What Drives Online Gaming Addiction? Loyalty Check and In-App Purchase Intention

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ABSTRACT: Mobile gaming is known as a high and competitive growing industry of business. There have been lots of game released every day in the last two years. This study examines the relationship between online game addiction (withdrawal, mood modification, relapse) on loyalty and purchase intention in online game applications. The proposed model is empirically evaluated using LimeSurvey on 262 PUBG Mobile online game users. The analysis used partial least square-structural equation modelling (PLS-SEM). The results revealed that (withdrawal, mood modification, relapse) gives such significant and positive relationship toward purchase intention in online game applications. The relationship between mood modification and relapse positively and significantly affects online game loyalty. Withdrawal and loyalty have no significant positive relationship.

KEYWORDS: In-App Purchase, Addiction, Loyalty, dan Mobile Game.

I. INTRODUCTION

Games is already known by entire circles from the beginning of personal computers (PCs), through the huge demand, by the developments of technology making innovations in the gaming world, called mobile games getting in mobile devices which needs to play with the internet. Through this innovation, game developers face new challenges that lead to increasingly fierce competition so that they can create and develop their games to sell well in the market. This increasingly fierce competition makes many game companies produce mobile games that can be played for free or paid even though they are played online.

According to research institute Newzoo, the number of gaming devices has increased from year to year, with mobile games with revenue of $77.2 billion in first place with a 48% growth rate, smartphone games with $63.6 billion in second with 40% growth and consoles with $63.6 billion. 45.2 billion and PC $36.6 billion with a growth of 28% and 23%, and browser personal computer games with revenue of $3 billion where growth is -13.4%, which shows the decline and lack of interest in browser personal computer games (Newzoo.com, 2020). Mobile games are the highest growth beat other gaming devices. The number of gamers is estimated at 3.5 billion, almost half of the world population (Hybrid.co.id, 2020).

Asia has attracted the attention of the growing gaming industry. Indonesia itself is the leading country for game growth in Asia. In short, due to increased economic prospects and a high population. Of the 274.5 million gamers in Asia, Indonesia contributes around 43%. Indonesia also contributed the most considerable revenue of US$2.08 billion (SINDOnews.com, 2021). The movement leading the growth of gamers in Indonesia is none other than the internet. Based on Internetworldstats, (2021) users of internet in Indonesia becomes the third place, reaching 212.35 million. The mobile game made by Tencent, PUBG mobile, is the highest-earning and most popular game in the world from 2020 to 2021(Oneesports.id, 2021). SensorTower, (2021) states that PUBG mobile has more revenue than Rp. 39.8 trillion as of December 14, 2021. PUBG mobile has been named the most profitable mobile game downloaded on the Google Play Store and also App Store with the highest number of revenue.

PUBG mobile dominating the game market cannot be separated from free applications equipped with an model in-app purchase (Oneesports.id, 2021). Several survey institutions stated that free game applications equipped with in-app purchases dominated the market, especially PUBG mobile games (Tempo.co, 2021). In-app purchases are found in free download service game applications, commonly known as freemium applications. Although the game can be freely downloaded, the PUBG mobile game needs the consumers to get in-app purchases so that to unlock the certain levels and features by buying the unknown cash (UC), the clothes, the skins, the coins, and etc. In-app purchases are the primary relationship outcome for measuring game success. In marketing research, in-game purchases are referred to as willingness to pay of the consumers for the features coming and also the payment intentions are defined as indicators of gamers' attitudes towards features (Cheung et al., 2021).

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This study adopts the concept of in-app purchases in online games, conceptualizing in-app purchases as a player's willingness to buy in-game items such as UC or skins in the future (Hamari *et al.*, 2017).

