

CONCEPTUAL MODEL FOR FACTORS THAT INFLUENCE PURCHASE INTENTION OF IN-GAME PURCHASE IN FREEMIUM MOBILE GAME

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Abstract: *The purpose of this research paper is to identify and model the factors that influence purchase intention in freemium mobile games. This study uses Unified theory of acceptance and use of technology 2 (UTAUT2) as its main focus and it is recontextualized to better fit the freemium game industry. An understanding for these factors in video game context will enable more future research to better understand player behaviour in freemium mobile game. This research also provides a brief study to papers related to virtual items and in-game purchase paper. The new model resulted from this study will hopefully provide more impetus to further discussion and research in mobile game industry. The limitation from this research is that it is only focused on mobile game with freemium business model with no specific genres. In the future, more specific approach can be conducted to gain more better insight for each types of mobile game.*

Keywords: *In-Game Purchase, UTAUT2, Mobile Game, Freemium Games, Virtual Items*

Introduction

Video game industry has improved in such a rapid way in many countries in the world. Started in 1950 in the form of computer games, video games now come in a lot of form and media platform such as personal computers, mobile phones, and video game consoles such as Microsoft Xbox, Sony PlayStation and Nintendo Switch.

Video games start with a very traditional business model. The oldest and still present until now is the traditional model of buying a video game title for a certain price and providing them with the game to play (Marchand & Hennig-Thurau, 2013). This traditional model is still popular until today particularly in personal computer and console platform. The next business model is subscription which takes advantage of the internet era. This subscription model makes players need to play periodically to have access to the game (Roquilly, 2011). Subscription model are

particularly popular with games with MMORPG genre, such as World of Warcraft and Final Fantasy XIV. For urban population in Indonesia, mobile games lead the way with the most played platform, followed by console and PC games (Newzoo, 2019). Some of the major reasons behind the popularity of mobile games are cost, convenience, and portability (Bose & Yang, 2011).

In the mobile games environment, there are three business model that are widely use by mobile game the industry, the in-game advertisement, pay per download, and in-game items sale or freemium model (MacMillan & Burrows, 2009). Freemium strategy is the most widely used in mobile games (Müller, Kijl, & Martens, 2011). Freemium business model is a model where players can play their core game for free but is offered in-game items and premium services to generate profit for developers (Hamari, Hanner, & Koivisto, 2017). 90% of revenue generated from Google Play's store is from online mobile games (Hindy, 2017).

Sale of in-game items is the main revenue for game developers in a freemium game. In-game items are digital objects that commonly exists within the video game virtual world, this could include but not limited to characters, clothing, weapon or power up items (Hamari & Keronen, 2017). Lehdonvirta (2009) said that items for in-game purchase in mobile games have two attributes: functional and decorative attributes. Those attributes are not mutually exclusive and can exist in a single item. The majority of paying gamers in Indonesia have purchased in-game items or virtual items in the past 6 months alone (Newzoo, 2019) and revenue from mobile games have increased in the last 3 years and is expected to reach US\$712m in 2020 (Statista, n.d.)

To sell virtual goods, Freemium games usually offer a variety of in-game purchase models to attract customers to spend money. These forms are usually related to the game and how it designs their store to fit the developer vision, but in-game purchase models also evolve over time and usually follows a trend. Many mobile games with a freemium model often offer limited in-game items that can be purchased in a period of time. If players do not buy it in those periods, they could possibly not get the item anymore or have to wait for a long period of time before the item comes back. This creates a sense of urgency for players to engage with in-game purchase in mobile games.

Although freemium games are really popular, the increasing number of freemium games released on mobiles which create fierce competitions and game developers found it increasingly difficult to gain revenue from the freemium business model. According to Forbes, only 2% of the registered players convert into paying customers. Behaviour and motivations play important role in how players are converting into paying customers. Some previous studies have explored the role of purchasing behaviour in mobile games. Although many of them focus on video games in general or the virtual world, there are still few studies which focused on freemium mobile games.

The objective of this study is to create a model that can effectively identify factors that influence players to purchase in-game items. Hopefully the result can be used by developers for reference in designing their games. This study covers only free to play mobile games with freemium business model. For future study, video games with different business model can also be identified to contribute more for different kind of medium outside of mobile.

