding hidden object, pattern recognition, dexterity, master complex elements among others to create challenging environment in the game which will eventually influence the users' intention to play (Vahlo and Karhulahti, 2020). Through data collected from this survey, the impact of challenge as an attribute on the intentions to play is very significant 36.9% of 233 respondents agreed that they feel proud when they master an aspect in an electronic game, 42.5% of 233 respondents agreed that they find it is very rewarding when they can proceed to the next level in the game and 42.1% of the 233 respondents enjoy to find a creative way to solve challenges in electronic games. All the previous studies done by A.L Cox, et, .al (2012), Souza and Freitas (2017) and Sweetser and Wyeth (2005) also supported this conclusion. According to Souza and Freitas (2017), challenge in the game will eventually result fun in the game if this attribute is designed properly and game developers can follow the GameFlow model to design a good challenge scenario in the game. Hence, game

developer in Malaysia must design a holistic game challenge in order to trigger users' intentions to play their electronic games. This attribute can apply for all electronic games across all platforms.
Social Interaction in an electronic games can be understood as the game can allow users to know each other, obtain information about the contents and also communicate with other users. This variable does not include competitive environment between users of the electronic but emphasize more on cooperation in the electronic games (Souza and Freitas, 2017). In the 3 survey questions related to social interaction and play game intentions, 24.9% of the respondents strongly agree that they play electronic to gather with friends, 24% strongly agree that they always spend time playing together and 15% strongly agree that they play electronic games to relate to other people. From the previous studies and results from data collected in this paper, game developers in Malaysia should design their game with complete social interaction features. Lacking of this attribute will make an electronic game less appealing to users and social interaction can also be a feature that helps game developers to acquire more users organically. Social interaction does not only create an intention for users to play an electronic game, but also it is a feature that helps to create long lasting community within the game (University of Jyvaeskylae, 2007). With long lasting community, an electronic game will have better chance to generate long term revenue due to long life cycle of the electronic game. One good example is World of Warcraft, this electronic game was launched in 2004 by Blizzard Entertainment and still have millions of users worldwide after 15 years of operation. The long lasting popularity is due to Blizzard Entertainment able to create amazing social interaction in the game, which resulted strong game community sustainability (The Game Haus Staff, 2021). Hence, social interaction is a significant attribute of electronic games that game developers in Malaysia shall focus while designing their contents to trigger the intentions to play electronic games.

Immersion, control, and fantasy on the other hands are not significant game attributes that will impact the intention to play an electronic game in Malaysia. **Immersion** in the context of Malaysia electronic games market is not a significant attributes relate to intention to play. From the data collected for this paper, 21% of the 233 respondents showed neutral reaction on this attribute when answering the questions if they felt less worried when playing electronic games and 30% somehow agree that they have emotional feeling for the electronic games but 45.5% of the respondents strongly agreed that they felt time pass faster while they are playing electronic games. While this attribute may not a very significant to impact users' intentions to play an electronic in Malaysia, in other studies conducted, this attribute has shown positive relationship including GameFlow model by Sweetser and Wyeth (2005) and users' intention to play and pay for electronic games in Brazil by Souza and Freitas, 2017. Hence, game developers in Malaysia can focus less on this attribute while designing their contents, however, they should not totally discount this attribute from their electronic games. **Control** in the context of Malaysia electronic games market is not a significant attribute which has strong impact on the intentions to play an electronic games. From the data collected from the survey, 31.3% respondents strongly agreed that they feel sense of control over characters or units in the game. However, on the other 2 questions, 29.6% and 28.3% only somehow agreed that they felt sense of control on game interface and input devices and over the game shell respectively. This result again is varies from GameFlow model proposed by Sweetser and Wyeth (2005). The different result can be explained from 2 perspective. First, smartphone as gaming platform is not available in 2005 when Sweetser and Wyeth designed GameFlow model and the rise