Several proofs of literature has mentioned such a strong determinants of in-app purchases as like the value (Hsiao & Chen, 2016; Hsu & Lin, 2016), the consumer experience (Elliot and Fowell, 2000), the innovation for consumer (Citrin *et al.*, 2006), motivation (Hamari *et al.*, 2017), the lifestyle (Swinyard and Smith, 2003), the perceived risk (Chen, 2010), pricing (Weisstein, Kukar-Kinney and Monroe, 2016) and also the subjective norms and also the behavioral kind of control (George, 2004; Renny et al., 2013). From a perspective of psychology, some reaearch were conducted on online buying behavior of impulsive or compulsive actions (Maraz, Griffiths and Demetrovics, 2016). Unlike other online purchases, in-game purchases need long-term momentum for players to get engaged inside games that are built on high quality and immersion bonds (Hsu and Lin, 2016), the more involvement inside the game the higher the in-app purchases (Roma and Ragaglia, 2016). Despite numerous studies determining the addiction of online game (Kuss & Griffiths, 2012; Andreassen et al., 2015; Griffiths, 2010; Rooij et al., 2010) focus is oriented to limited online game addictions and also the impacts made.

Merhi, (2016) stated that game developers compete to increase their market share by making user loyalty able to play games repeatedly. Game loyalty is essential for companies because loyal users are likely to get in-app purchases (Hsu and Lin, 2016). The increasing demand in the online gaming segment encourages companies to help investing the considerable resources to develop the online games, especially free online games, to get play with the in-game purchases (Su *et al.*, 2016). Only some the previous research defined the relationship of the online gaming and also the loyalty to the authors' current knowledge. Lu & Wang, (2008) explore the role of addiction of online game in the relationship of the online satisfaction and also the loyalty. Game addiction is known to contribute to loyalty and also weakens the relationship of the loyalty and satisfaction. The results explainded the reasons of users get to stay loyal to the online games even when they felts dissatisfied. Balakrishnan & Griffiths, (2018) explains that loyalty produces a higher indirect influence than the direct influence of the addiction and also purchase intention. This proves that users who are addicted to online games have loyalty. The development of online games has attracted scientific interest in understanding online games, loyalty, and in-app purchase intentions (Hsu & Lin, 2015; Hsiao & Chen, 2016; Liao et al., 2020; Akarupova & Blinka, 2016; Hussain et al., 2015; Balakrishnan & Griffiths, 2018).

Given the lack of research defining the addiction of online game and also the loyalty, an in-depth study to help understanding the addiction role on the loyalty and also the purchase intention in online games will significantly contribute to the development of further research. In addition, it will show such a reliable data for industry experts and also the researchers in oder to get it apply in their fields. For this reason, this study was done on purpose to help examineing the role of addiction on loyalty to purchase intention in an application in the Indonesian context. This study applies SEM to help assessing the orelationship strength in the proposed model.

II. LITERATURE REVIEW

In-App Purchase Mobile Game

Hsu & Lin, (2015) In-app purchases are types of purchases made within the application and are virtual, and even transactions use real money. Jang et al., (2019) stated that in-app purchase intention is stated to be the users intention to purchase kind of services within the application. Discussing about the mobile games, it is known as the user's intention to buy freemium services or in-game items (Hsiao and Chen, 2016) payments for freemium mobile game services can be made on devices such as smartphones or tablets (Roma and Ragaglia, 2016). In-app purchases play a significant role in mobile games, spesifically in mobile games which apply the model of freemium business and also the gacha mechanism. In-app purchases lately becomes one of the most stable models of revenue for their providers of mobile game (Oh and Min, 2015). However, whether users can get the freemium service or the gacha items they want is uncertain. Therefore, game developers balance this with giving away (free daily gifts) and determine that most of the available free app games use some in-app purchase options for users to spend virtual money on (Hamari *et al.*, 2017).

