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Gamification on Mobile Payment Application: Uses and Gratification Perspective

Mutia Fadhila Putri[a], Ratna Juita[b], Achmad Nizar Nidayanto[c], Dedi I. Inan[d,*]

[a] *Master, Information Technology, Universitas Indonesia, Indonesia*
[b] *Lecturer, Informatics Department, Universitas Papua, Indonesia*
[c] *Professor, Information System Department, Universitas Indonesia, Indonesia*
[d] *Associate Professor, Informatics Department, Universitas Papua, Indonesia*

ABSTRACT

Indonesia has the largest potential mobile payment (m-payment) market in Southeast Asia. The government has realised this through Government's National Non-Cash Movement to increase its adoption. This is then followed up by advocating its adoption massively. However, for this movement to be a success, ensuring its continued use is critical. Various studies have attempted to contribute to this issue. Incorporating game elements into the application that brings benefits and satisfaction to its user is envisaged as one of the most feasible ways. This study, therefore, sets out to investigate the effects of gamification on the m-payment application, which drive the intention to continued use by employing the Uses dan Gratification Theory (UGT). A total of 826 m-payment users were gathered to be analysed using Structural Equation Modelling. The results show that utilitarian, hedonic and social gratifications have significant effects on the continuance usage intention of m-payment. Theoretically, this study contributes to the literature by showing that gamification applied in the payment significantly affects the m-payment continuance usage intention. Practically, this research informs the m-payment providers to maintain the gamification elements in their applications to ensure their sustainable use. Limitations and future research directions are also discussed.

Keywords: Mobile Payment, Gamification, Use and Gratification Theory, Continuance Intention, User Satisfaction

Ⅰ. Introduction

The Covid-19 pandemic has changed dramatically the way people interact and transact. As a precautionary measure financially in response to this, the World Health Organization (WHO) issues a recommendation across the globe to advocate the adoption of contactless payment modes in public financial transactions (Nortajuddin, 2020). This is not to mention that due to the imposing activity restrictions, people are forced to stay home which leads them to go online for their needs. These drive market and

*Corresponding Author. E-mail: d.inan@unipa.ac.id

trend of contactless payment methods such as m-payment to be massively utilised. In Indonesia in particular, the m-payment trend increases significantly as it profoundly changes people's daily lives. It can be used as traditional payment methods such as e-commerce transactions, bill payments, etc., but in more efficient and effective ways.

In a transaction, it requires only a smartphone to proceed. Mobile payment gains its popularity because of the technological advancements in mobile phones. They are now commonly utilised in almost all financial transactions. These developments have also been aided by the expansion of mobile commerce and the implementation of legislation that allow for cashless payments in both developed and developing nations. Mobile payments enable consumers to complete purchases on their mobile devices; the simplicity of this method is encouraging an increasing number of individuals to buy online. Withstanding all these benefits and their largest potential markets (Phua, 2020), its continuance usage intention is challenging. As there are many m-payment providers (i.e., GoPay, OVO, DANA, LinkAja, etc.), the issues lie in how to retain the existing users of a product while these various providers come with their features and benefits.

One of the ways that the m-payment providers can embrace to increase customer retention is by harnessing the gamification concept in their m-payment applications (Putri et al., 2019). Gamification has been utilised in marketing strategies to engage customers and retain them of a particular product or service (Koivisto Hamari, 2019; Rodrigues et al., 2016; Yang et al., 2017). This is undertaken by improving user experience with the product and service they use. Gamification itself is defined as implementing game elements in a non-game context (Deterding et al., 2011). This is aimed to intimately engage with users in a way to make them enjoy using a product. Once the customers are happy using the m-payment application for transactions, they are likely to keep using it.

Our paper focuses on gamification, which is the use of game mechanics and thinking in non-gaming contexts to increase levels of engagement and improve the user experience by incorporating gaming aspects into m-payment (non-game) environments. This is driven by the fact that there are various m-payment applications out there. Each of them offers similar functionalities of payment technology but with distinctive features. Thus, for an m-payment company, improving user engagement for the user to continue using the application is crucial for business sustainability. Gamification has been used to promote excellent decision-making, which connects the phenomena to the idea of "choice architecture" as it is described in behavioural economics (Hamari and Koivisto, 2015a). In this context, gamification is aimed to boost intrinsic incentives for different tasks, often by incorporating game-like design elements. Simply put, companies now need to consider issues other than just product quality (Hamari and Koivisto, 2015a) to enhance exceptional user experience, including hedonic, utilitarian, and social gratifications.

For instance, gamification elements have been used by Facebook, eBay, Foursquare, and Twitter to increase user engagement on their websites (Hsu and Chen, 2018a). Correspondingly, in order to foster close relationships with their users and, particularly to encourage viral behaviour in order to increase the popularity of their sites, a variety of internet platforms, especially social networking websites, have incorporated various aspects of gaming with notable commercial success (Domínguez et al., 2013). Particularly in the m-payment research, lesson learnt from China (Ren and Tang, 2020; Wong et al., 2021),

Ghana (Alhassan et al., 2020), India (Singh, 2020), Vietnam (Bùi and Bùi, 2018), and also from the developed country such as the US (Park et al., 2019), have demonstrated how well gamification can be used in marketing campaigns to help consumers understand the benefits of a product or service, both to increase engagement and, via that engagement, to improve brand equity. Other scholars, for instance, Hwang and Choi (2020) confirm that loyalty programs' gamification enhances consumers' participation and usage intention. However, for the competitive advantage for the providers and ascertaining their success of the cashless movement, guaranteeing its sustainable use by the customers is critical. This is not to mention that acquiring new customers may cost as much as five times more than retaining existing ones, given the costs of searching for new customers, setting up new accounts, and initiating new customers to a particular Information System (IS) (Bhattacherjee, 2001). As such, investigating the m-payment continuance usage is the pathway toward its successful implementation.