of smartphones as gaming platform has definitely change the consumer behavior all together because many manual controllable action has been automated in smartphones' games, so users are not necessary need to have good manual control to play the electronic games. Second, control is an attribute that users define very individually, meaning what is good for one person, does not mean it is as good for the others. That explain why the respondents' feedback on the control questions are so mixture. While control has not shown significant impact of intentions to play, game developers in Malaysia cannot totally discount this attribute from the game design plan. Because there are many studies conducted in other countries suggested control is a significant attribute to influence users' to play. **Fantasy** in this study doesn't show significant impact on the users' intentions to play in Malaysia. This attribute had shown positive relationship with intentions to play through studies done by Souza and Freitas (2017) in Brazil, stated in GameFlow model by Sweetser and Wyeth (2005) and Stefany (2014) in Indonesia. GameFlow model was designed in 2005 and smartphones as gaming platform was not available back then. Most of the gamers in 2005 or before, were either playing electronic games through PC/Desktop or console. And the game content and design were not as simplified as currently available in smartphones, therefore, fantasy is significant to users' to trigger the intention to play. However, with the rise of smartphones as gaming platform, users do not see fantasy as important anymore because smartphones screen cannot accommodate a scenario where fantasied experience which can attract users to fantasize about the electronic games. Moreover, there are many game titles published in Malaysia were developed by overseas studios with the storyline familiar by western market and Malaysians normally play those game based on worldwide popularity rather than familiar fantasy. This also explains why fantasy has not been seen as important from Malaysia users' perspective. Hence, game developers in Malaysia can save resources allocated to create a complete fantasy experience in the game. However, since this attribute was supported in previous research, game developers cannot totally discount this attribute from their game design plan.

2. Does Good Price has significant impact on intentions to play and pay for electronic games?

Good price in this study doesn't show strong impact on intentions to play electronic games in Malaysia. This result is contradictory with Hsiao and Chen (2016) research results in Taiwan on a game named Tower of Savior and the result from Stefany (2014) in a study conducted in Indonesia on an online game called Perfect World. The inconsistent result obtained is due to type of respondents reached out for our studies. In Taiwan, Hsiao and Chen (2016), the respondents were users of Tower of Savior which already playing and paying for the games and similarly in Indonesia, Stefany (2014) reached out to Perfect World users who already had been playing and paying for the game. However, in this paper, there is no specific game title respondents required and the respondents for this survey majority came from console gaming and in console gaming environment, users are required to purchase the electronic games that they intend to play unlike Tower of Savior and Perfect World research conducted by Hsiao and Chen (2016) and Stefany (2014) respectively which emphasize on freemium business model. In conclusion, game developers in Malaysia can put lesser focus on the pricing if they were to design electronic games for console gaming platforms, however, when it comes to freemium business model game, game developers need to be careful and should not totally discount the good price because in other research this attribute showed significant impact on users' intention to pay for the electronic games.

5.2 Research limitations

This study has been conducted following the right research methodology, however, there are limitations to this study. First limitation is the sample size and selection. In conducting this research, the selection of sample was very generic, therefore, the result is good to give an overall picture of Malaysia consumer behavior on intentions to play and pay for electronic games, but a narrowed research need to be done if we were to know consumer behavior in a specific gaming platforms or genre of an electronic games. From the data collected, we find that consumer behavior is varies among the gaming platform. This study is based on 233 respondents in Malaysia and bigger sample size is required to show more accurate picture of consumer behavior on intentions to play and pay for electronic games in Malaysia. Second limitation is this study only conducted for Malaysia market, hence, the results cannot be used as guideline for other gaming development project in the world. Third limitation is the data collection method was purely depending on Google Form online distribution due to Covid-19 epidemic in Malaysia. With only pure online data collection, we cannot validate the sample (Wright, 2017). All the previous research collected the data with the mixture of online and on-ground to minimize the error of the sample selection. Fourth limitation is the too little users' demographic data was collected. This survey only collected 3 users' demographic data which are users' preference in selecting gaming platform, age group, and if they play electronic games. Hence, there are many potential useful outcome from this survey cannot be analyzed. Fifth limitation is time constraint. The time frame given to complete this paper is less than 3 months and it is definitely not enough to come out with a concrete research result. Sixth limitation is this study only focus on six variables which are still not enough. In the study conducted by Souza and Freitas (2017) in Brazil, they researched on 9 variables and 3 of them were not supported, hence, this paper did not include the 3 variables namely competition, arousal and time flexibility. However, the end result is very much different from the study in Brazil suggests that gaming consumer behavior in Malaysia is different from the rest of the world. A thorough study and analysis will make the picture clearer.

