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Mobile Game Adoption Model: Integrating Technology Acceptance Model and Game Features

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Abstract: This study aims to analyze the factors in mobile game adoption that are influenced by game features and technology acceptance models. Partial least square is used to analyze the relationship between game features, perceived ease of use, perceived usefulness, attitude, and intention to play mobile games. This study uses a sample of 408 respondents who have played mobile games in the past month. The results showed that game features are a determinant of intention to play mobile games. Game features also affect players' intentions and attitudes to play mobile games if the game features are easy to play and useful when played. Increasing mobile adoption requires features that are easy to play and useful if played. It will affect the player's attitude and intention to play. Game developers, game designers and game companies must create game features that create a pleasant experience for players. This study bridges the gap in the literature on mobile game adoption by explaining the relationship between game features and technology adoption.

Keywords: game features; perceived ease of use; perceived usefulness; theory of reasoned action; mobile game adoption.

Introduction

Recent years have shown remarkable changes in information and communication technology (ICT) that have affected many individuals because ICT has become an essential factor in their daily activities (Merhi, 2016). ICT has changed people's activities such as the internet, smartphone, personal computer, and mobile entertainment activities. Furthermore, as mobile phones become increasingly sophisticated, the services found on computers are implemented for mobile devices, including games. More specifically, the gaming industry is one of the most developed and has improved the quality and involvement of the gaming

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experience. Integration with Internet technology is increasingly expanding the use of video games, making the gaming experience even more interesting and immersive (Costa & Kuss, 2019). Therefore, the growth of this sector is very optimistic, and this market growth will continue to increase. Thus, it is essential to analyze the factors that influence mobile games adoption.

Mobile games have become a popular activity in various countries in the world, is shown by the positive growth of games. It is supported by the number of game applications downloaded from the Apple Store as many as 21.8 billion game applications and Google Play in Q1 2017-2018, up 15.3% from the same quarter a year earlier (Ramírez-correa et al., 2019). Then, based on the number of mobile game players, the number of mobile game users is 42% of the gaming market, and in 2020 the number of mobile gaming market shares is predicted to increase by more than 50% of the total gaming market. Moreover, Asia Pacific is the fastest-growing region in the coming years is all of Asia, excluding China, Japan, and Korea, with total game revenue increasing to \$ 10.5 billion by 2020 (Almuhanna et al., 2019). Indonesia is one of the countries with a growing number of gamers every year (Riauan & Aziz, 2019) with a total of 9,756,690 people playing online games (APJII, 2019). Therefore, it is important to analyze game adoption in this country, as a country where the number of gamers is growing every year.

The development of gaming technology has made this medium more interactive and immersive. Especially in the smartphone era, there are so many games that can be played with extraordinary features. The technology used in games until the present generation is increasingly developing which makes many games with high quality. Over time, game developers always try to improve the quality of the game by using various game features. Therefore, it is important to analyze game features in the adoption of mobile games. Several game features have been analyzed, such as Chat room, Stream quality, Commentary features, Player characteristics, Event attractiveness, and Stream traits (Qian et al., 2019). Previous research has discussed a lot about game adoption (Baabdullah, 2018; Merhi, 2016; H. Yang & Lin, 2019). However, understanding of the features that are important and can affect game adoption is still limited. Thus, this research fills in the blanks of knowledge about important features that can influence the adoption of a game.

In strengthening understanding of technology adoption, several literatures use technology acceptance model (TAM) (Manis et al., 2018; H. Yang & Lin, 2019). Based on TAM theory, perceived usefulness and perceived ease of use are essential factors in technology adoption. TAM provides a useful basis for research that investigates the acceptance, use, and intentions of subsequent consumer behaviour (Manis et al., 2018). Therefore, perceived ease of use, perceived usefulness, attitude, and intention to play mobile games are exciting to analyze because they can provide significant benefits from an increased understanding of the driving factors in mobile game adoption. However, no research analyzes and integrates game features with TAM.

The scope of this research is limited to mobile game adoption in Indonesia. Therefore, this study aims to gain a clear understanding of the relationship between game features that will encourage the attitude and intention to play mobile games, which are based on TAM. This research was conducted as follows; the next section is a literature review of research variables, theories, and hypothesis development. Then, demonstrate the collection and

measurement of data. Finally, it explains the results, discussion, and managerial implications and points out limitations and recommendations for future research.