Studies related to purchasing intentions in mobile game applications. One of the most matter aspects is the factors which effect in-app purchase intentions. Generally, in-app purchase intentions apply the planned behaviour theory (Ajzen, 1991; Ajzen, 2011) to a certain level. Hsiao & Chen, (2016) defined that purchase intention of in-app has been strongly influenced by the players' perceived values and the loyalty. Another opinion , Hsu & Lin, (2016) found that regular use of specific applications significantly contributes to in-app purchases of mobile games. In addition, the mobile games functional and also economic factors can drive in-game purchase intentions (Hamari *et al.*, 2017). Regarding the psychological aspect, game addiction can affect in-app purchase intentions, and addiction can strongly stimulate purchase intentions in game-loyal users (Balakrishnan and Griffiths, 2018). In the context of mobile games, identification of behavioural intentions in virtual environments such as

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effects such as emotional value, social value, price and e-WOM affects willingness to pay freemium prices and purchase intentions of huge number of multiplayer online role-playing games (MMORPG) (Rezaei and Ghodsi, 2014).

Addiction Mobile Game

Technology addiction is known as a sub-type addiction of behavioure, definng the addiction to technological devices as like the video games or computers (Griffiths, 1995) over time from technology, resulting in internet addiction (Kuss & Griffiths, 2012). Online game addiction can be a loss of control over the game, which leads to danger (Rooij *et al.*, 2010). Game addiction is usually happened by the internet (Griffiths, 2005) by playing the excessive games in extreme can make symptoms by the addicts of drug (withdrawal, modification of mood, relapse) (Kuss & Griffiths, 2012). Maier, (2020) states that addictive behaviour from technological stimulation can affect online game players more often.

Previous studies have shown that internet technology can lead to several adverse outcomes. One of the potential negatives is that online game addiction are able to influence the several aspects of behaviour of person and some may need the treatment (Turel, Serenko and Giles, 2011). Game addiction becomes problematic for teenagers or students, for example, videogame addiction, game addiction, and compulsive gaming. Addiction is one of the most discussed aspects of psychology related to playing computer and online games (Kuss & Griffiths, 2012). Lemmens et al., (2011) define online game addiction as a person's persistent inability to control the habit of playing excessive online games despite social or emotional problems.

Loyalty Mobile Game

Loyalty is a promise to regularly buy or re-subscribe to a chosen product in the coming time, independent of the effect of the situation or marketing efforts that may induce behaviour change (Marakanon and Panjakajornsak, 2017). Loyalty is known to be the ongoing intention to play the online games (Teng, 2019). Loyalty to online games refers to the willingness of users to continue playing or recommending games to others (Hsiao and Chen, 2016). In online gaming, Cheung et al., (2015) stated that if the loyal kind of players are getting engaged highly in the game, they would tike to doinvesting the resources in playing the game and also spending much money in playing the online games.

Online gaming revenue comes from "monthly gaming cards" or "fees for internet" that players have to purchase in advance and also get consuming when they play online games. Others are "virtual properties" that players are able to buy and then also to upgrade in-game character abilities (Teng, 2018). When the players play of ten spend time for the game, the the cost and also they will spend much money to acquire more luxurious virtual properties. Therefore, maintaining player loyalty gives the online gaming industry an income. Loyalty has been conceptualized as having attitudinal and behavioural characteristics (Oliver, 1999).

Online game loyalty shows a strong preference of users toward the games they play (Teng, 2018). Previous studies have shown that online gaming loyalty has unique antecedents, such as addiction (Balakrishnan and Griffiths, 2018), utilitarian and also hedonic motivation (Molinillo, Muñoz-Leiva and Pérez-García, 2018), and game perception (value and risk) (Hsiao and Chen, 2016) social networks (Liao et al., 2020) and network convergence (Tseng *et al.*, 2018). Masny antecedents are known as thgame-specific, demonstrating the loyalty in uniqueness of online gaming.