5.3 Recommendations for future research.

For the future study to understand electronic game market in Malaysia on the intentions to play and pay, it is recommended researchers pick a specific gaming platform for the study. By doing so, we will find out the exact consumer behavior on intentions to play and pay in the context of Malaysia gaming market for the gaming platform. It is also recommended for future researchers to include more users' demographic such as play game frequency, income group, gender, the state (town), and amount spent for electronic games. By having this info, the result from the research is more complete and useful to demonstrate the gaming landscape in Malaysia. It is also recommended for future study to collect data from electronic games events in Malaysia such as Anime Fiesta and KL Level Up by MDEC. The data collection from these sources could not be done this time around due to Covid-19 epidemic and should be done in the future study. More variables also should be included in the future study in this topic such as fun, competition, time flexibility, arousal, and graphical to better understand consumer behavior on users' intentions to play and pay for electronic games in Malaysia.

REFERENCES:

April Tyack and Peta Wyeth (2017). Exploring Relatedness in Single-Player Video Game Play. Association for Computing Machinery, pp. 422-427. Available at: https://doi.org/10.1145/3152771.3156149

Ajzen, Icek (1991). The theory of planned behavior. Organizational Behavior and Human Decision Processes, volume 50 (No. 2), pp.179–211. https://doi:10.1016/0749-5978(91)90020-T

Alexandra To, Safinah Ali, Geoff Kaufman and Jessica Hammer (2016). Integrating Curiosity and Uncertainty in Game Design. Proceedings of 1st International Joint Conference of DiGRA and FDG. Available at: http://www.digra.org/wp-content/uploads/digital-library/paper_428.pdf

Asghar Ghasemi and Saleh Zahediasl (2012). Normality Tests for Statistical Analysis: A Guide for Non-Statisticians. Int J Endocrinol Metab, volume 10 (No. 2), pp. 486-489. Available online: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3693611/

Anna L Cox, Paul Cairns, Pari Shah and Michael Carroll (2012). Not Doing But Thinking: The Role of Challenge in the Gaming Experience. Session: Game Experiences, pp. 79-88. Available at: https://www-users.cs.york.ac.uk/~pcairns/pubs/Cox_CHI2012.pdf

Ankita Agarwal and Priya Chetty (2019). Use of Hawkins Stern's impulse buying theory (1962) in online shopping. Project Guru. Available at: https://www.projectguru.in/hawkins-sterns-impulse-buying-theory-online-shopping/

Ahmet Uysal and Irem Gokce Yildirim (2016). Self-Determination Theory in Digital Games. Research Gate. Chapter 8, pp. 123-135. Available at: https://www.researchgate.net/publication/303948263_Self-Determination_Theory_in_Digital_Games

A.C Morales, On Amir and Leonard Lee (2017). Keeping It Real in Experimental Research—Understanding When, Where, and How to Enhance Realism and Measure Consumer Behavior. Journal of Consumer Research, volume 44 (Issue. 2), pp. 465–476. Available at: https://doi.org/10.1093/jcr/ucx048

A.S Bastos, R.F Gomes, C.C. d Santos, J.G.R Maia (2017). Assessing the Experience of Immersion in Electronic Games. 2017 19th Symposium on Virtual and Augmented Reality. IEEE, pp.146-154. Available at: https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=8114431

All Correct Group (2017). MALAYSIA MOBILE GAME MARKET. Available at: https://allcorrectgames.com/insights/mobile-game-market-index/malaysia/

Alzhahari, et,.al (2017). Extending the theory of planned behavior (TPB) to explain online game playing among Malaysian undergraduate students. Telematics and Informatics. Volume 34 (Issue

4), pp. 239-251. Available at: https://doi.org/10.1016/j.tele.2016.07.001
Csikszentmihalyi, M. (2000). Beyond boredom and anxiety. Jossey-Bass. Available at: http://psycnet.apa.org/psycinfo/2000-12701-000

Bright Black (2019). Why Copying Hit Games Usually Fails and What to Do Instead. Available online: http://brightblack.co/blog/copying-hit-games

Creswell, J. W. (2013). Research design: Qualitative, quantitative, and mixed methods approaches. Sage publications.

