Overspending on Online Game App Purchasing Among University Students in Sarawak, Malaysia

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ABSTRACT- This research has sought to ascertain the pattern in-app purchasing in online games amongst university students. The sample consisted of 100 university students from all over the area of Kuching, Sarawak. This research revealed that out of the 100 students chosen, 91 were involved in in-app purchasing while 9 did not share the same passion. There are a wide range of factors as to why students are or are not involved in the habit of in-app purchasing in online games amongst university students. This research also studied on spending pattern of students, source of financial aid and factors contributing to reasons for in-app purchasing. While this study was conducted in Kuching, it has affected people from other regions as well, as there are many students who are not only involved in in-app purchasing, but addicted to it.

Keywords: In-App Purchases, Online Games, University Students

I. INTRODUCTION

With the rise of the business in games technology, developers depend on a good marketing strategy to boost its potential trajectories for game development. In the gaming business industry, in-app purchase is one of the ways to monetize their digital products. The most well-known indication for potential profitability is the mobile puzzle game "Candy Crush Saga", which in October 2013 was estimated to earn an average of over $600,000 in daily revenue for its developer, solely through in-app purchases (Thomas, 2013).

The apps which utilize in-app purchases range from productivity software with purchasable features, to games where a customer can pay for additional play time or the ability to skip difficult portions (Thomas, 2013). However, it is really important to remember that any subscription-based payment, for example, membership to a service, is not considered in-app purchasing. As a defined characteristic is that, in-app purchase features are rarely advertised and are never part of a customer's initial product offering (Reyburn, 2013).

In-app purchasing or micro transaction refers to the act of buying designs, also known as 'skins' from an online application of a game. The transactions can be made through coins collected on the application or online banking (Gaudeul, 2010). In this research, we are keen to study how excessive in-app purchasing is affecting the students' lifestyle in the Kuching area. The study includes to investigate how much students are willing to spend on a game application and the consequences they have to face after purchasing the designs or avatars in the application.

In-App Purchases in Online Mobile Games

According to Yee (2007), an online game player utilizes the existence of in-app purchases as a source of motivation to continue playing the game despite its nature of repetitiveness. Upon purchasing or subscribing to an in-game option, a player can experience a total immersion of the game while also receives some rare achievements, which can only be unlocked through this method. These achievements act as an indicator of social hierarchy in the gaming community where players of different age, gender and nationality often interact with each other based on their social standing in the game. The findings of Balakrishnan and Griffiths (2018) supported this idea of motivation and noted the element of game loyalty amongst players. Their observation shows that paid-to-pay players who had spent a huge amount of money via in-app purchases tends to have a greater sense of loyalty to the game than the free-to-play