In the context of the study, although m-payment services in Indonesia, such as Gopay, OVO, ShopeePay, and DANA, LinkAja, have utilised gamification concepts in loyalty programs (e.g., implementing points and rewards to increase the loyalty of m-payment users), the gamification employed in their applications do not reflect the optimum benefit for their services to be recognised and used efficiently by the users. This is because gamification is context-aware (Mitchell et al., 2020), and for the effective implementation of gamification, there should be a thorough understanding of the gamified elements employed in the application. In other words, to be able to obtain the optimal benefits of the gamification, its elements need to be fit and explicitly recognised by users and they will understand and be satisfied with the product offered.

Therefore, this research aims to contribute to this issue by improving our understanding of how gamification influences the continuance usage of m-payment better. This is approached by utilising the Use and Gratification Theory (Deterding et al., 2011). A growing body of literature that recognises that UGT in Information Systems (IS) is suitable as a means to explore and understand the continuance usage intention, for instance in a food delivery application (Ray et al., 2019), social media (Korhan and Ersoy, 2016), purchasing virtual goods (Kaur et al., 2020) and e-commerce (Karać and Stabauer, 2017). The use of UGT is focused on how customers choose the media to satisfy their needs. Moreover, they also show that employing the theory in the different research contexts results in different gratification roles in predicting continuous usage intention (Hamari and Koivisto, 2015a; Putri et al., 2019; Rodrigues et al., 2019). However, they also show that there is a lack of understanding of how the gratifications impact individuals' continuance intention to use gamification incorporated in m-payment. This research thus aims to investigate this issue by proposing these two research questions: What type of gratifications embodied in the gamification affect the satisfaction on m-payment? and How gamification affects the continued use of m-payment?

The paper is organised as follows. The next section provides the theoretical background overview. The research model and hypotheses are developed in Section 3. This is continued with the research methodology in Section 4, followed by data analysis in Section 5. The result is discussed in Section 6. Section 7 concludes the paper with a focus on the theoretical and managerial implications and ends with limitations and future research directions.

Ⅱ. Theoretical Background

2.1. M-payment

M-payment is a payment method that utilises mobile communication technology to facilitate the transactions for goods and services using mobile devices (Dahlberg et al., 2015). M-payment services are categorised based on service providers, payment methods, payment acceptance, and system transparency (Smart Card Alliance, 2008). M-payment services have enabled various types of transactions in daily needs, such as payment for services, insurance bills, tickets, direct payments on vending machines or Point-of-Sale (POS), and transfer bank transactions (Handarkho, 2020). In various financial transactions, m-payment offers a better mobilisation, more secure, and faster payment system than that of traditional methods. Covid-19s pandemic has driven customers to be reluctant to use cash and card physical payment options (Aji et al., 2020).

Thus, m-payment becomes a payment option with non-contact prevention that has been promoted to be a precaution measure in slowing the spread of Covid-19 (Ren and Tang, 2020). In addition, it turns out that the users are more comfortable using m-payments than traditional payment methods (Grover and Kar, 2020). Various factors such as attitude, subjective norm, perceived behavioural control, perceived usefulness, satisfaction, and enjoyment positively influence the engagement and intention to use m-payment.

2.2. Gamification in M-payment

There are various definitions of gamification among researchers (Deterding et al., 2011; Fitz-Walter et al., 2016). They define gamification as using game elements in non-gaming systems to improve user experience and user engagement by integrating game elements such as process bar, badges, user avatars, and game levels into a website, mobile application, marketing strategy, or loyalty program. In mobile applications, implementing gamification can affect user emotions and at the same time reduce task errors while using the application (Koivisto and Hamari, 2019). In business practices, gamification used for loyalty programs has become a popular trend and positively affected user experience, encouraging brand equity, customer loyalty, and a competitive advantage in the online context (Hsu and Chen, 2018a). It is also employed to increase customer engagement and encourage behaviour change (Rodrigues et al., 2019).

Notwithstanding the potential impacts of gamification utilisation, there is still a dearth of literature that defines and analyses the gamification effects on m-payment's continuance usage. This is not to mention that they do not always demonstrate the positive effects in a non-gaming context. Therefore, harnessing the gamification concept has to ensure that the game elements corresponding to the product requirements and goals to obtain the product value have to meet user requirements. In addition, to its potential use in various fields, gamification in a non-gaming context should guarantee to increase the customers' motivations to use it.

2.3. Uses and Gratification Theory (UGT)

Essentially, UGT has been widely used in mass communication and IS research (Gan and Li, 2018). UGT is based on a socio-psychological approach to determine the thoughts, feelings, and behaviours that influence human preferences in choosing a particular media to meet their requirements (Hicks et al., 2012). Katz et al. (1974) explained that UGT could be used as a theoretical basis for understanding and investigat-

ing why and how individuals actively choose one media over the others to gratify and meet their needs. UGT can be formulated as an approach to media study focusing on the uses to which people put media and the gratifications they seek from these uses (Baran and Davis, 2009, p. 323). Instead of trying to understand the effect of media on individuals, UGT asserts that people embrace it because they think it can be used to fulfil their needs. In the UGT perspective, users are no longer passive but instead actively seeking the type of media to use to satisfy their specific needs.