Literature Review

In-Game Purchases & Virtual Items

In-game purchase or commonly called microtransaction in video a type of transaction in the video game where players could purchase additional items, premium contents, or virtual items. While in-game purchases are very popular in freemium games where users can access the game for free, in-game purchase are also available in paid to play games where users need to pay for the game in order to play. In-game purchases can be as low as \$0.99 cents to as high as \$100. In-game purchase popularity are increasing along with the number of apps in mobile App store. In the third quarter of 2020, there are 1.96 million apps available in the Apple App Store alone (Clement, 2020).

The type of in-game purchase varies depending on the game. Lin & Sun (2007) for example, categorize in-game virtual items into functional props and decorative props. Functional props are items that are affecting the power of a game character, while decorative props are items that alter the appearance of characters. Lee, Suh, Park, & Lee (2018) classified virtual items into probability and non-probability based. The non-probability based virtual items value is equal to the money paid to purchase the virtual items, while probability based virtual items, or in popular terms called loot boxes or gacha, differ from time to time, it could be smaller or larger than the money paid.

Lehdonvirta (2009) explains that virtual items have functionality which includes performance and functionality, emotional, and social quality which include customization capability, rarity, appearance, and source. Some industry analysts categorized virtual items as power-ups, DLC/Expansion packs, playable characters, cosmetic/skins, loot boxes, and time-savers (Universal Payments; Newzoo, 2018). In-game purchase in mobile games are commonly bought with real money in the form of virtual currency which is then used to buy the virtual items. Although, in some circumstances, players could also buy virtual items directly without intermediaries of virtual currency.

Review of Unified theory of acceptance and use of technology

This study uses UTAUT2 as a theoretical framework (Venkatesh, Thong, & Xu, 2012) with added customized construct. The UTAUT model uses constructs such as performance expectancy, effort expectancy, social influence, and facilitating condition to check the variables influences toward behavioural intention.

In the original UTAUT article (Venkatesh, Morris, Davis, & Davis, 2003), the focus of technologies covered were utilitarian. To better fit the model for hedonic technology context, UTAUT2 is created (Venkatesh, Thong, & Xu, 2012). UTAUT2 added additional variables such as hedonic motivation, price value, and habit. The original UTAUT2 study was focused on mobile internet which has more hedonic attributes. In this study, the UTAUT2 model was used because the model fit better to cover the hedonic attributes for in-game purchase in mobile games

Performance Expectancy

Performance expectancy refers to the belief of individuals that by using the new technology can increase their performance (Venkatesh, Morris, Davis, & Davis, 2003). In the in-game purchase context, this refers to the individual belief that by purchasing in-game items, they can gain an advantage in their game performance compared to before. This can refer to purchasing power up items to increase their character power in the game, purchasing items to unlock levels so they can continue playing, or purchasing new characters so their team can be stronger.

Guo & Barnes (2011) study includes performance expectancy as an extrinsic motivator and found that performance expectancy has positive effects on purchase intention of virtual items in Second Life, an online virtual world. Alternatively, performance expectancy is also commonly called by their functional use as item or character competency. In their study, Park & Lee (2011) also study 4 consumption values which includes character competency value which increase in-game character performance. The study results in a positive significant relationship to the purchase intention of online game items.

Effort Expectancy

Effort expectancy is defined as how easy it is to use or master the system. Effort expectancy constructs from UTAUT capture other existing models such as perceived ease of use (TAM/TAM2), complexity (MPCU), and ease of use (IDT). Venkatesh, Morris, Davis, & Davis (2003) study resulted in a significant relationship between effort expectancy and use intention in both voluntary and mandatory usage context, with the exception that it is only significant during the first time period. In this context, effort expectancy means that players perceive how easy it is to use in-game purchase in mobile games. Guo & Barnes (2009, 2011) preliminary empirical evidence and study in virtual world Second Life results in positive effect from effort expectancy to purchase intention.

Social Influence

Social influence refers to the influence of others to perform a certain behaviour. Previous studies have varying results of social influences towards in-game purchase of virtual items. Hamari (2015) found that social influence does strongly affect the purchase intention of virtual items, while Guo & Barnes (2011) found negative association. Hsiao & Chen (2016) study resulted in social influence have positive effect towards mobile game loyalty. It is possible that for different types of games there will be a variety of effects in social influence toward purchase intention depending on the design of the game. In a game where multiplayer and interaction between players is a priority, social influence could also strongly play a role in a player's decision to buy the game.