players, as paying players do not want their invested money and time towards the game be in vain by abandoning it to move on to another game. Paid gamer's loyalty would play a vital role in securing a constant flow of revenue towards the developer's company which in turn would provide more rewards, better performance and better payment transaction for purchases or subscription (Hsiao & Chen, 2016). Ravoniarison and Benito (2019) discover that online mobile game players experience various outcomes with in-app purchases as every gaming app have their own characteristic regarding the implementation of purchasing method inside their app. Three of the major concerns expressed by players which became the benchmark for them to involve with the in-app purchasing activity are financial-risk issues, overspending and addiction. Financial-risk issues refer to the currency used and the legitimacy of third-party payment method for each game, while overspending and game addiction are the personal challenges experienced by players in order to access the special features inside the game. The gaming app performance is observed through the operating system used by the player's smartphone. In the article "Revenue models, in-app purchase, and the app performance: Evidence from Apple's App Store and Google Play" by Paolo Roma and Danielle Ragaglia highlights the difference of effects caused by in-app purchases on the app's performance between App Store and Play Store. The research discovers that players who use the Apple's App Store tend to spend more than those using Goggle Play Store, as App Store often places early charges on their apps in order to cover its security and make the App Store hack proof. This method practiced by Apple limits the potential of identity theft, account loss and in-game cheats that would disrupt the balance and experience of online game players.
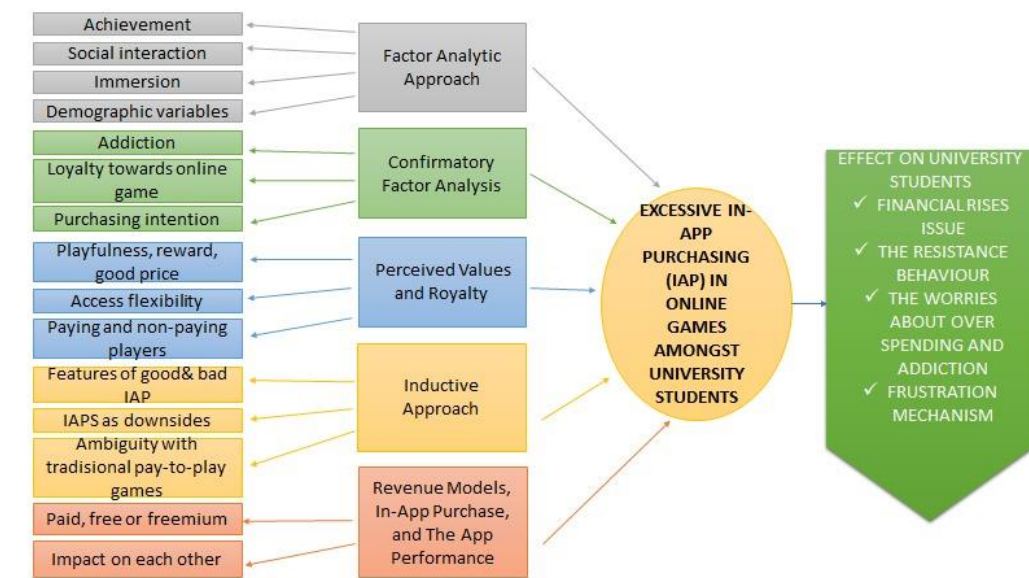
CONCEPTUAL MODEL FRAMEWORK

Figure 1: conceptual model framework of excessive in-app purchasing in online games amongst university students.

Source of model: researchers own model

This is the proposed conceptual model framework to study the elements which contribute to the excessive in-app purchasing (IAP) in online games amongst university students and the effects of excessive in-app purchasing (IAP) in online games on university students. We aggregate the major elements found in the literature review into five main categories that are factor analytic approach, confirmatory factor analysis, perceived values and royalty, inductive approach and also the revenue models, in-app purchase, and the app performance. The source of model is our researchers own model.

The effects caused by the excessive in-app purchasing in online games on university students are the rise of financial issues of the university students, their anti-social and the resistance behaviours, the worries about their over spending and addiction to excessive purchasing in-game items and also the frustration mechanism includes their regret of wasting money on the in-game items online. A summary of these elements used for the preliminary study is shown in Figure 1 which is the conceptual model framework of excessive in-app purchasing in online games amongst university students.

II. METHODOLOGY

Methodology is a research technique that aids in the systematic study of a subject (Valenta, 1997). Methodology aims to help researchers understand the underlying problem behind a social issue and explains why a particular method of study is applied. Quantitative method is used to complete this research. This chapter will cover certain aspects of methodology such as, method of study, study area, research design, sample size and distribution, data analysis procedure and ethical consideration.

Methodology of the Study

The method used in this research is quantitative method, and it involves the distribution of questionnaire forms. The forms are done on a random sample of students to get a proper insight or perspective of their different opinions on the excessive in-app purchases in online games amongst university students. Questionnaire is 'a set of standardized questions which follow a fixed scheme in order to collect data about one or more specific topics' (Lavrakas, 2011). Questionnaire helps to narrow down the focused topic as it mostly consists of close-ended questions.

Area of Study

The study area of our research is the campus of universities. Although our main research area in University Malaysia Sarawak (UNIMAS), we are targeting other universities as well, in order to get a higher variety of answers and different opinions from respondents coming from different areas. Some of the other areas targeted are Swinburne University of Technology and University Teknologi MARA (UITM). Thus, the main location of our study is Kuching, Sarawak.

Research Design

This research focuses on the excessive in-app purchases of online games amongst university students. Research design aims to produce an appropriate framework for a particular type of research (Sileyew, 2019). The instrument of design used in this research is questionnaire forms that are distributed among respondents. Respondents are questioned on their purchasing habits and their opinions on excessive in-app purchases. Statistical analysis is used to interpret the data according to the questions and the answers of respondents. Analysis is done either through SPSS or by using pie charts or bar graphs to properly analyse data and see a clearer result.