Davidovici-Nora, Myriam (2014). Paid and Free Digital Business Models Innovations in the Video Game Industry. Digiworld Economic Journal, No. 94, p.83, Available at SSRN: https://ssrn.com/abstract=2534022

Deci, E. L., and Ryan, R. M. (2008). Facilitating optimal motivation and psychological well-being across life's domains. Can. Psychol, volume 49, pp.14–23. Available at: https://doi:10.1037/0708-5591.49.1.14

Deci, E. L., & Ryan, R. M. (1985). The general causality orientations scale: Self-determination in personality. Journal of research in personality, 19(2), 109-134. Available at: http://www.sciencedirect.com/science/article/pii/0092656685900236

Digital News Asia (2019). MDEC: Malaysian video games sector is maturing into adulthood. Available at: https://www.digitalnewsasia.com/digital-economy/mdec-malaysian-video-games-sector-maturing-adulthood

Doswell, Willa; Braxter, Betty; Cha, EunSeok; Kim, Kevin (2011). Testing the Theory of Reasoned Action in Explaining Sexual Behaviour among African American Young Teen Girls. Journal of Pediatric Nursing, volume 26 (No. 6), pp.45–54. https://doi:10.1016/j.pedn.2011.03.007

Greenspoon, P. J., & Saklofske, D. H. (1998). Confirmatory factor analysis of the multidimensional Students' Life Satisfaction Scale. Personality and Individual Differences, volume 25(No. 5), pp. 965–971. https://doi.org/10.1016/S0191-8869(98)00115-9

Forbes (2018). The Key To A Marketer's Success: Understanding Consumer Motivations. Available at: https://www.forbes.com/sites/forbescommunicationscouncil/2018/04/19/the-key-to-a-marketers-success-understanding-consumer-motivations/#2936bfac71ee

Gamastura (2017). A Quick Breakdown of Self-Determination Theory. Available at: https://www.gamasutra.com/blogs/TravisMeador/20171204/310900/A_Quick_Breakdown_of_SelfDetermination_Theory.php

George, D. & Mallery, M. (2010). SPSS for Windows Step by Step: A Simple Guide and Reference, 17.0 update (10a ed.) Boston: Pearson.

Griffiths, Robert & Eastin, Matthew & Cicchirillo and Vincent. (2015). Competitive Video Game Play. Communication Research. Available at: https://www.researchgate.net/publication/272377211_Competitive_Video_Game_Play

Ghazali, E., Mutum, D.S. and Woon, M.-Y. (2019), "Exploring player behavior and motivations to continue playing Pokémon GO", Information Technology & People, volume. 32 (No. 3), pp. 646-667. https://doi.org/10.1108/ITP-07-2017-0216

Healthline (2019). Intrinsic Motivation: How to Pick Up Healthy Motivation Techniques. Available at: https://www.healthline.com/health/intrinsic-motivation

Henry, Gary T. (1990). Practical sampling ([10. Nachdr.] ed.). Newbury Park: Sage Publications. ISBN 978-0803929586.

Jonathan K. Halim, Silvia Margaretha and Christina R. Honantha (2018). Consumer's response to e-mail advertisement from tour and travel agency in Indonesia. Advances in Social Science, Education and Humanities Research (ASSEHR), volume 186, pp. 162-165. Available online: https://www.atlantis-press.com/article/25892030.pdf

Jukka Vahlo and Veli-Matti Karhulahti (2020). Challenge types in gaming validation of video game challenge inventory (CHA). International Journal of Human-Computer Studies, volume 143, ISSN 1071-5819, pp. 1-13. Available online: https://doi.org/10.1016/j.ijhcs.2020.102473

Joshi, A., Kale, S., Chandel, S., & Pal, D. K. (2015). Likert Scale: Explored and Explained. Current Journal of Applied Science and Technology, volume 7(No. 4), pp.396-403. Available at: https://doi.org/10.9734/BJAST/2015/14975

Jurate Banyte and Agne Gadeikiene (2015). The effect of consumer motivation to play games on video game-playing engagement. Procedia Economics and Finance, volume 26, pp. 505-514. Available at: https://core.ac.uk/download/pdf/82392245.pdf