Literature Review

Mobile game adoption

The development of mobile games starts with the development of the internet and mobile device technology. In the past decade, the explosion of the internet has shown the potential social benefits of Internet-based services (Toral et al., 2009). Internet users are interested in online games that are considered social stimulation. For example, users can play online games and interact with others anonymously and use virtual characters (Merhi, 2016). The understanding of users intention is the first step towards developing successful digital games (Law & Sun, 2012). More influential predictor of adoption is the intention to use (Liu & Li, 2011). User intention to regulate mood can be an emotional motivation to play online games (Bae et al., 2016). Game designers, marketers, organizations and device developers are interested in motivating players to visit online game websites more often and play so they can achieve their aim depending on their interests from this visit (Merhi, 2016). Based on these opinions, intention is a significant factor in game adoption. Along with the rapid growth of games, research on mobile game adoption is still limited, and there is still room for new studies that help practitioners and researchers understand the factors that lead to mobile game adoption.

This paper fills the knowledge gap regarding mobile game adoption by developing TAM. Figure 1 illustrates the mobile game adoption model offered. It confirms that the intention to play mobile games is a function of game features, perceived ease of use, perceived usefulness, and attitude. Game features are the first antecedent of the adoption of mobile games. If users enjoy their gaming experience, they have more positive intentions towards that game (and maybe games in general) and are more likely to adopt and continue to use it in the future (Merhi, 2016). Several previous studies have analyzed game adoption in the context of digital games (Q. Wang & Sun, 2016), online game (Merhi, 2016), dan virtual reality games (Jang & Park, 2019). Previous research has also discussed mobile game adoption, with the use context is the strongest predictor of mobile game adoption (Liu & Li, 2011). However, limited understanding of game features has not been analyzed in studies related to mobile game adoption. Thus, this study analyzes game features as the main predictor in mobile game adoption.

Technology acceptance model

The TAM explains the determinants of information technology usage. The TAM, initially developed by Davis (1989) has emerged as a robust and parsimonious model (Yousafzai et al., 2010). The original TAM emphasizes the importance of perceived ease of use and perceived usefulness as two critical determinants of acceptance (X. Wang & Goh, 2017). Behavioural intentions built to predict actual use are also essential elements in TAM (Y. Yang et al., 2017). TAM shows that players' perceptions about the level of online games that are easily played affect their perceptions about usability and attitudes towards playing games (Lee et al., 2010). This model is the most influential model for examining user acceptance of technology because of the considerable support from previous studies on various technology adoptions such as digital games (Q. Wang & Sun, 2016), online games

(Merhi, 2016), virtual reality hardware (Manis et al., 2018), mobile game apps (H. Yang & Lin, 2019), dan eSports (Xiao, 2019).

Attitude. In the traditional view, attitude is a cohesive condition of readiness and a lasting state to respond (Eagly & Chaiken, 1993). The original TAM proposes perceived ease of use and perceived usefulness as beliefs about a technology that affects an individual's attitude toward the use of that technology (Davis, 1985). The attitude of players determines their intention to play mobile games. Intention to play online games can be influenced by attitude (X. Wang & Goh, 2017). Players with a better attitude towards such games are more likely to accept and participate in them (Lee & Lee, 2011). Attitude and intention to play mobile social games and help provide implications for successful gaming (Chen et al., 2017). Therefore, it is essential in analyzing attitude in playing mobile games and the effect on intention. The hypothesis is made as follows.

H1: Attitude significantly influences intention to play mobile games.

Perceived ease of use and perceived usefulness. As the most crucial determinant in TAM that can affect the use of the system, perceived usefulness is defined as the extent to which a person believes that using a particular system will improve its performance (Davis, 1989). Perceived usefulness in the game context is defined as any sense of usefulness in playing games (Hamari & Keronen, 2017). Perceived usefulness was found to positively influence attitude (Liu & Li, 2011; Manis et al., 2018) and intention (Y. Yang et al., 2017). Another factor in technology acceptance factor is the perceived ease of use. The perceived ease of use is beneficial in the initial acceptance of innovation and is essential for adoption and sustainable use (Davis, 1989). Perceived ease of use as an essential factor influencing behavioral intention or attitude (Y. Yang et al., 2017). Perceived ease of use, perceived usefulness, and perceived enjoyment significantly associate with attitude and behavioural intention (X. Wang & Goh, 2017). Perceived usefulness in online games such as enjoyment can affect intention to play online games (Merhi, 2016). Intention to play online games can be influenced by perceived ease of use, perceived usefulness, perceived behaviour, dan attitude (X. Wang & Goh, 2017). In mobile games, the more value perceived by mobile game users, the higher their intention to adopt. Thus, the hypothesis is made as follows.