Sample Size and Distribution

Sample size refers to the number of units chosen for the research conducted (Lavrakas, 2011). The sample size for this research is 100 respondents from different universities in Samarahan and Kuching, Sarawak. Sampling distribution is the probability distribution obtained through samples (Barone, 2019). Sample distribution is used to explain the frequencies of the research questions that are asked during the interview with respondents.

Data Analysis Procedure

"Data analysis functions to 'fill a void in the atmospheric science literature and curricula" (Daley, 1991). After the collection of data, the data has to be organized and analysed in a proper manner to enable easy documentation and reference. SPSS, pie charts or bar graphs are some of the ways that our group will use to collect data as the method used is quantitative. The data will be analysed according to their segments, like age, gender, purchasing habits in online games, etc.

Ethical Consideration

The information of respondents will be protected under specific ethical guidelines. Names will not be revealed in order to protect the identity and respect the privacy of respondents. The researchers will also be polite and deliver the questions clearly so that respondents will not misinterpret or misunderstand the true meaning behind each question. Hence, the respondents' identity is protected and no outside or third part will know the identity of the respondents of this research.

Data Analysis

When we have gathered the sufficient information and data in our google form with the topic of excessive in-app purchasing in online mobile games among university students from our 100 respondents, we have our next step that is we download the responses (.csv) of the google form. After that, we open the

downloaded responses and edit its template into the excel form (excel workbook) so that this excel form can be opened in IBM SPSS Statistics 23. Then, we launch the IBM SPSS Statistics 23 and insert our edited excel form. Then, our whole project data is uploaded in the IBM SPSS Statistics.

We use descriptive analysis to find absolute numbers to summarize individual variables and find patterns in our research. We use this first level of analysis by focusing on highest, second highest, third highest and lowest of frequency and percentage in pie charts and bar charts in our research. We use inferential analysis to show the relationships between multiple variables to generalize results and make predictions. We focus on the generated cross tabulations to analyse the relationship between the particular variables.

III. RESULTS

Objective 1:To Identify the spending pattern of In-App purchases among students
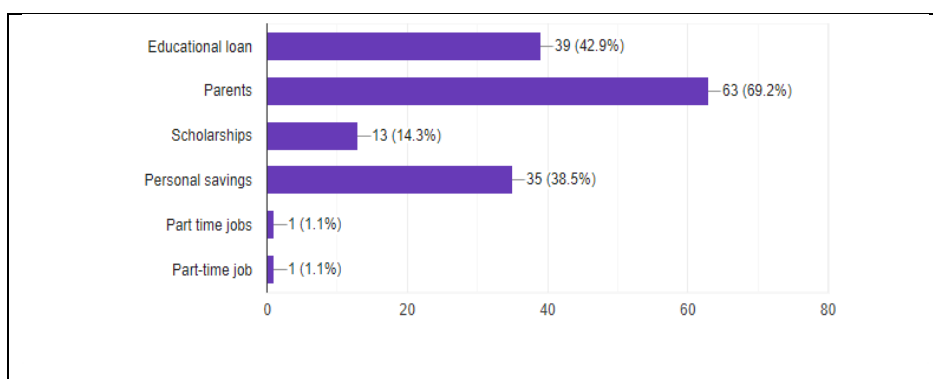
Figure 2.1: Source of Financial Aid