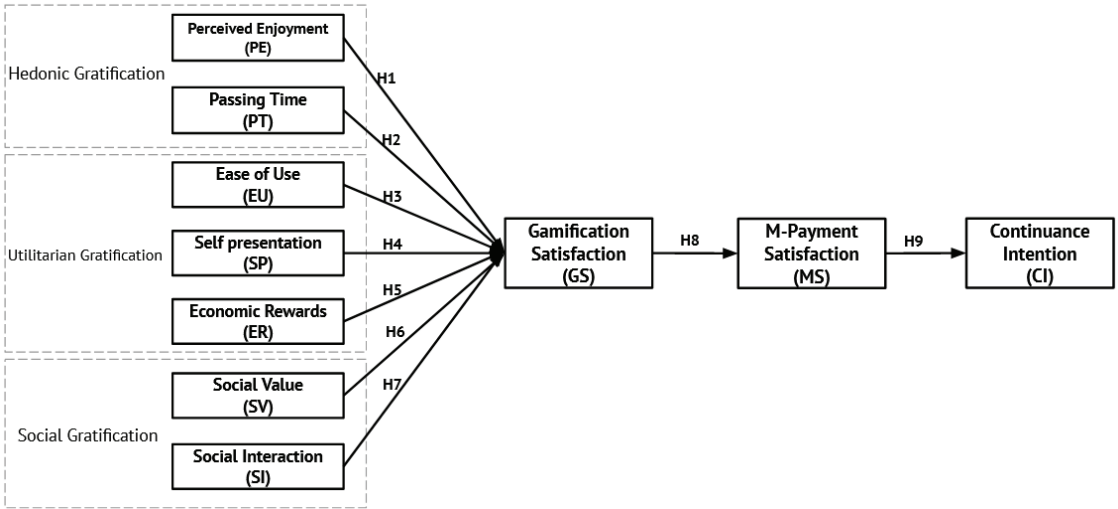
Prior studies have identified various gratifications factors obtained in conjunction with media uses. For example Liu et al. (2016) identify types of gratification derived from the use of microblogging such as content gratification (information sharing, self-documentation, and self-expression) and technology gratification (convenience, media appeal, and social presence). Others identify social gratification (social benefits, social enhancement) and utilitarian gratification (economic incentives and message intrigue) as factors driving users' intention based on social word-of-mouth (sWOM) to use mobile social networking sites (SNSs) (Kaur et al., 2020; Korhan and Ersoy, 2016; Lin et al., 2017). A study by Gan and Li (2018) categorizing factors affecting the continuance intention to use WeChat in China are motivated by technology gratification (media appeal), hedonic gratification (perceived enjoyment), and utilitarian gratification (information sharing). This is similar to the one identified in our previous study (Gan and Li, 2018; Putri et al., 2019) that hedonic gratification (perceived enjoyment and passing the time), utilitarian gratification (ease of use, self-presentation, information quality, and economic rewards), and social gratification (social value) as the gratifications sought in m-payment usage.

These studies demonstrate that the UGT perspective offers consumers the freedom to choose their preference's media to consume. As mentioned earlier, this study employs the UGT paradigm to explore and understand how gamification can influence the continuance intention to use m-payment. In our view, the UGT is suitable for explaining whether the gratifications obtained from individuals' prior use of gamification in m-payment determine their continuance intention to use the m-payment. Drawing from UGT, this study proposes the research model that contains three gratifications categorized as hedonic gratification (perceived enjoyment, passing Time), utilitarian gratification (perceived ease of use, self-presentation and economic rewards), and social gratification (social value and social interaction).

Ⅲ. Research Model and Hypothesis Development

3.1. Research Model

This study is drawn based on the UGT. It frames our research model to capture the different types of gratification in the context of continuance usage of m-payment. Specifically, the research model used in the present study is adapted from these (Gan and Li, 2018; Putri et al., 2019). Our previous work (Putri et al., 2019) discovered that utilitarian gratification substantially influences consumers' incentive to continue using a particular m-payment application. This is congruent with the results of (Gan and Li, 2018), which indicate that the m-payments as case studies in the research are more user-friendly and efficient. People tend to present themselves well to develop positive images. They collect points from the m-payment they use to present them and compare them to other users. In addition, it was also found that economic rewards significantly influence the in-



<Figure 1> Proposed Research Model

dividuals' intention to continue using the m-payment application. Greater rewards motivate the users to continue collecting points from using it and they are particularly inclined to share them with others to get feedback. The research model is described in <Figure 1>.

As earlier described, there are various gratifications types. However, in this study, the rationale for choosing these three gratifications is based on our previous work here (Putri et al., 2019). We qualitatively have identified these three gratifications: hedonic, utilitarian, and social, as the most popular ones that motivate users to continue using m-payment in the Indonesian context. Notwithstanding this, here (Putri et al., 2019), the conclusion was based on only one m-payment application, GoPay. Thus, a further investigation is sought to justify the findings with larger sample size and with various m-payment applications in Indonesia as different contexts and providers might drive different users' behaviours. In particular, for the passing time and perceived enjoyment, identified as hedonic gratification in our proposed model, gamification significantly impacts them (Hsu and Chen, 2018b). Although this is in the context of e-commerce, the finding reveals the effect of gamification on these gratification factors.

Moreover, although (Bùi and Bùi, 2018) posited that hedonic value should not be overrated compared to the application's functionalities itself, whether the application can drive a feeling of joy and happiness, and whether the application can be of useful for users in their spare time when using it is the entry point that might impact them to continue using it. This is because of the nature of gamification itself, that is, the game elements in a non-gaming context.