H2: Perceived ease of use significantly influences attitude.

H3: Perceived usefulness significantly influences attitude.

H4: Perceived ease of use significantly influences Perceived usefulness.

Game features

Mobile phone usage that can be carried by users everywhere, is exposed to various social and usage contexts. This capability, in turn, brings new features to user adoption behaviour (Liu & Li, 2011). The development of mobile devices, especially smartphones, playing online games using mobile devices is becoming increasingly popular because it is expanding the variety of places and times for gamers to play online games. (Chen et al., 2017). Online games are usually multiplayer games that allow users to fantasize and entertain (Hsu & Lu, 2004). There are several features in online games that make a person attached to playing online games such as multimedia elements (attractive gaming features for attention to gameplay and learning), fun element (playful gaming features for enjoyable gameplay and learning), interactive elements (gaming features for participation and involvement in gameplay and learning), and motivational element (supportive gaming features for meaningful gameplay and learning) (Abdul Jabbar & Felicia, 2015). Online game features

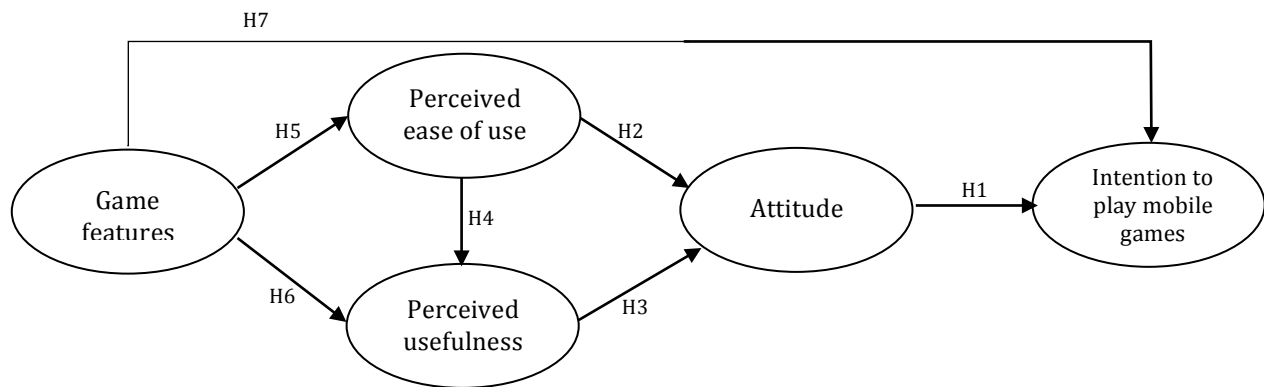
can be divided into several types such as social features, manipulation and control features, narrative and identity features, reward and punishment features, and presentation features (King et al., 2010). Features such as network convergence and interdependence are positively related to the sense of community and relational switching costs affect players' continuing intentions (Tseng et al., 2015). It is more specifically future intention to play games, to continue playing games, to continue playing specific game (Hamari & Keronen, 2017). The hypothesis is made as follows.

H5. Game features significantly influences perceived ease of use

H6. Game features significantly influences perceived usefulness

H7. Game features significantly influences perceived intention to play mobile games

Figure 1. The conceptual model of mobile game adoption



Methods

Data Collection

To evaluate the research model, empirical data was collected through a survey questionnaire and then assessed using the structural equation model. The questionnaire was distributed through an online survey to mobile game communities spread across various regions in Indonesia. The questionnaire was divided into two parts. First, respondent characteristics such as gender, income, experience in playing mobile games, frequency of playing, and game titles. Second, the main component of the questionnaire is the research variable instrument. Each item is measured using a 5-point Likert scale. A total of 497 responses were obtained from the survey. However, only 408 valid responses can be used for further analysis.