The result illustrated by Figure 2.1 shows that most of the 100 respondents are mainly aided by their own parents (63 respondents) throughout the study period in their respective universities. Besides that, the second most popular source of financial aid is educational loan (PTPTN), where 39 of them are currently under contract with PTPTN. This question also discovers that 35 respondents use their own personal savings to fund themselves in university and 2 respondents, in particular, specifically mentioned in the "Other" answer option that they are doing part-time jobs. Only 13 respondents enjoy the financial aid obtained from scholarships.
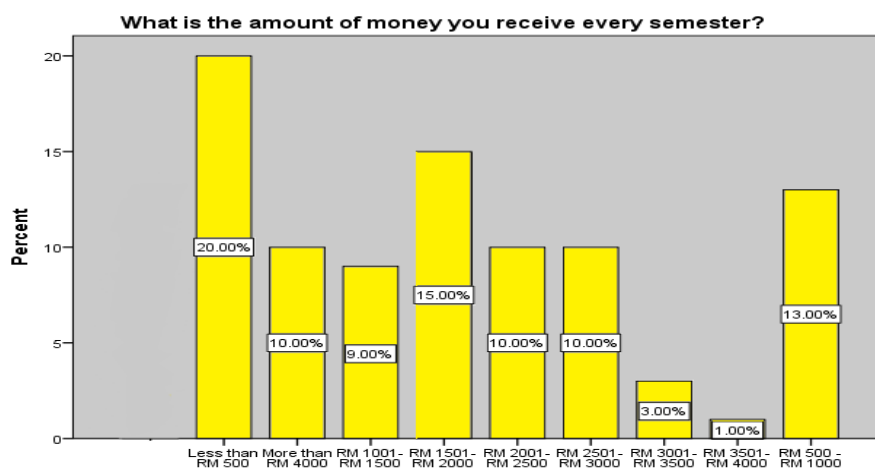

**Figure 2.2: Total Amount of Financial Aid Received Every Semester**

Figure 2.2 shows that 20% of the total respondents only received "less than RM 500" per semester, which indicates that their financial source might be limited. On the other hand, 15% of the total respondents have a total financial aid around RM1501-RM2000 per semester, followed by 13% of respondents owning around RM500-RM1000 per semester and 9% for those with financial aid of RM

1001-RM 1500. Only 3% of the respondents have the total aid between RM3001 to RM 3500. The lowest percentage is for the RM3501-RM 4000 group (1%).
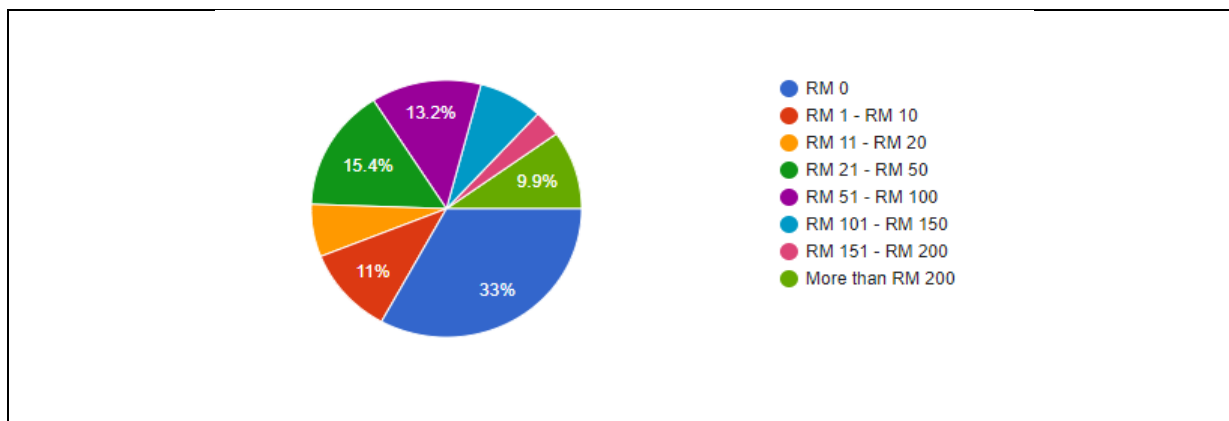