3.2. Hedonic Gratification on M-payment Gamification

Several gratification factors are considered as the key motivators that influence the individuals' motivation to continue using the m-payment application. Two factors identified from hedonic gratification are perceived enjoyment and passing time (Putri et al., 2019). The perceived enjoyment is recognized as the need for gamification to provide pleasure to the users

when they use the application, the m-payment application. This perception affects the user's satisfaction with m-payment (Li et al., 2015) and it is represented by the feeling of happiness expressed by the user during the use of m-payment.

The hedonic gratification also means that gamification applied in the m-payment encourages users to use m-payment frequently when they have nothing much left to do. In hedonic gratification, it is recognised as a passing time factor: using an application to occupy the time when one has nothing better to do (Gan and Li, 2018). The passing time is also considered a condition in which users fill their spare time by using m-payment gamification without any issue (Kaur et al., 2020). In addition, passing time is also viewed as a factor that makes users feel satisfied and motivated to use internet media in their spare time because it is convenient and entertaining. Withstanding these, we hypothesise that:

H1: Perceived enjoyment affects gamification satisfaction.
H2: Passing time affects gamification satisfaction.

3.3. Utilitarian Gratification on M-payment Gamification

Utilitarian gratification is defined as expected or obtained value from using a specific media related to the factors of usefulness and benefit or advantage (Gan and Li, 2018; Hamari and Koivisto, 2015a). In this study, the media is the gamification per se applied on m-payment that provides several benefits and helps the user to improve their productivity (Putri et al., 2019; Wong et al., 2021). This study promotes the perceived ease of use, self-presentation and economic reward as factors of the utilitarian gamification applied in m-payments to increase the users' satisfaction.

We assume that these three factors are identified as utilitarian gratification influencing user satisfaction while using m-payment gamification (Putri et al., 2019). The perceived ease of use is defined as the extent to which a person believes that using a certain system does not require too much effort (Davis, 1989). The perceived ease of use is seen in how easy gamification on m-payment can be used by users that might influence their satisfaction. Self-presentation refers to users' efforts to represent themselves in a certain image which influences the way others perceive and treat them based on it (Gan and Li, 2018). The last of these three is the economic rewards. This study is seen as a concept of gifts that has economic value that benefit the users. Economic rewards in gifts with the economic value might affect users' satisfaction when using the m-payment (Bastian et al., 2015). Based on these backgrounds of utilitarian gratification, this paper suggests the following hypotheses:

H3: Perceived ease of use affects gamification satisfaction.
H4: Self-presentation affects gamification satisfaction.
H5: Economic rewards affects gamification satisfaction.

3.4. Social Gratification on M-payment Gamification

Social gratification is related to social motivation that influences individuals to use specific media to satisfy their needs. This, for instance, is manifested in the motivation to build interactions with other people in a particular society, follow trends in society, or be part of human relationships that require understanding from others (Li et al., 2015). In this study, it is represented in two constructs to measure these interactions and their motivation: social value and social interaction (Putri et al., 2019). Referring to Lee et al. (Lee et al., 2014), social value is defined as the improvement of an individual's self-perception

provided by a product or service. In this context, while social value affects other people's perceptions of whether or not someone should use a particular media, which in this context of the study is the m-payment itself, the social interaction factor is identified as the need for facilitating interaction and discussion with other people (Hamari and Koivisto, 2015b).

These factors in this particular context help to create social interactions, affecting one's satisfaction in using gamification (Hsu and Chen, 2018a). These imply that the users tend to share and interact with others as a social entity. Once the m-payment satisfies their expectation of using it, they are inclined to interact and share it with those who use the application. The gamification incorporated in the m-payment application allows all these to happen, facilitating users' satisfaction with m-payment. Once they are satisfied, they tend to sustain their use of the m-payment application. Therefore, this study proposes hypotheses as follows:

H6: Social value affects gamification satisfaction.
H7: Social interaction affects gamification satisfaction.

3.5. Gamification Satisfaction on M-payment Satisfaction

In the context of our study, m-payment users are satisfied with the application once the gamified elements incorporated in it bring happiness to them. In other words, the positive attitude perceived by the users as a result of enjoying the gamification on the m-payment application tend to have the same positive effect on the service per se (Wong et al., 2021). This implies that for the users to have satisfaction with the m-payment, they also need to have the satisfaction with the positive attitude of using gamified elements in the application. This is because gamification elements integrated into the m-payment are with the aim to improve the user experience of the application itself. Therefore, the users are satisfied with the m-payment application once they are satisfied with the gamified elements. Withstanding this, we posit the following hypotheses:

H8: Gamification satisfaction affects m-payment satisfaction.

3.6. M-payment Satisfaction on Continuance Intention

In the context of continuance usage intention of a particular IS, the key factor that determines it is user satisfaction (Bhattacherjee, 2001; DeLone and McLean, 2016). In the context of the research, it means that once users are satisfied with the m-payment they tend to be loyal to it. User satisfaction, according to DeLone and McLean (2016), is highly related to the continuance intention, which is a consequence of system success per se. It has been a popular measure of IS success and has served mostly as a surrogate measure for the other dimensions of success. This study hypothesises that users' satisfaction in utilising m-payments affects the continued use of m-payment. Therefore, this study suggests the following hypotheses:

H9: M-payment satisfaction affects m-payment continuance intention.

Ⅳ. Research Methodology

4.1. Data Collection

For data collection, a questionnaire is developed. However, a readability test was performed prior to

submitting to the respondents to avoid bias and wordy sentences. Five respondents were involved in this test. The questionnaire was then improved as a result of the test. Once it was ready, we distributed the questionnaire online via social media channels and email. This data collection stage was conducted from March to April 2020 with a snowballing sampling technique (Hair et al., 2014). The target respondents are Indonesians who have used an m-payment at least once. As this study is confirmatory research, Structural Equation Modelling (SEM) is used as the data processing with Amos 26.0 software.