Kevin B. Wright (2017). Researching Internet-Based Populations: Advantages and Disadvantages of Online Survey Research. Online Questionnaire Authoring Software Packages, and Web Survey Services. Journal of Computer-Mediated Communication, volume 10 (Issue 3), JCMC1034. Available online: https://doi.org/10.1111/j.1083-6101.2005.tb00259.x

K.L. Hsiao and C.C. Chen (2016). What drives in-app purchase intention for mobile games? An examination of perceived values and loyalty. Electronic Commerce Research and Applications, volume 16, pp.18-29. Available at: https://dl.acm.org/doi/10.1016/j.elerap.2016.01.001

Kaspars Viksne, Jelena Salkovska, Elina Gaitniece and Ieva Puke (2016). COMPARATIVE ANALYSIS OF CUSTOMER BEHAVIOUR MODELS. Proceedings of the 2016 International Conference "ECONOMIC SCIENCE FOR RURAL DEVELOPMENT" No 43, pp. 231-231.

Available at: https://pdfs.semanticscholar.org/f68e/d2eabe8e6f8e2f783261cb4801ab94527b56.pdf

Lin, H. H., Wang, Y. S., & Chou, C. H. (2012). Hedonic and utilitarian motivations for physical game systems use behavior. International Journal of Human-Computer Interaction, 28, 445-455. https://doi: 10.1080/10447318.2011.618097

Lisa Legault (2016). Intrinsic and Extrinsic Motivation. Springer International Publishing AG 2016. V. Zeigler-Hill, T.K. Shackelford (eds.), Encyclopedia of Personality and Individual Differences. Available at: https://doi.org/10.1007/978-3-319-28099-8_1139-1

L.L. Souza and A.A, Freitas (2017). Consumer behavior of electronic games' players: a study on the intentions to play and to pay. Management Journal. Revista de Administracao, volume 52, pp. 419-430. Available at: https://www.sciencedirect.com/science/article/pii/S0080210717301838

Liam Murray and John Maher (2011). The Role of Fantasy in Videogames: A Reappraisal. Journal for computer game culture, volume 5 (No.1), pp.45-77. Available at: https://www.eludamos.org/index.php/eludamos/article/view/vol5no1-4/html4
Lafreniére M.A., Verner-Filion J., Vallerand R.J (2012). Development and validation of the Gaming Motivation Scale (GAMS). Personality and Individdual Differences, volume 53 (Issue 7), pp. 827-831. Available at: https://doi.org/10.1016/j.paid.2012.06.013

Leon Schiffman and Leslie Kanuk (2010). Consumer Behavior, 10th Edition. Pearson.

Laerd statistics (2018). Cronbach's Alpha (α) using SPSS Statistics. Available online: https://statistics.laerd.com/spss-tutorials/cronbachs-alpha-using-spss-statistics.php#:~:text=Cronbach's%20alpha%20is%20the%20most,if%20the%20scale%20is%20reliable

Malaysia Investment Development Authority (2020). The Gaming Industry: A New Game of Growth. Available at: https://www.mida.gov.my/home/-the-gaming-industry:-a-new-game-of-growth/posts/#:~:text=In%202018%2C%20the%20Gaming%20Industry,of%20USD168%20million%20by%202023

Maslow, Abraham (1993). The Farther Reaches of Human Nature. Arkana. p. 128. ISBN 978-0140194708.

Newzoo (2020). The World's 2.7 Billion Gamers Will Spend $159.3 Billion on Games in 2020; The Market Will Surpass $200 Billion by 2023. Available at: https://newzoo.com/insights/articles/newzoo-games-market-numbers-revenues-and-audience-2020-2023/

Newzoo (2020). Insights into Malaysia's Games Market and Its Gamers. Available at:

https://newzoo.com/insights/articles/insights-into-malaysias-games-market-and-its-gamers/

OHIO University (2020). Four Consumer Behavior Theories Every Marketer Should Know. Available at: https://onlinemasters.ohio.edu/blog/four-consumer-behavior-theories-every-marketer-should-know/#:~:text=Motivation%2DNeed%20Theory&text=The%20needs%20include%2C%20in%20order,consumers%20in%20a%20particular%20way.