Figure 2.3: Total Recent Expenditure on In-Game Items and Game Cosmetics

Figure 2.3 focuses on describing the total recent spending on in-game items and game cosmetic by the respondents. 33% of the respondents do not spend any money (RM 0) in buying in-game items while 9.9% spends more than RM 200. 15.4% of respondents spend between RM 21 to RM 50 per in-game items, while 13.2% spends for RM 51 to RM 100 per purchases and 11% spends around RM 1 to RM 10 every time they buy in-game items and game cosmetics. This shows that university students who are playing online mobile games are willing to pay for in-game items, as long as their financial aid can still support their study.
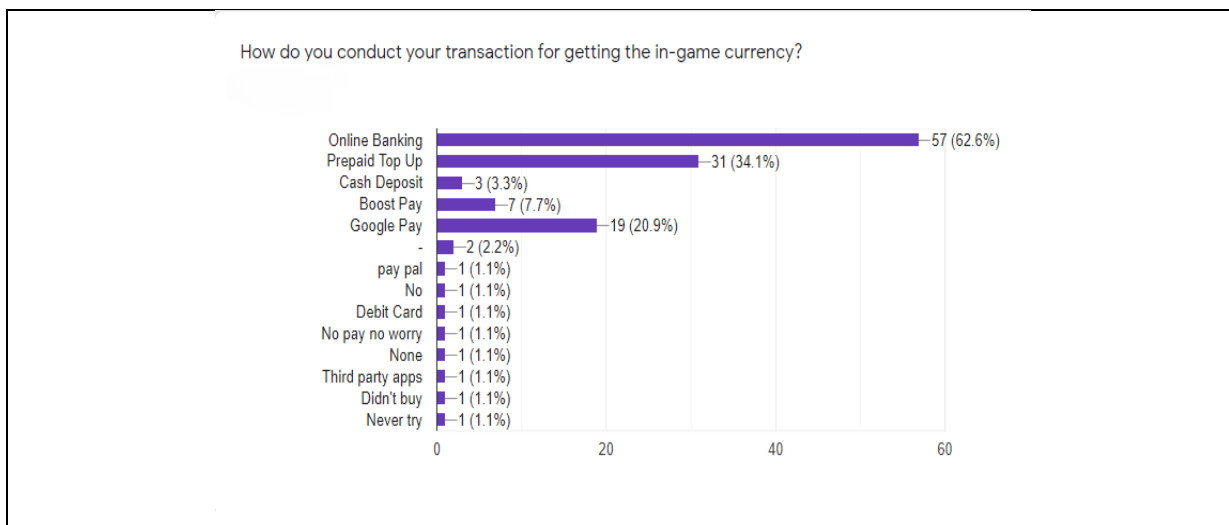

Figure 2.4: Medium of Online Transaction

In Figure 2.4, respondents are asked to select which medium of online transaction being used by them in order to buy the in-game items and game cosmetics. The most popular method is online banking (62.6%), with prepaid top-up coming in at second place (34.1%) and the usage of Google Pay stands as the third most used (20.9%). Other than the top 3, the respondents also use Boost Pay (7.7%) and Cash Deposit (3.3%). However, 5 respondents claimed that they have never bought or never tried to use any online transaction in order to get the in-game items. The explanation for this option can be derived from Figure 2.5.
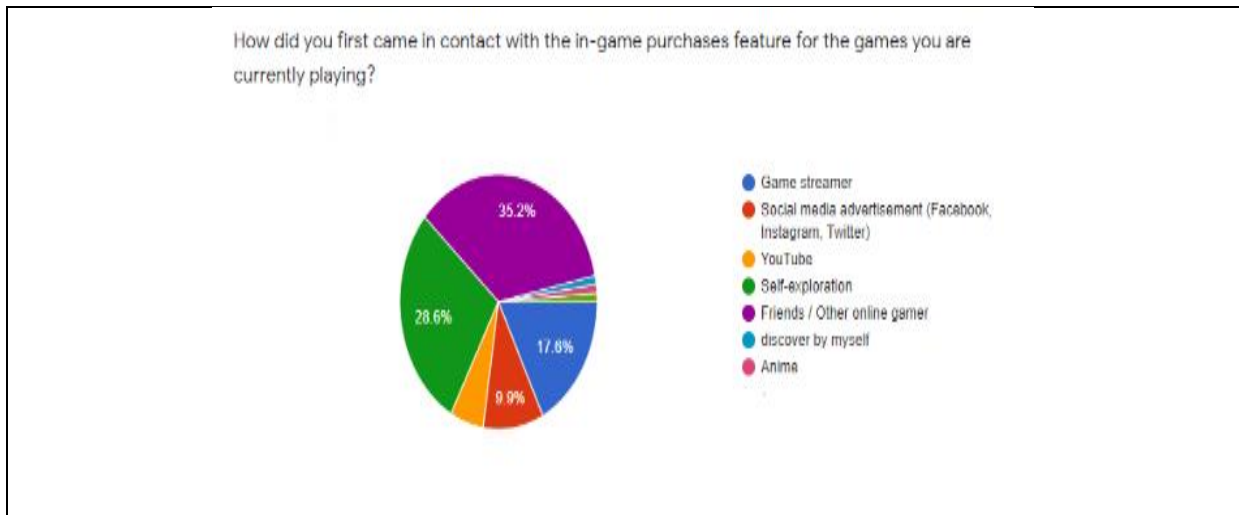
Figure 2.5: Source of In-Game Purchase knowledge