Facilitating Condition

Facilitating condition refers to the individual perception and believes that a technical infrastructure exists to support the system they are using. In this context, facilitating condition is a perception or resource that players have to do in-game purchase whether it is a perception or physical resources. Guo & Barnes (2011) use many of UTAUT constructs in their study but excluded facilitating conditions because they felt that it is not important in forming behavioural intention in virtual worlds. Akbar, Irianto, & Rofiq (2018) study about purchase behaviour determinants on online mobile game also uses facilitating conditions but changed its name to

payments ability. Their study results in a positive effect on purchase intention in freemium mobile games: Mobile legends: Bang Bang.

Hedonic Motivation

Hedonic Motivation refers to the pleasure that users received from using a technology (Venkatesh, Thong, & Xu, 2012). In this context, it means that how much players enjoy the activity and items they get from using in-game purchase in mobile games. Other studies also refer to hedonic motivation as playfulness. Playfulness can be related to the increasing fun, attention, and imagination that users received after purchasing virtual goods (Ho & Wu, 2012). Ho & Wu (2012) study found that playfulness positively affects users' purchase intention in role-playing game and war-strategy type games.

Price Value

Price value refers to the exchange between the benefits that the users receive and the costs of obtaining the technology (Venkatesh, Thong, & Xu, 2012). If the benefits that users receive outweigh the costs, it will create the intention for users to adapt it. Hsiao & Chen (2016) refer to price value as good price and their study results in a positive relationship between good price and purchase intention for both paying players and non-playing players in mobile games. Guo & Barnes (2011) study also resulted in positive association between good price and user's intention to purchase virtual items in the virtual world.

Habit

Habit refers to the degree of someone to do something automatically (Venkatesh, Thong, & Xu, 2012). Guo & Barnes (2011) found that habits have a strong direct and positive effect on purchase intention of virtual items in the virtual world. In their study, Guo and Barnes explain that daily use of Virtual world players where they use and buy basic virtual items through trading platforms led them into the habit of using in-game trading platforms. This habit will lead them to get paid virtual items. Ajzen and Fishbein (2005) also explains that previous experience of using will influences belief and future behavioural performances.

Game Satisfaction

Game satisfaction refers to the enjoyment of the users of the overall experience they received from playing mobile games. In this context, game satisfaction refers to the enjoyment of the users of the overall experience they received from playing mobile games. Hamari (2015) and (Park & Lee, 2011) studies results in negative association between game satisfaction and purchase intention, while Guo & Barnes (2011), Hsiao & Chen (2016), and Ho & Wu (2012) studies results in positive association. These differing results could be affected by the type of game they studied. In this study game satisfaction will be divided into 3 parts: enjoyment of the graphic, story, and gameplay.

Methodology

This study is conducted using literature synthesis (Appendix A) from many literatures that are related player behaviour for purchasing in-game items for video games. 15 reviews are conducted from various researcher and various types of video games such as virtual life simulation, mobile games, and online games.

Conclusion

According to the analysis, many of UTAUT2 constructs can be recontextualized for players behaviour in mobile games industry. Many other studies also resulted in models and constructs from different point of view of player behaviour. For this study, one other construct, game satisfaction from (Ho & Wu, 2012) is added to better complement the models of UTAUT2.



Figure 1: Conceptual Framework

Source: Author's Analysis

Future Research

For future study, this conceptual framework can be tested with quantitative approach for future empirical research. Structural Equation Modelling is one possible recommended method for the analysis.

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Appendix A: Literature Synthesis (Author's Analysis)

No.	Author	Objective	Conclusion
1	Guo, Y. & Barnes, S. (2007). Why People Buy Virtual Items in Virtual Worlds with Real Money. ACM SIGMIS Database, 38(4): 69-76.	The author identifies model and tests the factors that influence individuals' decision to purchase virtual items. The author used several theories including TPB, TAM, and UTAUT.	The study results in a preliminary research model with ten constructs that appears to be significant determinants that influence users' behavior in buying virtual items. The variables are performance expectancy, effort expectancy, social influence, perceived critical mass, trust, perceived enjoyment, and behavioral intention.
2	Guo, Y. & Barnes, S. (2011). Purchase Behavior in Virtual World: An Empirical Investigation in Second Life. Information & Management, 48: 303-312.	The author researches purchasing behavior in the virtual world, particularly socially oriented virtual world. The research is focused on the salient motivations of virtual world players to purchase virtual items in virtual worlds, and how they obtain the virtual items when faced with multi-channel options. The variables used are: Extrinsic motivators (effort expectancy, performance expectancy, perceived value) and intrinsic motivators (perceived enjoyment, advancement, and customization). Other external factors are habit and social influence.	All of the extrinsic motivators are strong determinants of customers purchasing behavior in the second life. Intrinsic motivators that show strong determinants are customization, and perceived enjoyment. Advancement and social influence though, show a negative relationship in purchasing behavior.
3	Lehdonvirta, V. (2009). Virtual Item Sales As A Revenue Model: Identifying Attributes that Drive Purchase Decisions. Electron Commer Res,	Lehdonvirta studies is an exploratory study to explain the attributes that influence consumers when purchasing virtual goods. The method the author uses is firsthand analysis of MMO (Massive Multiplayer	The results of Lehdonvirta studies result in 9 attributes that drive consumers purchase decisions. The nine attributes are: performance, functionality, visual appearance and sounds,