4.2. Research Instrument

All the measurement items of each construct as in Figure are measured using a 5 Likert scale in which 1 (one) represents strongly disagree and 5 (five) represent strongly agree. The measurement indicators themselves in this study are adopted from prior literature and further adapted to the context of the research which can be seen in <Table 2>.

<Table 1> Socio Demographics Respondents

Demographics		Number of Respondents	Percentage
Gender	Men	347	45%
	Women	424	55%
Age	Under 20 years old	76	9.9%
	20-25 years old	448	58.1%
	26-30 years old	150	19.5%
	31-40 years old	63	8.2%
	Over 40 years old	34	4.4%
Education	High school	171	22.2%
	Diploma	47	6.1%
	Bachelor's degree	438	56.8%
	Master's degree	107	13.9%
	Doctoral	6	0.8%

4.3. Sample

Of 826 respondents, only 811 respondents completed their questionnaires thoroughly. As we processed it, we then excluded 40 data due to outliers.

<Table 2> Average Variance Extracted (AVE), Construct Reliability (CR), Cronbach Alpha (CA)

Constructs	Code	Loading	AVE	CR	CA
Perceived Enjoyment (PE)	PE3	0.865	0.7663	0.9077	0.9068
	PE2	0.883			
	PE1	0.878			
Passing Time (PT)	PT2	0.698	0.6212	0.7642	0.7175
	PT1	0.869			
Ease of Use (EOU)	EU4	0.700	0.5068	0.8042	0.7950
	EU3	0.734			
	EU2	0.708			
	EU1	0.701			
Self-Presentation (SP)	SP3	0.751	0.5685	0.7249	0.7267
	SP2	0.757			
Economic Rewards (ER)	ER3	0.781	0.5988	0.8174	0.8074
	ER2	0.787			
	ER1	0.752			
Social Value (SV)	SV3	0.850	0.6829	0.8656	0.8577
	SV2	0.865			
	SV1	0.761			
Social Interaction (SI)	SI3	0.765	0.6502	0.8473	0.8418
	SI2	0.885			
	SI1	0.763			
Gamification Satisfaction (GS)	GS3	0.826	0.7479	0.8989	0.8951
	GS2	0.894			
	GS1	0.873			
M-payment Satisfaction (MS)	MS3	0.815	0.7724	0.9103	0.9057
	MS2	0.924			
	MS1	0.892			
Continuance intention (CI)	MCI3	0.889	0.8676	0.9516	0.9492
	MCI2	0.952			
	MCI1	0.952			

The 40 respondents were removed in our initial screening due to the variability of their responses, which will reduce the statistical power of the analysis. The removal of outliers may, as a consequence, lead the findings to become statistically significant. The 771 valid responses were then used in the data analysis of this research. Their socio-demographics are shown in <Table 1>.

Ⅴ. Results

5.1. Validity and Reliability

Prior to analysing the reliability and validity of the constructs, it is urgent to assess that the proposed model can be further analysed. This is conducted by measuring the degree of freedom (df). The proposed research model shows a positive degree of freedom (df) with a value of 548. As the degree of freedom is positive, the model's estimation and measurement stages can proceed. Model estimation was conducted to determine whether the data and research model meet the requirements using SEM analysis. The number of samples used in this study is 771 data and has met the minimum sample size requirements needed to carry out the Maximum Likelihood (ML) method (at least 200 data samples as in Santoso (2015)). To ensure the normality assumption in SEM, namely univariate and multivariate normalities, it is necessary to check the outlier data to ensure the data is distributed normally and there is no bias in the analysis results.

Outlier data is examined based on the d squared Mahalanobis value (p1 and p2 < 0.001). In this study, five iterations were performed to check and eliminate the outlier data so that there is no more d squared Mahalanobis value in our data. Once the iterations were performed, the 106-outlier data had to be eliminated. Thus, 665 data are left as the final ones. And the last assessment prior to performing the measurement model analysis is testing the Common Method Bias (CMB). This study uses the Harman Single Factor Test (Kock, 2015) to ensure no bias or no CMB in the used dataset (Fuller et al., 2016). Our data shows that a single factor test can explain that the variance of the data is 41% (<50%). This means that there is no CMB in the dataset used indicating the measurement model evaluation can be performed.

5.2. Measurement Model Evaluation

The measurement model evaluation is the first step toward the data analysis that is aimed to ensure that the measurement items employed representing the latent constructs are reliable and valid (Gallagher and Brown, 2013). This research is conducted by first examining the Goodness-Of-Fit (GOF), that is to ascertain that the value of indicator reliability, internal consistency reliability, discriminant validity, and convergent validity meets all the minimum thresholds. Prior to this, ensuring that the factor loadings of all indicators in each construct should be higher or equal than the threshold is required. There are three indicators that do not meet the threshold (> = 0.7) of the loading factor value which are then eliminated from the 35 indicators, they are PT3, SP1, SV4. Internal consistency reliability and convergent validity are tested by looking at the Average Variance Extracted (AVE), the Construct Reliability (CR) and the Cronbach's alpha (CA). As shown in <Table 2>, their values exceed thresholds of 0.5, 0.7, and 0.7, respectively (Hair et al., 2011).