Hypothesis

Downloading the game is the first step. However, the experience and respect the gameplay develop to like the game, and also the fondness translates into addiction. Previous research has addressed online game addiction (Kuss & Griffiths, 2012; Balakrishnan & Griffiths, 2018). Addiction consists of (withdrawal, mood modification, relapse) and can be applied to online games (Griffiths, 2010). Khang et al., (2013) showed that addiction could increase the loyalty of game users. Balakrishnan & Griffiths, (2018) stated that addiction affects online game loyalty. Research has discussed loyalty as an addictive behaviour (Lu & Wang, 2008; Weinstein et al., 2016). Many researchers have investigated the relationship in different contexts. Akarupova & Blinka, (2016) asserted that business activities are carried out with loyalty, the less the cost of new introductions, which generates income. Therefore, in this study, online game addiction (withdrawal, mood modification, relapse) can lead to loyalty to online games.

H1a: Withdrawals positively increase game loyalty.

H1b: Mood modification positively increases game loyalty.

H1c: Relapse positively increases game loyalty.

Many prior research have revealed a link between addiction and online gaming application purchasing intention (Weinstein et al., 2016; Lee et al., 2016; Andreassen et al., 2015). Nevertheless, empirical evidence is known to be more limited of the addiction of online game. The addiction of online game is a person's persistent inability in controlling the habit to play the excessive online games even though it is related to social or emotional problems (Lemmens, Valkenburg and Peter, 2011). Purchase intention in online gaming applications is an action that requires long-term momentum for players to engage in a game

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that is built on a bond of high quality and immersion. This study explores the relationship between online game addiction (withdrawal, mood modification, relapse) affecting in-app purchase intentions. Meanwhile, as far as literature searches, the relationship of the addiction of online game and also the purchase intention has been proven (Balakrishnan and Griffiths, 2018). Thus, we hypothesize as below.

H2a: Withdrawals positively increase in-app purchase intention.

H2b: Mood modification positively increases in-app purchase intention.

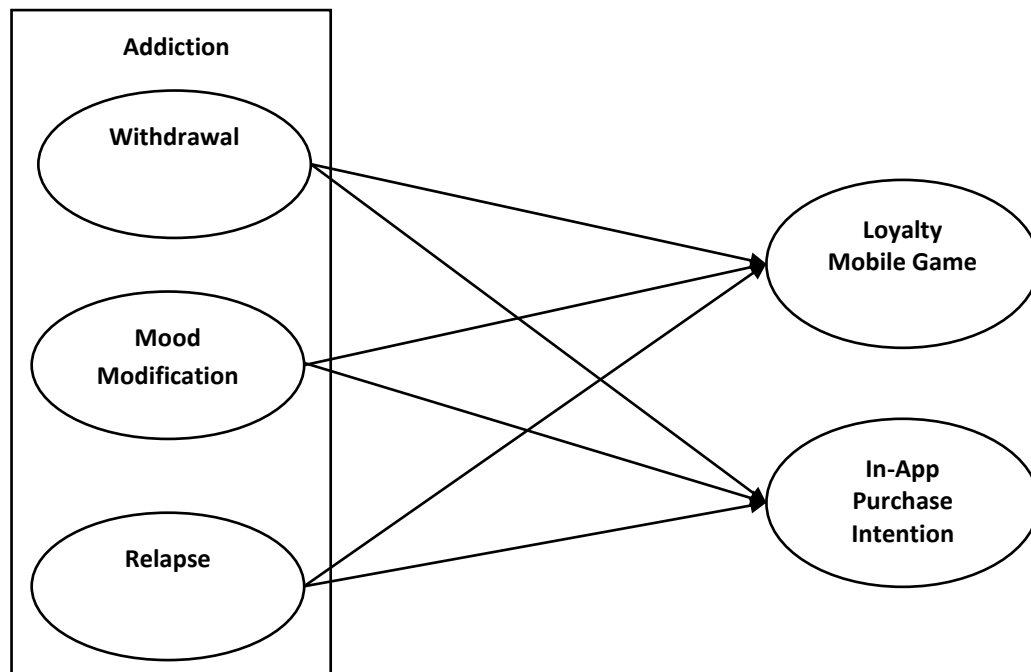H2c: Relapse positively increases in-app purchase intention.