No.	Author	Objective	Conclusion
	9: 97-113.	Online Games), virtual world, and other online hangouts. The author also does interviews with developers, professional virtual good traders, and research previous literature.	background fiction, provenance, customizability, cultural references, branding, and rarity.
4	Hamari, J. (2015). Why do people buy virtual goods? Attitude toward virtual good purchases versus game enjoyment. International Journal of Information Management.	Hamari studies investigate factors that relate to enjoyment of the game and continuation to play the game, and whether or not both of them are related to purchase intention for in-game virtual items. The studies also investigate the factors that relate to attitude towards buying virtual goods and social influence towards buying intention. The studies test 3 different games (social virtual worlds, first-person shooters, and social networking games).	The result of Hamari studies support his hypothesis: <ul style="list-style-type: none"> • Enjoyment of the game does reduce the purchase intention of virtual goods • Social influences strongly affect the purchase intentions of virtual goods. The result also highlights that enjoyment of the game is negatively associated with positive intention of buying virtual goods but the continued playing intention that instead positively affects consumer intention of buying virtual goods. All of the results are the same within 3 types of games that are investigated.
5	Hsiao, K. L., & Chen, C. C. (2016). What drives in-app purchase intention for mobile games? An examination of perceived values and loyalty. Electronic Commerce Research and Applications, 16, 18–29.	The author of this study focused on factors that drive consumer purchase of virtual goods in perceived values and loyalty. Perceived values are broken down into emotional value, performance quality value, social value, good price, and reward . All of the factors were cross referenced with both purchased intention and mobile game loyalty .	The results of the study are that good prices have a strong direct effect on in-app purchase for both paying and non-paying players. Loyalty to the mobile game also increases payment intentions for all players. Habits also have influences on customer's payment intentions .

No.	Author	Objective	Conclusion
6	Han, B. & Windsor, J. (2013). An investigation of the smartphone user's in-game purchase intention. <i>Int. J. Mobile Communications</i> , Vol. 11, No. 6.	The author of this study used a customized model with several variables to identify users' purchase intention in mobile games. The variables are perceived attractiveness, perceived playfulness, and added value.	The result of the study is that both of the user's perceived playfulness and added value have a positive effect on purchase intention. And the received attractiveness is positively affected by mobility and cohesive support of mobile games. UI limitations also have a negative effect on perceived attractiveness.
7	Ho, C.-H., & Wu, T.-Y. (2012). FACTORS AFFECTING INTENT TO PURCHASE VIRTUAL GOODS IN ONLINE GAMES. <i>International Journal of Electronic Business Management</i> , 10(3), 204-212.	The author studies the purchasing intention of virtual goods of online games, focusing on two genres: role-playing games and war strategy. The variable used in the study is functional value, emotional value, social self-image expression, social relationship support, satisfaction with the game, and identification with the character. Game type variable also used as moderating variable.	The resulting study shows that role playing, and war strategy type games have different factors affecting purchase intention. Role playing users are affected by functional quality, playfulness, and social support. War strategy games are affected by satisfaction with the game, identification with the character, price utility, and playfulness.
8	Park, B.-W., & Lee, K. C. (2011). Exploring the value of purchasing online game items. <i>Computers in Human Behaviour</i> , 27, 2178-2185.	The authors objective is to investigate online game user's perceived value of in-game items using modified theory of consumption values which resulted in new construct (Integrated Value of Purchasing Game Item).	The study results show that integrated value of purchasing game item (character competency value, enjoyment value, visual authority value, and monetary value) are significantly affecting in-game item purchase intention.
9	Lee, J., Suh, E., Park, H., & Lee, S. (2018, February). Determinants of Users' Intention to Purchase Probability-Based	The authors objective is to identify factors that influence purchase of probability-based items (PBI) in mobile social network games (MSNG). The models used are extended	The study shows that intention to use MSNG and perceived desire for jackpot affect intention to purchase PBI directly and other determinants also