The existence of in-game purchases feature is often not being mentioned directly by the application's developers, but through the players own initiative. In Figure 2.5, respondents are asked to choose which source gave them the exposure on in-game purchasing feature. The highest vote goes to friends or other online gamers (35.2%). This shows that socialization within the gaming community helps gamers to discover unannounced features, such as in-game purchase. Other sources for gamers to discover in-game purchases are through self-exploration (28.6%), social media advertisement (9.9%) and game streamer (17.6%). As for the 2 sources mentioned (discover by myself and anime) are also considered as self-exploration.

Objective 2: To investigate the factors that influence the in-app purchases in online mobile games.
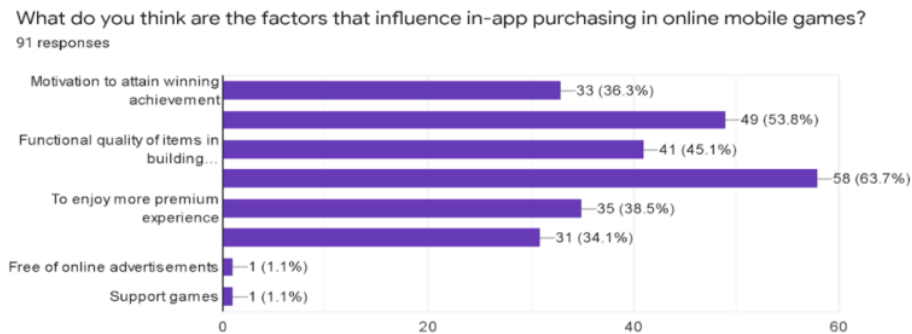
Figure 3.1: *Factors that influence in-app purchasing in online mobile games*

Based on the survey result, the highest factor of 63.7% is on playfulness and satisfaction during the game. This is followed by addiction towards the game feature that is 53.8% and functional quality of items in building character competency which is 45.1% out of respondents who partake in. The lowest factor chosen by our respondents is competition with friends and other online gamers that is only 34.1%. There are two other suggestions of factors that influence the in-app purchases in online games which are the influence of free advertisement and to support games endurances. Model framework-based analysis suggests that perceived values and royalty in which resulting in playfulness and great reward are the most concrete reasons on why excessive in-game app purchases happened. In addition, the idea of Balakrishnan and Griffith (2018) towards the gaming addiction in intention of purchasing in-game items prone to be approved whereby in our study data of 53.8% reflected that addiction does really contribute to excessive in-game purchases. Factor analytic approach of the desire for a greater achievement which is only 36.3% is less consistent with this study because majority of the respondents play the online games for the sake of their own personal pleasure of playfulness.
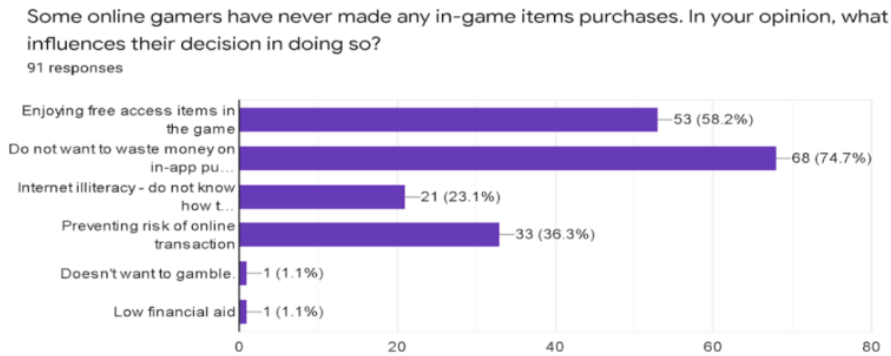
Some online gamers have never made any in-game items purchases. In your opinion, what influences their decision in doing so?