Figure 1. Research Model

III. RESEARCH METHODS

On purpose to help testing the proposed model, this study was designed as a quantitative study with a survey method. The population is PUBG mobile game players. PUBG Mobile is a popular game on the play store and app store with the highest total revenue among other mobile games in 2020 to 2021 (SensorTower, 2021). The research sampling method is non-probability with the convenience sampling technique because this technique obtains available samples quickly and through online statistical survey webs. Data for the research was collected from (08 December 2021 to 14 January 2022) distributed using LimeSurvey online through the game community, WhatsApp and Telegram groups. A total of 287 respondents participated actively, and 25 responses occurred as outliers. Then the number of research samples was as many as 262 respondents. Previous studies supported the use of a minimum of 100 to 200 samples (Balakrishnan and Griffiths, 2018) or at least 10 times the number of paths as a criterion for structural equation modelling of testing.

The survey consists of 18 questions to be answered on a five-point Likert scale in range from 1 (strongly disagree) into 5 (strongly agree) (strongly agree). All measures (the addiction, the loyalty, the negative eWom and also the purchase intention) were bought from some previous refrence of literature. The variable of addiction tends to be measured with the component model by Balakrishnan & Griffiths, (2018) whose the sub-components (withdrawal, mood modification, relapse) having three indicators. Loyalty tends to be measured by four indicators by (Hsiao and Chen, 2016) and also the variable of in-app purchase intention is getting measured by five indicators (Balakrishnan and Griffiths, 2018).

This study uses Partial Least Square-Structural Equation Modeling (PLS-SEM). The evaluation of the criteria systematically follows the recommended two-stage process (Hair et al., 2017).

IV. RESULTS

The study results are visualized at the form of the respondent demographic locations, the results of the reliability and validity of the parameters of the model measurement, and the results of testing the model of structural. The entire data processing process in this study was carried out with the help of the SmartPLS 3.0 program. The respondents gender tended to be dominated by male in 54.6% and female in 45.4%, the respondents mostly aged between the year 21-25 those were 130 people

or shown as 49.6%, and the age between the year 16-20 were shown 43.9%. Age over 30 years as much as 4.6%. the education background of respondents tended to be dominated by 149 or 56.9% bachelor's degrees and also for 38.5% were high school. Respondents also indicated the time spent playing online games per day, which showed that most had more than 30 minutes of playing time per day. The number of purchases in online game applications shows 13.4% of the above 10 purchases, 5-10 purchases of 11.8% and 1-5 purchases of 28.6% and 46.2% of respondents who did not make purchases within the last six months. Table 2 mentions about the demographics.

Table 2. Demographics of Respondent

Demographics	Category	*Frequency*	(%)
Gender	Man	143	54.6
	Woman	119	45.4
Age	16-20 years	115	43.9
	21-25 years	130	49.6
	26-30 years	5	1.9
	> 30 years	12	4.6
Education	Junior high school	6	2.3
	Senior high school	101	38.5
	Bachelor	149	56.9
	Postgraduate	6	2.3
Monthly Income	< Rp 1.000.000	147	56.1
	Rp 1.000.000 s/d Rp 3.000.000	80	30.5
	Rp 3.000.000 s/d Rp 6.000.000	26	9.9
	> Rp 6.000.000	9	3.4
Time spent playing online games per day	< 30 Minutes	88	33.6
	30-60 Minutes	55	21.0
	60-90 Minutes	28	10.7
	90-120 Minutes	43	16.4
	> 120 Minutes	48	18.3
Number of in-app purchases online games	None for the past six months	121	46.2
	1-5 Purchases	75	28.6
	5-10 Purchases	31	11.8
	> 10 Purchases	35	13.4

Evaluation of the Measurement Model (Outer Model)

This research applies the reflective measurement model process of evaluation consisted of testing the reliability and validity of the indicators for each construct. In this study conducted, two kinds of validity construct applied: validity of convergent and also validity of discriminant. After the two validity tests were met, each research structure was tested for reliability. The results of the calculation of convergent validity for each construct included in this research is shown in Table 3.

