An Empirical Study on The Role of Hedonic Motivation, Social Influence and Gamification in Influencing Mobile Shopping Adoption

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Abstract. The development of Internet networks has resulted in a massive surge in shopping behavior. Therefore, this situation provides an opportunity to advance the digital economy and mobile shopping practices in Jakarta, Indonesia. Mobile shopping platform Shopee seeks to secure a leading position in the e-commerce business. One reasonable approach to achieving this goal is to utilize Shopee Games' functions. This draws attention to understanding the behavioral intentions of Shopee application users who like games. This research analyzes the impact of hedonic motivation and social influence on gamification and the influence of hedonic motivation, social influence, and gamification on behavioral intentions. This research was conducted on 290 high school and university students in Jakarta, Indonesia. PLS-SEM analysis shows that hedonic motivation and gamification positively affect behavioral intentions in the group of university students only but not in the group of high school students. Social Influence has an impact on behavioral intention in all groups. Hedonic Motivation and Social Influence impact gamification in all groups, too. In addition, this study uses SEM Multigroup Modeling to evaluate measurement invariance. Therefore, this structured model tests the differences between the average groups of higher education and high school students in the latent variables measured. These findings provide valuable theoretical and practical insights into utilizing hedonic motivation, social influence, and gamification in understanding mobile shopping consumer behavior, especially in higher education student groups and high school student groups. Further research should be conducted to include additional variables and context.

Keywords: Hedonic Motivation, Social Influences, Gamification, Behavioral Intention.

1. Introduction

The prevalence of various e-commerce companies carrying out commercial in Indonesia has increased significantly over the last decade. Furthermore, in early 2023, Shopee will become the e-commerce site with the most visitors in Indonesia. In September 2023, the Shopee site recorded 237 million visits, an increase of around 38% compared to the beginning of the year (Katadata.co.id, October 2023). This makes Shopee occupy the first position with the most online visits in the Indonesian mobile shopping industry. This achievement is influenced prediction by several essential variables, such as hedonic motivation, social influence, and gamification, forming students' intentions to adopt Shopee mobile shopping.

Furthermore, several works of literature show inconsistent views regarding the impact or influence of hedonic motivation factors on behavioral intentions. Research conducted by Moorthy (2019) shows that hedonic motivation has a significant positive relationship with behavioral intention to use mobile learning by Malaysian accounting students at state universities. This statement is supported by Al Azawei (2020), who states that students' hedonic motivation influences their intention to use mobile learning. In addition, similar opinions say consumers will be willing to use mobile entertainment if they feel joy and happiness (Leong et al., 2013). However, contrary to the statements of several studies conducted by Gupta et al. (2018), Yanxiang et al. (2021), and Arenas et al. (2015) have provided evidence showing that it is not statistically significant to support a correlation between Hedonic Motivation to Behavioral Intention. The second important factor that influences behavioral intentions is social influence. Various studies by Baabullah (2018) and Al Azawei (2020) prove that social impact is beneficial and positively affects individual behavioral intentions. In contrast, research conducted by Yanxiang et al. (2021) and Rohmatulloh et al. (2022), there is statistical evidence that there is no positive relationship between social influence and behavioral intentions. So, there are inconsistencies between the results of the two different studies. Furthermore, to solve this problem, this research uses gamification variables expected to increase the adoption of mobile shopping for university and high school students who use the Shopee mobile purchasing platform. Therefore, this research wants to prove whether hedonic motivation and social influence significantly positively affect behavioral intentions in the context of mobile shopping adoption by university and high school students.

Based on that, Shopee Games is a mobile application service provided by the e-commerce platform Shopee, which integrates gamification components. Shopee Games offers a wide range of interactive games that consumers can enjoy. Users could obtain coins and prizes using vouchers, which can subsequently be used for purchasing on the Shopee mobile shopping program. One of the advantages of operating like coins is the potential to obtain a reduction in price and monetary gain. Moreover, a higher frequency of games positively correlates with an improved probability of getting coins and rewards, allowing users to participate in more frequent reduced purchase opportunities on the Shopee mobile shopping application. Based on the findings, the incorporation of gamification strategies has a notable influence on consumer behavior, resulting in a heightened propensity for mobile transactions on the Shopee platform.

Moreover, a research investigation by Cera et al. (2020) furnishes empirical support for the impact of gamification on behavioral intentions mediated by hedonic incentives while also considering variations across different generations. The scholarly investigations carried out by Raman (2020), Bui et al. (2018), Garcia et al. (2018), Bitrian et al. (2021), and Wicaksono (2021) provide evidence that gamification functions as an independent variable, which has been empirically proven to have a significant and favorable influence on behavioral intentions. Moreover, the research by Horst Treiblmaier et al. (2020) provides evidence that gamification, when employed as a moderating variable, exerts a significant and positive impact on individuals' behavioral intentions. Consequently, the researcher decided to integrate gamification into the investigation of behavioral intention to establish a statistically significant and positive correlation between gamification and the significance of behavior in mobile purchasing. In addition, the challenge that mobile shopping companies must face is to focus

on accelerating behavioral intention increases.