In <Table 3>, we refer to the five model fit indices to report to provide more confidence in the model

<Table 3> GOF Test Result Based on Modification Indices

Fit Index	Threshold	Initial Measurement Model	Modified Measurement Model
chi-square (χ^2)	as small as possible	3455.820	995.516
GFI	≥ 0.90	0.663	0.909
RMR	as small as possible	0.298	0.198
CMIN/df	≤ 2 or ≤ 3	8.559	2.963
CFI	≥ 0.90	0.802	0.955
NFI	≥ 0.90	0.782	0.934
TLI	≥ 0.90	0.778	0.946
RMSEA	≤ 0.08	0.110	0.056

fit (Sharif et al., 2019): at least two incremental fit indices (CFI and NFI), and chi-square (c2), its respective degree of freedom and p-values; RMSEA and its associated confidence intervals; or Standardised RMR (SRMR) and RMR (Alavi et al., 2020). By default, AMOS only provides RMR value although it is hard to interpret (Kline, 2015). However, according to (Alavi et al., 2020), although SRMR is important, it can be represented by RMSEA and its associated confidence intervals.

Moreover, the GOF test is also performed to determine how well the model fits the data. This is conducted by measuring the value of chi-square, the minimum sample discrepancy function/degree of freedom (CMIN / df), GFI (Goodness of Fit Index), RMR (Root Mean Square Residual), CFI (Comparative Fit Index), NFI (Normed Fit Index), TLI (Tucker Lewis index), and RMSEA (Root Mean Square Error of Approximation). After modifying the initial model by looking for modification indices all the index values of GOF are higher than the thresholds. Both the initial and the modified measurement model values can be seen in <Table 3>. As described in the table, all the index values are higher than the threshold indicating that the modified model fits with existing data to continue to the structural model evaluation.

<Table 4> The Hypotheses Testing Result of Structural Model

Hypotheses	Relation	Estimate	SE	CR	p	Remark
H1	PE → GS	.280	.046	6.118	***	Accepted
H2	PT → GS	.092	.028	3.236	0.001	Accepted
H3	EU → GS	.439	.051	8.516	***	Accepted
H4	SP → GS	.189	.055	3.419	***	Accepted
H5	ER → GS	.170	.048	3.551	***	Accepted
H6	SV → GS	.030	.017	1.757	0.079	Rejected
H7	SI → GS	.085	.021	4.083	***	Accepted
H8	GS → MS	.712	.051	13.868	***	Accepted
H9	MS → CI	1.094	.056	19.549	***	Accepted

5.3. Structural model evaluation

Structural model evaluation is performed to test whether the proposed hypotheses are accepted or rejected. Hypothesis testing are carried out by looking at the p-value with a significance level of 5%. Based on the output of AMOS 26.0 of structural model analysis, one hypothesis is rejected out of the nine. The summary of the structural model test results is shown in <Table 4>.

Ⅵ. Discussion

This study investigates factors that contribute to determining the continuance usage intention of the m-payment based on gamification features. This is to address the first question raised in this study: What gratifications affect the satisfaction using gamification in m-payment? The first step towards this is by measuring the users' satisfaction with the gamification. The premise is that once the users are satisfied with the gamification, they also tend to be satisfied with the m-payment applying it.

Our findings show that the hedonic gratification factors demonstrate to have a substantial influence on user satisfaction towards gamification which leads to the continuance usage intention of m-payment. Perceived enjoyment allows users to perceive gamification in m-payment as enjoyable, pleasant, and fun when using it. This feeling can be seen in how users can be able to enjoy and be satisfied with the functionalities of e.g., attractive designs, easy-to-understand, and colour selection. The satisfactory levels of the perceived enjoyment can fulfil m-payment users' need for hedonic gratification, thus leading to their loyalty to the m-payment. This finding is in line with the previous ones (Hwang and Choi, 2020; Roy and Zaman, 2017) which confirm that enjoyment is one of the gratification factors that influence individuals to keep using the m-payment.

Our findings are also consistent with (2014) in that the perceived ease of use of the utilitarian gratification affects m-payment's loyalty. The perceived ease of use of gamification reflects the individual belief that using m-payment relatively requires no effort. In the end, this drives the continuance usage of the m-payment as the users can utilise it easily. In fact, the perceived ease of use is the most influential predictor of the continued use of m-payment.

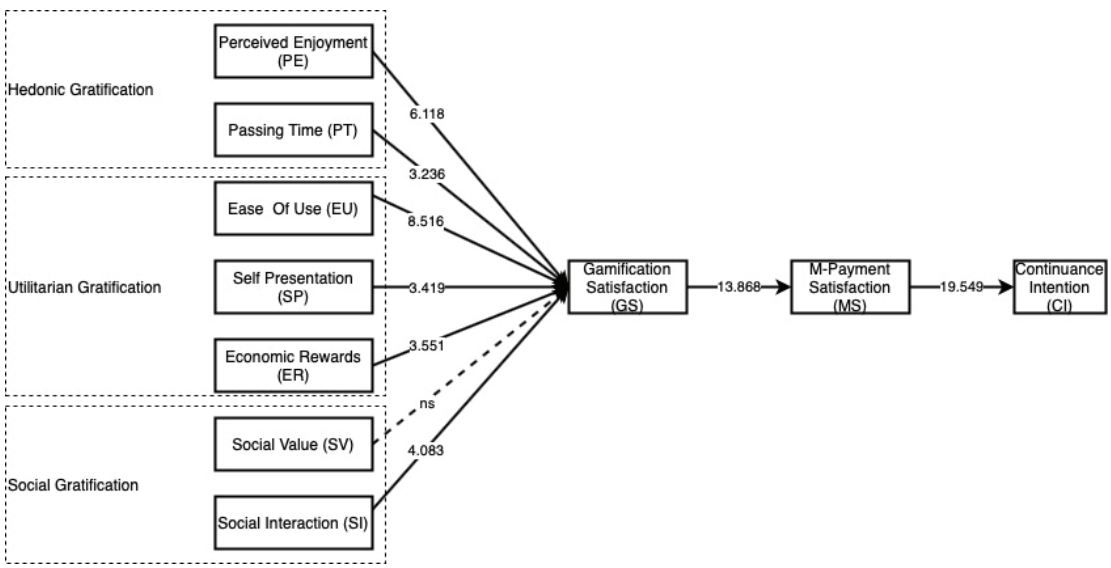
The findings also reveal that self-presentation significantly affects the users' perceptions regarding m-payment continuance intention. These are also consistent with prior research (Putri et al., 2019). Self-presentation reflects the efforts made by users in presenting themselves to form a certain image that influences the way others see and treat them (Gan and Li, 2018). Self-presentation has proven to have a satisfaction effect when users use gamification. Users perceive gamification, such as given report cards, the completed missions, and the rewards obtained from gamification will influence self-image and how others visualise them. Individuals will always try to create an impression that can make other people think of them. This can be seen in how individuals express themselves and behave like others (Hwang and Choi, 2020; Miller, 2015).