Table 3. Convergent Validity of Reflective Measurement Model

Code	Question Items	Loading
NB1	I intend to continue buying (features, items) in mobile game applications.	0.859
NB2	I strongly recommend others buy (features and items) in mobile game applications.	0.825
NB3	I found the in-app purchases of online mobile games useful.	0.794
NB4	I may frequently purchase (features, items) in-app mobile games in the future.	0.867
NB5	I plan to buy more (features, items) mobile games online within the app.	0.889
LY1	This mobile game becomes my first choice.	0.845
LY2	I will continue playing this mobile game.	0.889
LY3	I have willingness to say positive things about this mobile game to others.	0.895
LY4	If others want to play mobile games, I recommend this mobile game.	0.904

WDR1	Do you feel bad when you cannot play mobile games online.	0.895
WDR2	Do you get angry when you cannot play mobile games online.	0.913
WDR3	Do you get stressed when you cannot play mobile games online.	0.937
MM1	Do you play mobile games online to forget real life.	0.695
MM2	Do you play online mobile games to release stress.	0.914
MM3	Do you play mobile games online to feel better.	0.918
RL1	Can't you reduce the time spent playing mobile games online.	0.871
RL2	Have other people unsuccessfully tried to reduce your time playing mobile games online.	0.860
RL3	Do you fail when trying to reduce the amount of time you play mobile games online.	0.830

Convergent validity is getting assessed according to the outer loading. The criteria applied for validity of convergent becomes the outer loading 0.70. One measurement item does not meet the minimum criteria for the convergent validity test, namely MM1, but is still maintained for use because the AVE value in the validity test results meets the criteria. Hair et al., (2013) indicators that has loadings in the range between 0.40 and also 0.70 has to be determined for scal removal by looking at the results of composite reliability or the extracted mean-variance (AVE) above the recommended threshold value. After spreading the data by increasing the number of samples, the authors decided not to delete measurement items whose validity values and AVE values met the recommended criteria. Therefore, the convergent validity test analysis was shown the results (AVE) above > 0.50, Cronbach's alpha and also the value of composite reliability is above > 0.70. The test results can be seen in table 4.

Table 4. Cronbach's Alpha, Composite Reliability and AVE.

Variable	CA	CR	AVE
Withdrawal	0.903	0.939	0.838
Mood Modification	0.800	0.884	0.720
Relapse	0.815	0.890	0.729
Loyalty	0.907	0.934	0.781
In-app Purchase Intention	0.902	0.927	0.719
Information: *Cronbach's Alpha* (CA), *Composite Reliability* (CR), *Average variance extracted* (AVE).			

The test results of AVE, CR, and also the Cronbach's Alpha entire variables exceed the recommended threshold and indicate that the convergent validity test has been met (Hair et al., 2017). Furthermore, the discriminant validity measurement in table 5 shows that the latent construct is known to be higher than the highest relationship of the other constructs of latent (Fornell-Lacker Criterion), so it is concluded that it meets the discriminant validity test.

Table 5. Discriminant Validity

Variable	IaPI	LY	MM	R	W
In-app Purchase Intention	0.848				
Loyalty	0.651	0.884			
Mood Modification	0.435	0.640	0.849		
Relapse	0.505	0.507	0.546	0.854	
Withdrawal	0.474	0.427	0.462	0.732	0.915
Information: *In-app Purchase Intention* (IaPI), *Loyalty* (LY), MM (*Mood Modification*), R (*Relapse*), W (*Withdrawal*).					

The value of the Fornell-Larcker Criterion is larger than the squared correlation value between variables in the results of the discriminant validity computation. A construct is stated to get the validity of discriminant if the indicator has the highest loading value (AVE root) in its construct group (Hair et al., 2019). The value indicates that the discriminant validity has been met, so it can be concluded that each variable can explain something unique and different from one another.