Sample

Questionnaires were distributed to mobile gamers through online surveys through mobile game communities in Indonesia. They are well invited to participate in this online survey. Before data collection, respondents in this study had stated that they were willing to provide actual data. After analyzing the survey results, descriptive statistical analysis is used to analyze respondents' basic demographic characteristics. Based on the results of the distribution of the questionnaire to 408 respondents, the demographics of the respondents are shown in Table 1.

Table 1. Sample demographics and gaming behaviors of the respondents

Variable	Description	Frequency	Percent
Gender	Male	308	75
	Female	100	25
Income	<Rp 3.000.000	198	49
	Rp 3.000.000 – Rp 5.000.000	136	33
	>Rp 5.000.000	74	18
Experience in playing mobile games	< 2 years	43	11
	2 – 5 years	142	35
	> 5 years	223	55
Frequency of playing	1 hour a day	141	35
	2 hours a day	133	33
	3 hours a day	72	18
	4 hours a day	27	7
	5 hours or more	35	9
Game most often played	Marvel Future Fight	52	13
	Age of empires	27	7
	Mobile legend	86	21
	Pubg	92	23
	Call of Duty	19	5
	Clash of Clans	14	3
	Hago	12	3
Other	106	26	

Measures

Based on the proposed research model, five primary constructs are measured by several items. These items were adopted or adapted from existing literature. Game features consist of 6 indicators were adapted from (Qian et al., 2019) using a scale that is not very important (1) to very important (5). TAM constructs, namely perceived usefulness and perceived ease of use are adapted from (Chen et al., 2017) using the strongly disagree scale (1) to agree (5) strongly. Attitude is measured on four semantic differential items adapted from (Xiao, 2019) using a 5-point Likert scale, extremely bad (1) to extremely good (5) for the first statement item, worthless (1) to extremely valuable (5) for the second statement item, unpleasant (1) to Extremely pleasant (5) for the third statement item, and Boring (1) to Extremely Interesting (5) for the fourth statement item. Then, intention to play mobile games is measured by four items adapted from (Merhi, 2016). All items are measured on a 5-point liker scale, ranging from extremely unlikely (1) to extremely unlikely (5). The questionnaire was first developed in English, then translated into Indonesian. Translations back into English are done by the author to ensure the accuracy of the translations. Specific items are presented in Table 2.

Findings

This research is a quantitative study in analyzing mobile games adoption by developing TAM theory. The analysis technique used is Structural Equation Modeling (SEM) based on variance (SEM-PLS). This technique is recognized for estimating path coefficients in structural models (Hair et al., 2017). There are two stages in SEM-PLS, namely analyzing the measurement model and analyzing the structural model. This method was chosen

because it allows researchers to analyze latent constructs with medium and small sample sizes, and when the data distribution is not normal (Chin et al., 2008).

Measurement Model

In evaluating the measurement model, the first step of data analysis is to check the reliability and validity of the construct by evaluating outer loading, average variance extracted (AVE) and composite reliability (CR). The loading factor measurement results show that all loading factors are significantly higher than 0.7 so that they are acceptable. The average variance extracted (AVE) exceeds the recommended value of 0.5. Composite reliability (CR) meets the recommended level of 0.7 (Hair et al., 2017). The reliability test indicates that the constructs are reliable as all of the Cronbach' Alpha values are above the suggested level of 0.7 (Hair et al., 2017).

Table 2. Measurement items

Constructs	Item	Loading	α	CR	AVE
Game features	Chat room	0.850	0.912	0.932	0.696
	Stream quality	0.768			
	Commentary features	0.830			
	Player characteristics	0.758			
	Event attractiveness	0.879			
	Stream traits	0.908			
Perceived ease of use	It is easy for me to play mobile games	0.808	0.700	0.833	0.714
	It is easy for me to master the rules of the games.	0.878			
Perceived usefulness	Playing mobile games makes my life different.	0.830	0.834	0.901	0.752
	Playing mobile games makes my life better.	0.829			
	Playing mobile games is useful for me	0.939			
Attitude	For me, playing mobile games is extremely bad...extremely good	0.747	0.773	0.855	0.595
	For me, playing mobile games is worthless...extremely valuable	0.791			
	For me, playing mobile games is unpleasant...Extremely pleasant	0.745			
	For me, playing mobile games is Boring...Extremely Interesting	0.802			
Intention to play online games	I intend to play mobile games in the future	0.782	0.834	0.901	0.753
	I intend to continue playing mobile games	0.809			
	I believe I will play mobile games in the future	0.860			
	The mobile game that I play right now is my first choice	0.815			