91 responses

- Enjoying free access items in the game — 53 (58.2%)
- Do not want to waste money on in-app pu... — 68 (74.7%)
- Internet illiteracy - do not know how t... — 21 (23.1%)
- Preventing risk of online transaction — 33 (36.3%)
- Doesn't want to gamble. — 1 (1.1%)
- Low financial aid — 1 (1.1%)

Figure 3.2: *Reasons on why some gamers never made any in-games purchases*

Based on Figure 3.2, the highest reason on why some online gamers did not spend any money on in-game items with the percentage of 74.7% is that they do not want to waste money on in-app purchases followed by the second highest of 58.2% is whereby they enjoy free access items in the games and the third highest percentage with the 36.3% is because of the initiative in preventing risk of online transaction. The lowest percentage is 23.1% because of the illiteracy issue of the internet payment system. There are also two other suggestions from our respondent which are low financial aid and refused to put up "gamble" money for the in-game items.

Theoretical model framework proposed that inductive approach whereby the key of this approach is to make logical reasoning on what is good and what is bad for the students' own self conscience on its own reflects the highest percentage of respondents. With the lowest percentage 23.1% is the internet illiteracy whereby they are lacking of knowledge to make online transaction, and yet it does interrelate with the third highest percentage among our respondents which is 36.3% of the initiative in preventing risk of online transaction.

Objective 3: To study the effects of excessive in-app purchases towards the lifestyle of the students

How frequent do you buy in-game items online?

- Last purchase was few years ago
- Never
- Never bought in-game items
- Once a month
- Once a week
- Once a year
- Only buy if I want to buy. So I can say that im not that frequent spend money to online game
- only once
- Twice a month
- Twice a week
- Twice a year
- When I feel like it
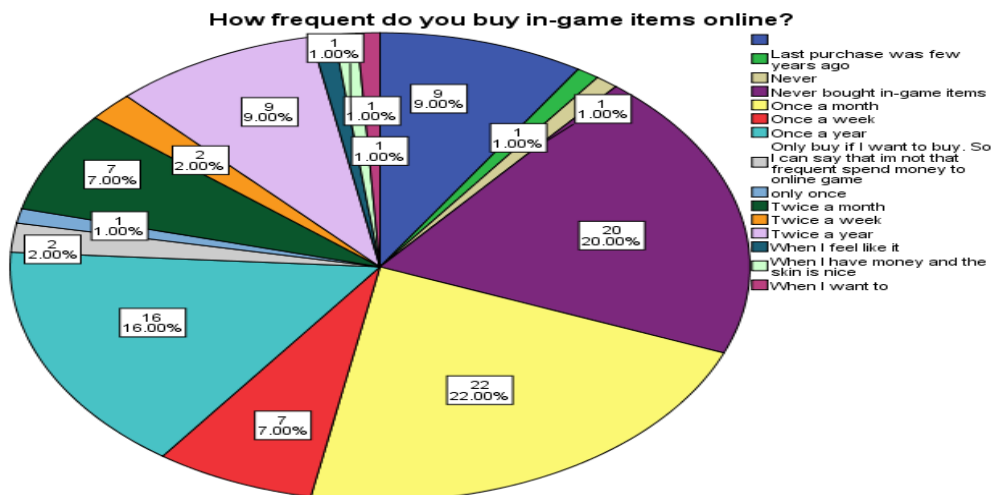- When I have money and the skin is nice
- When I want to

Figure 4.1: How frequent do you buy in-game items online

Based on figure 4.1, 22 out of 100 respondents (22%) who buy the in-game items online once a month has the highest frequency of buying in-game items online which means that these respondents are majority addicted. Then, it follows by the second highest frequency of respondents which is 21 out of 100 respondents (21%) who never bought in-game items online as they assume it is a kind of wastage. The third highest frequency of respondents which is 16 out of 100 respondents only buy the in-game items online once a year as they do not want to spend their money in game excessively. 1 out of 100