Pang, et,.al (2017). Students' Experiential Motives and Intention to Play Online Games. Handbook of Research on Leveraging Consumer Psychology for Effective Customer Engagement. IGI Global, pp. 14. Available at: https://www.igi-global.com/gateway/chapter/160466

Peracchia, S., Presaghi, F., & Curcio, G. (2019). Pathologic Use of Video Games and Motivation: Can the Gaming Motivation Scale (GAMS) Predict Depression and Trait Anxiety? International journal of environmental research and public health, volume.16 (No.6), 1008. Available at: https://doi.org/10.3390/ijerph16061008

Paul B. Lowry, James Gaskin, Nathan W. Twyman, Bryan Hammer, and Tom L. Roberts (2013). "Taking 'fun and games' seriously: Proposing the hedonic-motivation system adoption model (HMSAM)," Journal of the Association for Information Systems (JAIS), volume 14(No. 11), pp.617–671. Available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2177442

QuestionPro (2020). Quantitative Research: Definition, Methods, Types and Examples. Available at: https://www.questionpro.com/blog/quantitative-research/

Richard M. Ryan and Edward L. Deci (2000). Intrinsic and Extrinsic Motivations: Classic Definitions and New Directions. Contemporary Educational Psychology, volume 25, pp.54-66. Available at: https://doi.org/10.1006/ceps.1999.1020

R. Hulaj, M.B.T. Nystrom, D.E. Sorman, C. Backlund, S. Rohlcke and B. Jonsson (2020). A Motivational Model Explaining Performance in Video Games. Frontier in Psychology. Human-Media Interaction, volume 11 (Article 1510), pp.1-12. Available at: https://doi.org/10.3389/fpsyg.2020.01510

Nakamura, J., & Csikszentmihalyi, M. (2009). Flow theory and research. Handbook of positive psychology, 195-206. Available at: https://books.google.com.au/books?hl=en&lr=&id=6IyqCNBD6oIC

S. Rezaeia and S.S. Ghodsi (2014). Does value matters in playing online game? An empirical study among massively multiplayer online role-playing games (MMORPGs). Computer in Human Behavior. Volume 35, pp. 252-266. Available at: https://doi.org/10.1016/j.chb.2014.03.002

Rachel Ashman, Michael R. Solomon and Julia Wolny (2015). An old model for a new age: Consumer decision making in participatory digital culture. Journal of Customer Behaviour, Volume 14 (No. 2), pp. 127-146. Available at: https://doi.org/10.1362/147539215X14373846805743

Robert Mitchell, Lisa Schuster and Hyun Seung Jin (2020). Gamification and the impact of extrinsic motivation on needs satisfaction: Making work fun? Journal of Business Research. Volume 106, pp. 323-330. Available at: https://www.sciencedirect.com/science/article/pii/S0148296318305745

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. American Psychologist, 55(1), 68–78. Available at: http://psycnet.apa.org/journals/amp/55/1/68/

Ralph B. D'Agostino, Albert Belanger and Ralph B. D'Agostino, Jr (1990). A Suggestion for Using Powerful and Informative Tests of Normality. The American Statistician, volume 44 (No. 4), pp. 316-321. Available online: https://doi.org/10.2307/2684359

Sadan V. (2017). Data collection methods in quantitative research. Indian J Cont Nsg Edn [serial online] [cited 2021 May 15]; volume 18, pp. 58-63. Available from: https://www.ijcne.org/text.asp?2017/18/2/58/28627

Sebastian Deterding (2016). Contextual Autonomy Support in Video Game Play:
A Grounded Theory. Designing New Player Experiences. Available at: https://www.researchgate.net/publication/303653697_Contextual_Autonomy_Support_in_Video_Game_PlayA_Grounded_Theory

Statistics Solutions (2021). Structural Equation Modeling. Available online: https://www.statisticssolutions.com/structural-equation-modeling/#:~:text=Structural%20equation%20modeling%20is%20a,measured%20variables%20and%20latent%20constructs

Sisca Stefany (2014). The effect of motivation on purchasing intention of online games and virtual items provided by online game provider. International Journal of Communication & Information Technology (CommIT), volume.8 (No.1), pp. 22-27. Available at: https://www.researchgate.net/publication/305229542_THE_EFFECT_OF_MOTIVATION_ON_PURCHASING_INTENTION_OF_ONLINE_GAMES_AND_VIRTUAL_ITEMS_PROVIDED_BY_ONLINE_GAME_PROVIDER

Sharan Shodhan (2017). Intrinsic vs Extrinsic Motivation in Games. Medium.com. Available at: https://medium.com/@SharanShodhan/intrinsic-and-extrinsic-motivation-in-games-a8bbc06aac4

Shields, Patricia and Rangarajan, N. (2013). A Playbook for Research Methods: Integrating Conceptual Frameworks and Project Management. Stillwater, OK: New Forums Press. See Chapter 4 for an in-depth discussion of descriptive research.