The discriminant validity of the measurement model by comparing the square root of the AVE for each construct with the correlations between that construct and other constructs. If the square root of the AVE is greater than the correlations between that construct and other constructs, then this value indicates discriminant validity (Fornell & Larcker, 1981). The results in Table 3, the square root of AVE for each construct exceeds the correlation between that construct and the other constructs. Therefore, discriminant validity is established. The results of the measurement model have met the criteria.

Table 3. **Fornell-Larcker criterion (Discriminant validity) and mean**

	1	2	3	4	5
1. Attitude	0.771				
2. Game features	0.632	0.834			
3. Intention to play mobile games	0.674	0.674	0.817		
4. Perceived ease of use	0.243	0.299	0.328	0.844	
5. Perceived usefulness	0.392	0.256	0.317	0.295	0.867

Note. ATT: attitude; GF: Game features; PEU: perceived ease of use; PU: perceived usefulness; INT: Intention to play mobile games.

Structural Model

For the second step, the bootstrap procedure with 5,000 reps is used to evaluate all construct significance and path coefficients (Chin et al., 2008). Data analysis noted that game features and perceived ease of use explained 0.113 (11.3 per cent) variance of perceived usefulness. While perceived ease of use and perceived usefulness explain 0.167 (16.7 per cent) variance of attitude. Attitude and game features explain 0.554 (55.4 per cent) variance of intention to play mobile games. Chin et al., (2008) have grouped R^2 values into three groups, weak ($R^2 = 0.19$), moderate ($R^2 = 0.33$) and substantial ($R^2 = 0.76$). Based on the grouping, the R^2 value of intention to play mobile games is close to substantial. Then, in measuring the relevance of construct prediction, Chin et al., (2008) suggest Q^2 technique of predictive sample reuse. The results of the Q^2 test have noted that Q^2 values of all constructs are positive and higher than the recommended cut-off value. That is, these findings indicate that the proposed model can explain the data.

The next step is to test hypotheses. The structural model test shows the relationship between latent variables with other latent variables. Table 4 shows the estimated direct path coefficients of all the variables tested.

Table 4. **Hypothesis testing result**

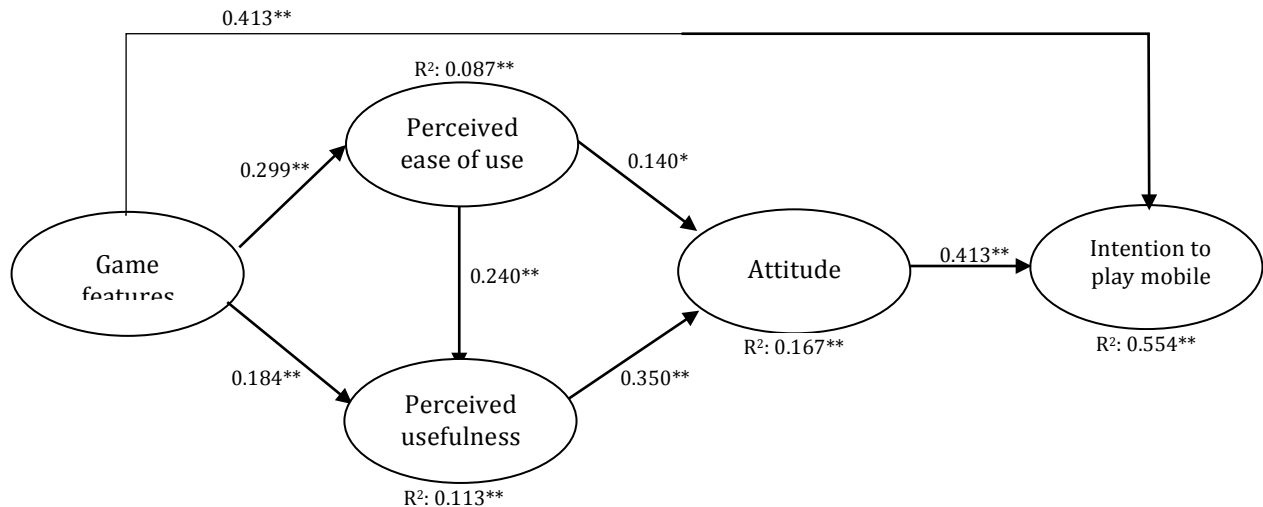
Hypothesis	Path Coefficient	T Statistics	Results
H1. Attitude ->Intention to play mobile games	0.413	9.598**	Supported
H2. Perceived ease of use ->Attitude	0.140	2.677*	Supported
H3. Perceived usefulness ->Attitude	0.350	7.135**	Supported
H4. Perceived ease of use ->Perceived usefulness	0.240	4.852**	Supported
H5. Game features ->Perceived ease of use	0.299	6.315**	Supported
H6. Game features ->Perceived usefulness	0.184	3.859**	Supported
H7. Game features ->Intention to play mobile games	0.413	8.553**	Supported