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Inner Model Evaluation

After estimating the model meets the validity of convergent and also the criteria of discriminant validity, the step to do after is to get the structural model tested. Evaluation of this model are able to ne applied by seeing at the odetermination coefficient or R-square. The higher the value of R-square, the better the proposed research model of prediction model. The results of the R-square value is visualized in table 6.

Table 6. R-*square*

Variable	R Square
In-app Purchase Intention	0.309
Loyalty	0.446

The good thing of the fit model in the analysis of PLS is seen from the R-square. Each endogenous variable with a value such as the In-app Purchase Intention variable is 0.309 or (30.9%). In-app Purchase Intention is influenced by the withdrawal, modification of mood, and also the relapse. Moreover, loyalty becomes such an endogenous variable of 0.446 or (44.6%), that shows that loyalty is affected by those three indicators explained.

Hypothesis Testing

Hypothesis testing tests the path coefficients significance showing the independent variables influence on the dependent variable. Applying PLS-SEM with bootstrap, the coefficients of path were defined by testing. furthermore, the significance criteria level of 95% has a standard error of 5% are t > 1.96 and p < 0.05.
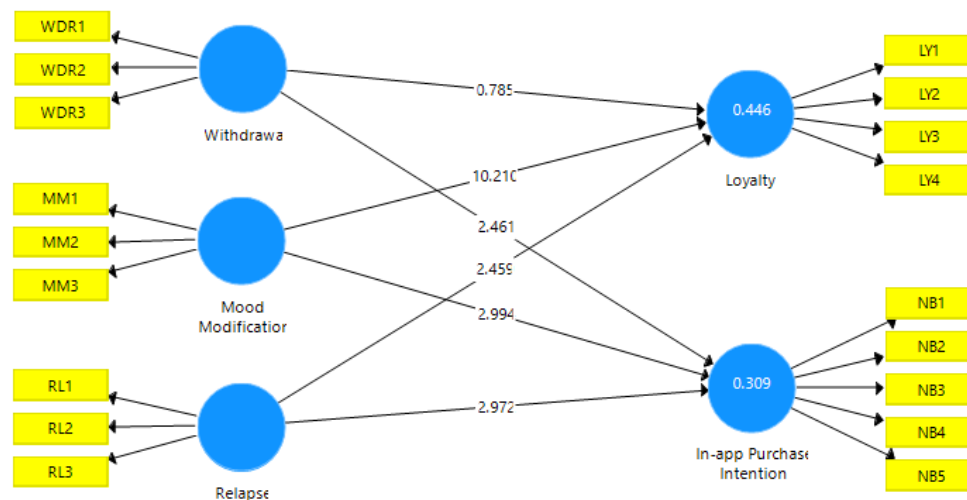

Figure 2. SmartPLS Output

Table 8. Hypothesis Results

Hypothesis	Original Sample	Sample Mean	Standard Deviation	T Statistics	P Values	Decision
H1a	0.052	0.053	0.067	0.785	0.433	Rejected
H1b	0.514	0.513	0.050	10.210	0.000*	Accepted
H1c	0.188	0.191	0.076	2.459	0.014*	Accepted
H2a	0.196	0.199	0.080	2.461	0.014*	Accepted
H2b	0.210	0.212	0.070	2.994	0.003*	Accepted
H2c	0.246	0.248	0.083	2.972	0.003*	Accepted

The coefficients of estimated path (entire significant pathways tends to be denoted by an asterisk) and also the value of T-statistical from this model path of research are visualized in table 8. First, withdrawal and loyalty (H1a) were found to have a T-statistical value of 0.785, which means that withdrawal had no significant effect on loyalty and p-values of 0.433. Second, mood modification and loyalty (H1b) has a T-statistic of 10,210, which means that mood modification has a significant effect on loyalty,

and the p-values are 0.000. Third, relapse and loyalty (H1c) were found to have a T-statistical value of 2,459, which means relapse had a significant influence on the loyalty, and the p-values shown were 0.014. Furthermore, it was also observed that withdrawal, mood modification, and relapse on purchase intention in online game applications (H2a, H2b, H2c) had a positive and significant effect.