Taber, K.S. (2018) The Use of Cronbach's Alpha When Developing and Reporting Research Instruments in Science Education. Research in Science Education, volume 48, pp.1273–1296.

Available online: https://doi.org/10.1007/s11165-016-9602-2

The Game Haus Staff (2021). Why is WoW Still So Popular? Available online: https://thegamehaus.com/gaming/why-is-wow-still-so-popular/2021/02/10/#:~:text=World%20of%20Warcraft%2C%20or%20WoW,high%20for%20over%20fifteen%20years.

Toprac, Paul (2013). The Psychology of Control and Video Games. McFarland and Company. Chapter2, pp.21-33. Available at: https://www.researchgate.net/publication/288841120_The_Psychology_of_Control_and_Video_Games

The Ethics of Social Research. Chapter 4. Why is Ethical Practice Important? Available online: https://www.sagepub.com/sites/default/files/upm-binaries/34088_Chapter4.pdf

Trochim, W., (2021). Descriptive Statistics. [Online] Conjointly.com. Available at: <https://conjointly.com/kb/descriptive-statistics/> [Accessed 1 May 2021].

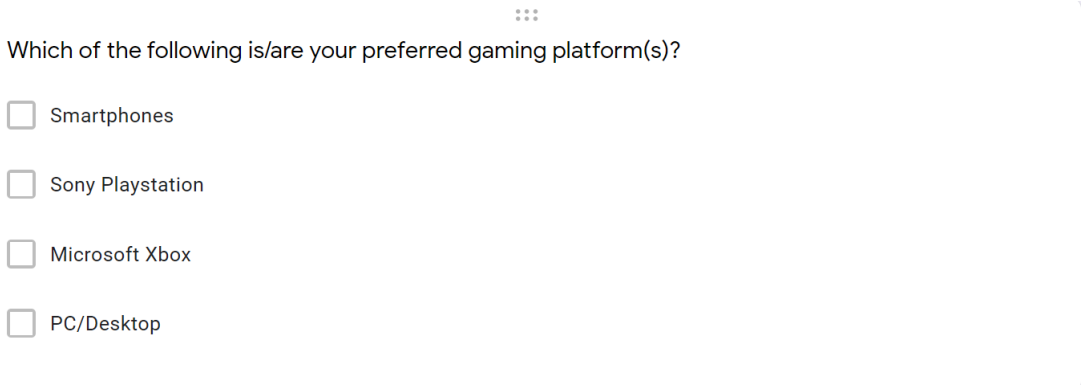
University of Jyvaeskylae. (2007, September 20). How Does Online Gaming Affect Social Interactions? ScienceDaily. Retrieved May 11, 2021 from www.sciencedaily.com/releases/2007/09/070915110957.htm

William Trochim, K.M. (2006) Types of Reliability. Research Methods Knowledge Base, Web Center for Social Research Methods. http://www.socialresearchmethods.net/kb/reltypes.php

Y. Zhang and W. Huang (2019). The Research on Consumer Behavior of Online Games and Its Influencing Factors. MATEC Web of Conferences 267, volume 3, pp. 1-5. Available at: https://doi.org/10.1051/matecconf/201926704010

Appendix A

1.1 Research Questionnaire



Section 1 of 5

A Study of Consumers' Intentions to Play and to Pay for Electronic Games in Malaysia

Dear respondent,

I hereby seek for your consent in completing the online survey below. This work will investigate the intention of Malaysians in general to play and to pay for electronic games. This survey is conducted in partial fulfillment of the award of MBA from University of Suffolk and Perdana University. The data collected via this survey will be kept confidential, anonymous and will be used for academic purposes only. Thank you in advance for your participation and assistance.