Note. *p < .05. **p < .01.

Based on the results of hypothesis testing shows that attitude has a significant effect on the intention to play mobile games ($\beta = 0.413$). Perceived ease of use has a significant effect on attitude ($\beta = 0.140$), perceived usefulness has a significant influence on attitude ($\beta = 0.350$). Perceived ease of use has a significant effect on perceived usefulness ($\beta = 0.240$). Game features have a significant effect on perceived ease of use ($\beta = 0.299$), and perceived usefulness ($\beta = 0.184$), and intention to play mobile games ($\beta = 0.413$). Overall, all hypotheses are accepted. The most significant total effect is the game features on intention

to play mobile games. This research model successfully revealed the importance of game features in the adoption of mobile games. The results of direct influence between variables and R^2 values are illustrated in Figure 2.

Figure 2. Model Results



Note. Significance * $p < .05$. ** $p < .01$.

Discussion

The results of this study indicate that the intention to play mobile games is influenced by attitude and game features ($R^2 = 55.4\%$). Empirical data support the proposed model. All hypotheses are accepted. The coefficient in Fig. 2 shows that intention to play mobile games and attitude has the same effect ($\beta = 0.413$; Sig. at 0.001) on intention to play mobile games. The research results revealed that game features quality play an important role in one's desire to play mobile games directly or through other variables (TAM), which is also confirmed with the findings of some studies about the intention to play a game (Jang & Park, 2019; Merhi, 2016). In other words, game features can influence the attitude and intention to play mobile games. Rapid technological developments also affect the development of game features, but high-tech game features must also adjust to the expectations of players, thereby affecting the attitude and intention to play mobile games.

Looking more closely at the model, we can find that attitude in this study has two antecedents, namely perceived ease of use and perceived usefulness. These antecedents are significant, supporting hypotheses 2 and 3. Perceived ease of use and perceived usefulness as important factors that influence attitude. This is consistent with previous research (Manis et al., 2018; Q. Wang & Sun, 2016). These findings emphasize to practitioners and especially to game designers and game producers in attracting more players, they must focus on the ease of features to use and provide benefits for players. Thus, if the game features can be easily used to create an exciting experience for the player, then it can affect the player's attitude towards mobile games. This study shows the better-perceived ease of use and perceived usefulness, more positive attitude, and ultimately affect intention to play mobile games positively.

The results also show a significant effect of perceived ease of use on perceived usefulness. Thus, hypothesis 4 is accepted. The findings of this study regarding the relationship of

perceived ease of use and perceived usefulness support the findings in the previous literature (Manis et al., 2018; H. Yang & Lin, 2019). These results indicate that the easy operation of game features will cause players' perceptions of usefulness in mobile games. Perceived ease of using mobile games can help players quickly realize the contents of mobile games and respond intuitively to the mission of mobile games, thus then achieving satisfactory entertainment and fun (H. Yang & Lin, 2019). Perceived ease of use may play a greater role because hardware functionality might not provide maximum efficiency or usability for consumers (Manis et al., 2018). Therefore, the results of this study emphasize the importance of perceived ease of use in a game. This research also provides evidence in creating game features that are easy to use so that players can feel the benefits of playing the game.