respondents (1%) which has the lowest frequency of buying in-game items online only buy the in-game items respectively when they like it, want to own it, have the money to buy, only buying once and bought the in-game items few years ago.
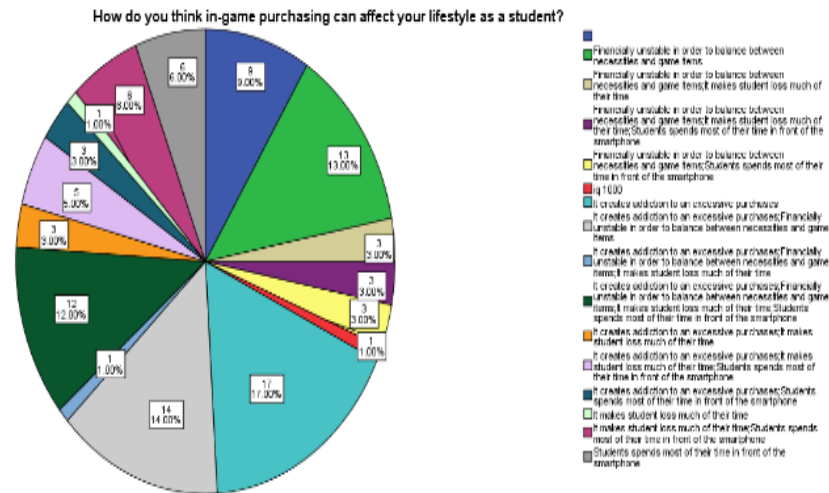

Figure 4.2: How do you think in-game purchasing can affect your lifestyle as a student

In figure 4.2, 17 out of 100 respondents (17%) which has the highest frequency think that in-game purchasing affects their lifestyle by creating addiction which leads to an excessive purchase. It is supported by figure 4.1 that 22% respondents are majority who are addicted to buying the in-game items once a month. Then, it is followed by 14 out of 100 respondents (14%) which has the second highest frequency think that it creates the addiction to excessive purchasing and having unstable financial problem in balancing between their necessities and games item. The third highest frequency of the respondents which is 13 out of 100 (13%) think that in-game purchasing affects their student lifestyles by having unstable financial problem in order to balance between necessities and games item.These respondents meet the problems of shortage of funds in balancing between necessities and games items. 1 out of 100 respondents (1%) which has the lowest frequency assume that in-game purchasing affects their student lifestyles in three categories respectively that are having high IQ, makes student lose precious time, and creates addiction in excessive purchasing and financial instability in between the necessities and game items.

Figure 4.3: The crosstabs of how do you think in-game purchasing can affect your lifestyle as a student and what is the amount of money you receive every semester

In figure 4.3, we find that the highest frequency that is 4 out of 100 respondents (4%) who receive their financial aids every semester in two categories which are less than RM500 and RM500-RM1000 respectively face the effect that is financial instability in order to balance between necessities and game items. This means that these respondents are already lacking money to deal with their lives but they are still willing to buy the in-game items. We also find that the highest frequency that is 4 out of 100

respondents (4%) who receive their financial aids every semester in two categories which are RM500-RM1000 and RM1501-RM2000 respectively are bothered by the problem of being addicted to the excessive purchasing and also financial instability in order to balance between necessities and game items. Moreover, the highest frequency that is 4 out of 100 respondents (4%) who receive their financial aids every semester in two categories which are RM2001-RM2500 and more than RM4000 respectively feel that they are addicted to the excessive purchasing. From here, we can say that the more the financial aid received by the students, their problems caused by the excessive in-game purchasing change from unstable financial problem to the addiction of excessive purchasing as these high purchasers have enough financial resources to buy the in-game items as much as they like and they do not have any financial worries unlike those low purchasers which causes addiction to excessive purchasing.

IV. CONCLUSION

This study has shown how excessive in-app purchases can affect a student's life either negatively or positively. The survey conducted has fulfilled the three objectives successfully and has managed to provide proper answers for all the research questions proposed. The data collected also shows significance relevance between excessive in-app purchasing and students' ability to buy these items based on their financial aid. One of the suggestions is that in-app purchases should be reduced or discounted at a special price for students. This can help reduce financial problems of some students who really would like to purchase in-app games but are not able to afford it. This will also encourage more students to make in-app purchases more frequently.

Thus, this study has shown that there are pros and cons to this excessive in-app purchasing in online games amongst university students. Students are able to spend their leisure time by doing something that is not harmful to them such as drugs and smoking. However, students could also be addicted to in-app purchasing and this could lead to serious health problems from having too much screen time. Students should learn to manage their time more efficiently so that they can have leisure time playing online games and making in-app purchases, and also able to have time for their education.

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