Another factor of utilitarian gamification is the economic rewards. This factor indicates that m-payment users' attitude in using gamification is motivated by the intention to earn rewards. This finding is in line with (Hwang and Choi, 2020). Their study demonstrates how economic rewards affect consumers' loyalty towards the intention to use that particular gamification. They also identify that the economic rewards are the most related factors influencing users'

motivation to utilise consumer loyalty programs. That the economic rewards are seen as a gift that has value economically that benefits users, which it significantly affects satisfaction in using the m-payment. This finding also supports the previous ones (Humlung and Haddara, 2019; Meder et al., 2018) that having economic value can affect individual motivation and attitude to continued use m-payment.

As for social gratification, as indicated earlier, only social interaction significantly influences m-payment satisfaction. This indicates that users use gamification on m-payment to facilitate interactions or discussions with other people. This finding is also in accordance with the previous studies, for instance, here (Hsu and Chen, 2018a), that gamification can help promote social interaction. In contrast, the social value is found to have no significant effect on gamification satisfaction. This implies that satisfaction assessment is an individual decision that others cannot influence. This is supported by previous studies (Koivisto and Hamari, 2019) which confirmed that social value has no significant effect statistically on the use of an application, an online service that gamified exercise. This implies that satisfaction assessment is an individual decision that cannot be influenced by others. According to (Hamari and Koivisto, 2015a), this is because the use of gamification is primarily voluntary, which means that when system usage is a choice, social value does not always directly affect system use intentions. This applies to our context that gamification in the m-payment application is mandatory, which does not affect satisfaction.

However, this is contrary to, for instance (Putri et al., 2019), that social value positively impacts gamification satisfaction. One plausible explanation is perhaps while in (Putri et al., 2019), the respondents are limited and the gamification effect was examined in only one m-payment application: GoPay. When it comes to more diverse situations, the user will have different options regarding their willingness to use gamification. However, this is contrary to, for instance (Putri et al., 2019; 2015a) that social value positively



<Figure 2> The Result of the Proposed Model

impacts the attitudes, willingness, and satisfaction using gamification. One possible explanation is perhaps while this research is focused on m-payment, (2015a) is concerned with the application of persuasive physical activities for the case study.

Our findings also show that once users are satisfied with the gamification elements, they are also satisfied with the m-payment application which lead to the continuance intention to keep using it. The Critical Ratios as in <Table 4> contribute to the two highest values for their relationship, respectively: 13.868 for the relationship on H8 and 19.549 for the relationship on H9. This creates a causality relationship between the m-payment application and its gamification. In other words, the gamified elements integrated in the m-payment application affect significantly the intention to continue using the application.

Ⅶ. Implications, Limitations, and Future Research Directions

Theoretically, this study contributes to m-payment continuance intention in several ways. First, Prior IS literature in this particular domain has mainly focused on the influence of gamification on user experience but paid less attention to discerning how gamification impacts user satisfaction and continuance intention. Based on m-payment users' behaviour, the findings of this study extend the use of UGT in IS literature by considering the role of new gratification factors in hedonic, utilitarian, and social and how they influence the continued use of m-payment. This study confirms that utilitarian gratification (perceived ease of use, self-presentation, and economic rewards) significantly influences the satisfaction using gamification and the continuous intention to use m-payment.

Second, this study reveals that hedonic gratification (perceived enjoyment, passing time) and the social interaction of social gratification positively affect users' satisfaction while using gamification on m-payment which lead to influence the continuance intention of the m-payment usage, but not the social value. This result indicates that while the use of m-payment equipped with social gratification of gamification influences the need for interacting with others, the way others are persuaded to use the application is not concerned with social gratification (social value).

Third, prior studies have generally shown the gamification impact on technology acceptance (Hillman et al., 2014; Koivisto and Hamari, 2019; Rodrigues et al., 2019). This finding extends another important role played by gamification in the m-payment continuance usage intention. This is due to the result of the study that confirms that user engagement with the gamification employed in the m-payment substantially impact the continuance usage intention of the application.

In the business environment, this study also sheds light practically on how gamification can influence m-payment users in Indonesia from a managerial perspective. First, this study highlights the critical role of the perceived ease of use when designing gamification in m-payment. This is because the perceived ease of use has the biggest impact on user satisfaction on the use of gamification (Please see <Figure 2>). Thus, m-payment service providers should ensure that implementing gamification concepts and elements on their m-payment application has to be effortlessly and easily used. Second, this study informs that perceived enjoyment is the second dominant factor motivating m-payment users' continuance intention. This confirms that m-payment providers should implement the concepts and elements of gamification in their platform to be conveniently used and enjoyed by the prospective users.