Game features play an essential role in the perceived ease of use and perceived usefulness. It supports hypotheses 5 and 6. It should be noted that game features strongly and significantly influence the formation of players' perceptions about all aspects of mobile gaming, including perceived ease of use and perceived usefulness. The mobile game has several features, such as chat rooms, stream quality, commentary features, player characteristics, event attractiveness, and stream traits. These features give players a flexible way to play mobile games. Players can play mobile games anytime and anywhere. This flexible way allows players to play mobile games comfortably and provides a seamless experience when players switch between playing games and daily activities. The more people feel they have to achieve in the game, the more they adopt and play the game, and more importantly, the more they want to come back and play it again (Merhi, 2016). Therefore, it is vital for building features that can simplify and benefit players.

Overall, this research has been successful in analyzing the adoption of mobile games that are influenced by game features. When using technology is fun and pleasurable, users will be intrinsically motivated to adopt it (Lee et al., 2010). Feelings of players in playing games such as feeling their lives become different, getting better, and feeling the benefits of playing games will tend to have a positive attitude to continue playing the game. These results provide evidence that the usefulness in playing games has a significant effect on attitude and intention to play mobile games. More than that, game features that are easy to play can provide a good experience for players to play the game. In conclusion, in designing a game features it is necessary to analyze the factors perceived ease of use and perceived usefulness for players who will provide a good experience in playing mobile games and then influence attitudes and intentions in playing mobile games.

This research contributes to the literature in several ways. This study identifies and confirms that the factors that influence attitude are essential factors in increasing intention to play mobile games. Thus, we modified TAM and added the game features factor to the model. These results confirm that game features play an essential role in influencing intention to play mobile games either directly or through TAM variables such as perceived ease of use and perceived usefulness. That is, mobile game adoption is influenced by game features that can provide convenience and benefits for players in playing it. Future research can adapt our research model to investigate specific mobile game applications.

Conclusion

The modified TAM version was chosen to explore all factors. The implementation of the TAM model has helped in exploring game features that have an impact on the intention to play mobile games. Through this factor, new dimensions and perspectives have been examined in this study. Decision-makers can identify factors and can also modify to enhance intention to play mobile games. The results showed the importance of game features in influencing intention to play mobile games, either directly or through other variables. Chat room attributes, streaming quality, comment features, player characteristics, event attractiveness, and streaming properties are essential for developers in improving the quality of game features. These features must also be able to make it easy for players to play a mobile game and must also be able to provide benefits and exciting experiences for players.

Analysis has shown that several variables affect attitudes such as perceived ease of use and perceived usefulness. Perceived usefulness gives a more significant effect on attitude. Better game features will contribute significantly to attitudes through perceived usefulness and perceived ease of use. Someone will feel good, valuable, pleasant, and interest in playing mobile games if the game can provide benefits and convenience. Therefore, it is essential to pay attention to these two factors in designing game features.

The findings of this study also provide several important practical implications for practitioners of mobile game applications. This research reveals that game features are an essential factor in games adoption. Game developers are advised to pay more attention to design features that are easy to use and provide benefits. It is considered necessary to make interactions more comfortable, smoother, more efficient, and provide exciting experiences to improve the attitude and intention to play mobile games. For example, it would be better to have a chat room, good stream quality, commentary features, interesting player characteristics, event attractiveness, and stream traits so that players can feel comfortable playing mobile games, always connected to the game, and provide ease in playing a game. This research can contribute to an effective process in mobile game adoption for game developers and other related parties.

There are several limitations in each study, including this study. First, this study is only limited to one major factor affecting intention to play mobile games, namely game features. Future research is expected to add another critical variable in the adoption of mobile games. Secondly, this research is still limited to gamers in Indonesia as respondents. Thus, the findings cannot be generalized in all countries, because each country has different player characteristics. Future studies are expected to expand research with respondents from various countries or compare players in several countries. Third, we must emphasize that research related to games is limited by time. That is, the game market can change very quickly, and the demands and expectations of gamers can change quickly. Future studies are expected to adjust the situation. Fourth, respondents are currently limited to the background of players in some popular games. Future studies are expected to divide respondents according to the type of game being played. It is because each game has different player characteristics.

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