V. DISCUSSION

This study investigates the online game addiction model (withdrawal, mood modification, relapse) on loyalty and also purchase intention in online game applications. The model tries to examine the total influence of the three independent variables, the direct effect between withdrawal, mood modification, relapse and loyalty and the direct effect between withdrawal, mood modification, relapse and in-app purchase intention. The total effects model supports all proposed hypotheses except withdrawal and loyalty relationships. This study shows that online game addiction (withdrawal, mood modification, relapse) can stimulate gamers to make in-app purchases. The study results show that withdrawal, namely unpleasant emotions which comes while playing online games getting reduced suddenly or stopped causing users to be disloyal to the game. Loyalty continually develops if there comes a long-term involvement with the users feel supportive and comfortable and also the game (Cheung et al., 2021). Therefore, if the user experiences unpleasant emotions, there is a possibility that the game will stop. This study explores three dimensions of addiction, namely the role of withdrawal, mood modification, and relapse on purchase intention and also finds that the addiction are getting increased the purchase intention likelihood. The current era of technology makes online games gain momentum. Things that get them different from other digital platforms, online games gains their equal attention from the developers and also researchers. Online game addiction is an extreme attitude which are able to stimulate the users for various coming up consequences. This research shows that the addiction of online game is able to stimulate users to purchase in-game applications. Referring to previous studies, online game addiction affects loyalty (Balakrishnan & Griffiths, 2018; Lu & Wang, 2008; Hsiao & Chen, 2016) and in-app purchase intentions of online games (Balakrishnan and Griffiths, 2018). Furthermore, all proposed hypotheses except the relationship (withdrawal and loyalty in this study gives suh a significant influence and are known to be in line with the results of previous research conducted with the contributions and relevance with the study.

VI. CONCLUSIONS

Current technological developments can be used for entertainment purposes, one of which is that mobile games are growing rapidly. Although mobile games have many positive things that can be taken, one of them can make friends and new relationships and even now, online games can be an alternative to earn income or can be said to be a field of employment for gamers who are fond and professional in operating the game. This study proves that online game addiction can affect purchase intention and loyalty to the game. These results prove that converting users into loyal customers becomes the mandatory action to help instilling the purchase intention. However, the addiction of online gaming is an extreme can stimulate the users for various consequences. The addiction of game is, definitely, a conflict for the game developers to choose the way to become responsible or getting as much as profits, given the limited research anticipating the addicted users from having more money to spend and also the risk. Baker et al., (2016) stated that negative electronic word of mouth had been proven to reduce online purchase intentions.

This study has important applications. First, it shows that game developers must also understand the consequences of online game addiction to pay attention to the factors that influence purchase intention. Second, game developers try to design attractive and financially profitable games that will make users feel comfortable and lead to loyalty to the game. Considering game developers only pay attention to the time users spend on games and immerse users into games to make them spend more money. Game developers should also monitor user responses when users play games when errors or circumstances affect their behaviour. An MMORPG research suggests game developers must respond to good opinions for users because addictive behaviour can channel harmful behaviour, whereas online game users can cause the negative electronic word of mouth in responding if there is a game system failure (Liao, 2012). In other words, negative eWOM in online games influences users to continue or stop the game (Fu, Ju and Hsu, 2015). Of course, the research has several limitations, having the relatively young people to be the sample and also only consisted of students and college students, thus limiting the generalizability of the current research. Future research should consider measures of online game addiction by exploring the six core components of addiction (Griffiths, 2010). Furthermore, this research focuses on mobile games provided by one company, namely PUBG mobile. Other omobile games types also have to be investigated.

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