No.	Author	Objective	Conclusion
	Items in Mobile Social Network Games: A Case of South Korea. <i>IEEE</i> , 6.	research model from TAM which include perceived enjoyment, perceived usefulness, perceived number of users, perceived number of friends, and perceived desire for jackpot.	indirectly influence intention to purchase PBI.
10	Hamari, J., & Keronen, L. (2017). Why do people buy virtual goods: A meta-analysis. <i>Computers in Human Behavior</i> 71, 59-69.	The authors study the question of why people purchase virtual goods using meta-analysis random effect model of 24 literature. The constructs used are network effects, self-presentation, enjoyment, ease of use, flow, and use of platform.	The study result show that the reason why people purchase virtual goods are different than traditional goods. The reason for purchasing virtual goods are tightly connected to the platform they are sold in. Factors that significantly affect purchase behavior are network effects, self-presentation, enjoyment, ease of use, flow, and use of platform.
11	Hamari, J., Hanner, N., & Koivisto, J. (2017). Service quality explains why people use freemium services but not if they go premium: An empirical study in free-to-play games. <i>International Journal of Information Management</i> , 37, 1449-1459.	The authors investigate how perceived service quality predicts customer willingness to use and purchase freemium services and premium content. The study uses dimensions of service quality (assurance, empathy, reliability, and responsiveness).	The study results in insight that dimensions of service quality (assurance, empathy, reliability, and responsiveness) are positively predict intention to use freemium services. The use of freemium services mediated the effect of perceived quality of a freemium service on premium purchase. The results of the findings are the increasing quality of freemium services has little effect on demand for additional premium services.
12	Marchand, A., & Hennig-Thurau, T. (2013). Value Creation in the Video Game	The authors investigate value creation in video game industry and aims to develop a conceptual framework and highlight	The study results in a conceptual framework which includes gaming environment (game

No.	Author	Objective	Conclusion
	Industry: Industry Economics, Consumer Benefits, and Research Opportunities. <i>Journal of Interactive Marketing</i> , 27, 141-157.	important findings.	content, game platform, game consumer), distribution channels (physical channels, digital channels), communication channels (traditional media, social media), recommender systems, and other consumers / society.
13	Hamari, J., Alha, K., Jarvela, S., Kivikangas, J. M., Koivisto, J., & Paavilainen, J. (2017). Why do players buy in-game content? An empirical study on concrete purchase motivations. <i>Computers in Human Behaviour</i> , 68, 538-546.	The authors study focuses on concrete reasons to purchase in-game content that identified from how the games are designed. The author triangulates the results of analysis of top grossing free to play games, industry expert, and existing research and form 19 reasons to buy in-game content.	The study results in purchasing reasons dimension: unobstructed play, social interaction, competition, economic rationale, indulging the children, and unlocking content. The authors then analyzed the relationship between these factors with money spend by players on in-game content. The result show that purchase motivations of unobstructed play, social interaction, and economical rationale are positively correlated with the amount of money players spend I in-game content.
14	Sharma, G. (2020). Factors influencing players to purchase in-game content. <i>International Journal of Advanced Science and Technology</i> , 29(7), 4004-4011.	The authors study the factors that influence players to purchase in-game contents. The authors studied 3D running video games and strategy-based war games.	The study shows that factors that influence players to purchase in-game content for 3D running video games are survival advantages, bonus points, extra lives, and speed boosters. For strategy-based war games, the factors that influence players to purchase in-game content are utility, playfulness, extra artifacts, and time-reduction in case of level up.

No.	Author	Objective	Conclusion
15	Akbar, M. R., Irianto, G., & Rofiq, A. (2018, December). Purchase Behaviour Determinants on Online Mobile Game in Indonesia. <i>International Journal of Multicultural and Multireligious Understanding</i> , 5(6), 16-27.	The authors study the purchase behavior determinants on online mobile game in Indonesia. The authors use UTAUT2 as models which includes performance expectancy, effort expectancy, social influence, payment ability, hedonic motivation, price value, habit and added construct customization, and advancement.	The result of the study shows that Performance expectancy, payment ability, hedonic motivation, price value, habit, customization, and advancement significantly affect purchase intention of in-game items, while purchase intention strongly influence actual purchase.