In addition, passing time, self-presentation, economic rewards, and social interaction are also found to be determinants as gratification in the m-payment to satisfy users' perceptions which lead to significantly influence the continuance intention of the application. These findings essentially aim to answer the second question raised in the study: How does gamification affect the continued use of m-payment? Thus, we have shown and elaborated how the gamification embraced as gratifications perceived by the users affect the continuance usage intention of the m-payment

Withstanding all the theoretical and managerial implications presented in this study, some limitations are still identified and therefore they need to be addressed. First, this study focuses on m-payment gamification in Indonesia based on the UGT. The participants of the survey although almost has a similar ratio between men and women, majority of them are aged less than 30 years old with the percentage of them nearly 88%. This implies that the population of the respondent does not represent the variety of the population of the m-payment users in Indonesia. Future research should consider diverse samples and carry out in-depth interviews to examine different findings that moderate the influence of gratifications on the m-payment continuance intention. Second, as this study focused solely on the Indonesian sample population, it cannot be straightforward to generalise the finding of this study to the other countries with different social-demographic characteristics.

In addition, future research can also explore various gratification factors behind the gamification in m-payment, for instance by considering whether the cultural differences moderate the influence of gratifications on the continuance intention in the context of m-payment. Third, the constructs used in this study reflect only three types of gratifications. Nonetheless, to be able to understand thoroughly and better the influences of gamification to continuous intention to use m-payment, exploring various factors and types of gratification need to be sought.

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<Appendix> The References of Measurement Items

Constructs	References	Measurement item
Perceived Enjoyment (PE)	van der Heijden (2004)	I feel that gamification on mobile payment is fun to use
		I feel that gamification on mobile payment is interesting to use
		I enjoy using gamification on mobile payment
Passing Time (PT)	Papacharissi and Rubin (2002)	I think gamification on mobile payment is not boring
		Playing gamification on mobile payment can fill my time
		I will play gamification on mobile payment when there is nothing better left to be done
Ease of Use (EOU)	Lin et al. (2017)	Gamification on mobile payment is easy to use and understand for me
		I do not need much time to understand gamification on mobile payment
		I feel I can use gamification on mobile payment well
		I feel gamification on mobile payment is flexible to be used anytime
Self-Presentation (SP)	Gan and Li (2018)	I feel gamification on mobile payment has been a trend now
		I feel that rewards, points, cashback, mission I got from the gamification on mobile payment is an achievement
		I feel that using gamification on mobile payment makes me look modern
Economic Rewards (ER)	Bastian et al. (2015)	Using gamification on mobile payment can give me financial rewards
		Using gamification on mobile payment can give me a discount and special rate
		Using gamification on mobile payment can help me feeling more economical
Social Value (SV)	Hsu et al. (2017); Hamari and Koivisto (2015a)	I use gamification to encourage others to use it
		I use gamification as my environment frequently discusses it
		I use gamification for other to use it too
		Sharing information of gamification, for instance the points, cashbacks, rewards on mobile payment increases self esteem
Social Interaction (SI)	Gan and Li (2018); Liu et al. (2016); Papacharissi and Rubin (2002)	Using gamification can be a subject for a discussion with others
		I feel gamification can help me interacting with others
		Gamification is perceived enjoyable when it can be used with others
Gamification Satisfaction (GS)	Wang et al. (2016)	I feel satisfied with the presence of gamification on mobile payment
		My experience on using gamification is very fun
		I feel gamification on mobile payment meets my expectation
M-payment Satisfaction (MS)	Kuo et al. (2009)	I feel satisfied using mobile payment
		My experience using mobile payment is very fun
		I feel mobile payment service meets my expectation
Continuance intention (CI)	Bhattacherjee (2001)	I intend to continue using mobile payment
		I hope to be able to keep using mobile payment
		I will frequently use mobile payment

◆ About the Authors ◆

Mutia Fadhila Putri

Ms. Mutia Fadhila Putri is a product analyst of HappyFresh, one of the prominent online groceries in Indonesia. She completed her master degree of Information Technology from the Universitas Indonesia in 2021. Her work is closely related to the use of gamification in mobile payment and e-commerce.

Ratna Juita

Ms. Ratna Juita is a lecturer at the Universitas Papua Indonesia. She holds a master degree of Information Technology from Universitas Gadjah Mada Indonesia. She has been involved in various information system development projects in government sector.

Achmad Nizar Hidayanto

Dr. Achmad Nizar Hidayanto is a professor in information systems at the Faculty of Computer Science, Universitas Indonesia. He is also a Vice Dean for Resources, Venture, and General Administration. He received his bachelor's degree, master's degree and PhD degrees in computer science from Universitas Indonesia in 1999, 2002, and 2008 respectively. His research interests are related to e-health, information systems/information technology management, e- commerce, e-government, information systems security, and information systems/information technology adoption.

Dedi I. Inan

Dr. Dedi I. Inan is a Associate Professor in Information Systems at the Faculty of Engineering Universitas Papua Indonesia. He completed his PhD in Information System from the University of Technology Sydney Australia in 2018. His research interests in Information System are ranging from mHealth, knowledge and risk management, e-commerce and technology adoption and its continuance usage. He published and presented in various and reputable information system journals and conferences such as ISF, IJDRR, PACIS, ACIS, etc.

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