There are 4 sections in this survey:

1. Basic information
2. Reasons to play electronic games
3. Reasons to pay for electronic games
4. Willingness to play electronic games

Do you participant in this survey voluntarily? *

- Yes
- No

Section 2 of 5

Basic User's Demographic

Age, Electronic Game and preferred gaming platform

What is your age? *

- 18 to 25
- 26 to 30
- 31 to 36
- 37 to 42
- 43 and above

Do you play electronic games? *

- Yes
- No

Which of the following is/are your preferred gaming platform(s)?

- [ ] Smartphones
- [ ] Sony Playstation
- [ ] Microsoft Xbox
- [ ] PC/Desktop

Section 3 of 5

Reasons to play electronic games

Challenges in the virtual world, immersive experience, control level in the game, social interaction and fantasy in the game.

I feel proud when I master an aspect of an electronic game *

	1	2	3	4	5	6	7	
Strongly disagree	○	○	○	○	○	○	○	Strongly agree

I find it very rewarding to get to the next level of an electronic game *

	1	2	3	4	5	6	7	
Strongly disagree	○	○	○	○	○	○	○	Strongly agree

I enjoy finding new and creative ways to work through an electronic game *

	1	2	3	4	5	6	7	
Strongly disagree	○	○	○	○	○	○	○	Strongly agree

I become less aware of surroundings and less worried about everyday life or self when I play electronic games *

	1	2	3	4	5	6	7	
Strongly disagree	○	○	○	○	○	○	○	Strongly agree

I feel the time past faster when I play an electronic game *

	1	2	3	4	5	6	7	
Strongly disagree	○	○	○	○	○	○	○	Strongly agree

I feel emotionally involved in the game *

	1	2	3	4	5	6	7	
Strongly disagree	○	○	○	○	○	○	○	Strongly agree

I feel a sense of control over the character, unit, movements or interactions in the game *

	1	2	3	4	5	6	7	
Strongly disagree	○	○	○	○	○	○	○	Strongly agree

I feel a sense of control over the game interface and input devices *

	1	2	3	4	5	6	7	
Strongly disagree	○	○	○	○	○	○	○	Strongly agree

I feel a sense of control over the game shell (starting, stopping, saving, etc.) *

	1	2	3	4	5	6	7	
Strongly disagree	○	○	○	○	○	○	○	Strongly agree

My friends and I use electronic games as a reason to get together *

	1	2	3	4	5	6	7	
Strongly disagree	○	○	○	○	○	○	○	Strongly agree

Often, a group of friends and I will spend time playing electronic games *

	1	2	3	4	5	6	7	
Strongly disagree	○	○	○	○	○	○	○	Strongly agree

I play electronic games to relate to other people *

	1	2	3	4	5	6	7	
Strongly disagree	○	○	○	○	○	○	○	Strongly agree

I play electronic games because they let me do things I can't do in real life *

	1	2	3	4	5	6	7	
Strongly disagree	○	○	○	○	○	○	○	Strongly agree

Electronic games allow me to pretend I am someone/somewhere else *

	1	2	3	4	5	6	7	
Strongly disagree	○	○	○	○	○	○	○	Strongly agree

I like to do something that I could not normally do in real life through an electronic game *

	1	2	3	4	5	6	7	
Strongly disagree	○	○	○	○	○	○	○	Strongly agree

Section 4 of 5

Reasons to pay for electronic games

Reasonable price, value to money and economical

The game service are reasonably priced *

	1	2	3	4	5	6	7	
Strongly disagree	○	○	○	○	○	○	○	Strongly agree

The virtual items are good relative to the price *

	1	2	3	4	5	6	7	
Strongly disagree	○	○	○	○	○	○	○	Strongly agree

The game service are economical/affordable *

	1	2	3	4	5	6	7	
Strongly disagree	○	○	○	○	○	○	○	Strongly agree

Section 5 of 5

Willingness to play electronic games

Description (optional)

I am willing to play electronic games *

	1	2	3	4	5	6	7	
Strongly disagree	○	○	○	○	○	○	○	Strongly agree

I will give playing mobile electronic games a try *

	1	2	3	4	5	6	7	
Strongly disagree	○	○	○	○	○	○	○	Strongly agree

I can begin and stop playing electronic game at any time *

	1	2	3	4	5	6	7	
Strongly disagree	○	○	○	○	○	○	○	Strongly agree