Furthermore, the Social Cognition Theory is one of the most extensive and significant theories in studying behavioral intentions (Bandura, 1986 and 1999). The proposed research model framework is expected to contribute to the existing literature substantially and have practical consequences. In addition, this research uses social cognitive theory based on previous research, which examines the influence of hedonic expectations and social influence on the intention to continue playing online games (Chang et al., 2014). The focus of the study was a model that predicts online multiplayer game continuance intentions. Furthermore, this research wants to know whether it can provide a meaningful development of social cognitive theory, which states that there is a correlation between individual cognitive processes, especially hedonic motivation, and external factors, especially social influence, and gamification, which have an impact on the formation of intention adoption behavior in mobile shopping.

Furthermore, the uniqueness of this research is that the samples used were for university and high school students regarding the adoption of mobile shopping, where there has been no research on this matter. Moreover, the main objective of this research is to investigate the influence of hedonic motivation variables, social influence, and gamification as mediators on the behavioral intention of the Shopee mobile shopping application among university and high school students with multi-group analysis. In addition, this study uses SEM Multigroup Modeling to evaluate measurement invariance. Therefore, this structured model tests the differences between the average groups of higher education and high school students in the latent variables measured.

The main objective of this research is to investigate the influence of hedonic motivation, social influence, and gamification as mediators on the adoption behavioral intention of the Shopee mobile shopping application among university and high school students. This study also aims to prove whether the hedonic motivation and social influence variables significantly affect gamification.

2. Literature Review and Hypothesis Development

2.1. Social Cognitive Theory

According to Bandura (1986, 1999), Social Cognitive Theory states that personal interactions, environmental factors, and behavioral factors influence human behavior. These three components are interconnected and influence each other, thus forming a reciprocal triadic relationship that is causal. Personal interactions include values, self-motivation, and outcome expectations, while environmental factors include other people's behavior and feedback. In addition, behavioral factors contain previous behavior. According to Bandura (1999), Social Cognitive Theory states that human behavior is intentionally motivated by goals that can be identified and regulated, achieved by exercising control over internal cognitive processes, actions, and external influencing factors. Social Cognitive Theory has been widely used in various studies as a theoretical framework for predicting human behaviors. Most previous research has focused on health behavior (Bandura, 1988) or learning behavior (Zimmerman et al., 1989).

2.2. Behavioral Intention

Behavior refers to the behavior or reactions exhibited by an object or organism. Behavior can manifest in several forms, including conscious, unconscious, overt, voluntary, or involuntary expressions. Human behavior can be categorized as typical or atypical and can also be classified as socially acceptable or socially inappropriate. Individual positive behavior is assessed using social norms as a reference, while behavior regulation is carried out by implementing social control mechanisms. Based on available scientific evidence or research, Venkatesh et al. (2003, 2012) state that behavioral

intentions are essential in in influencing the adoption and use of technology. Behavioral intention is defined as an individual's indication of their likelihood to engage in a particular behavior in a technological context. This concept provides insight into the potential future use of technology by users. Based on this analysis, it can be concluded that behavioral intention is related to customers' propensity to make mobile purchases. Furthermore, assessing behavioral intentions is often conducted using two indications, as identified in research conducted by Davis (1989), Kim et al. (2008), Venkatesh et al. (2003, 2012), Alalwan et al. (2017), and Cera (2020). These indicators include intention to use, which shows the extent to which a user is likely to continue using a particular product rather than refrain from using it, and a user's preference to continue using a specific product rather than choosing another viable alternative. Furthermore, reuse intent refers to the user's intention to continue using a particular product in the same way as they currently use it and their tendency to continue using it in the future.

Moreover, the present study employed a series of ten hypotheses to investigate the relationship between independent and dependent variables.

2.3. This study investigates the association between Hedonic Motivation and Behavioural Intention.

Based on the research completed by Soodan and Rana (2020), Hedonic motivation refers to the perceived significance that customers attribute to the pleasurable, engaging, and rewarding aspects of utilizing technology. Moreover, hedonic motivation is a framework that centers on satisfying individuals' inherent motivation, such as the incentive for engaging in online commerce, education, online gaming, social media, and gaming (Hooda, 2020). Moreover, the conceptual framework of hedonic motivation includes several platforms that aim to fulfill individuals' intrinsic motivation. The platform contains several domains: e-commerce, online learning, interactive entertainment, social media, and gaming (Hooda, 2020). Furthermore, other research conducted by Venkatesh et al. (2012) and Xu (2012) stated that hedonic motivation is an individual's subjective perception of the pleasure that arises from adopting and utilizing a technological tool or system. This was confirmed by Yang et al. (2013), who stated that the impact of hedonic motivation on customer technology adoption is significant, consistent with motivation theory. Many empirical investigations have proven a positive relationship, and there is a relationship between hedonic motivation and behavioral intentions, as evidenced by research conducted by Alalwan et al. (2017) and Kang et al. (2015). However, in contrast to the general belief that Hedonic Motivation has a positive impact on behavioral intentions, several studies conducted by Gupta et al. (2018), Yanxiang et al. (2021), and Arenas et al. (2015) showed that it was not proven to be statistically significant to support this relationship.

Therefore, it can be related to this research that if hedonic motivation influences behavioral intention, then university and high school students adopt behavioral intention mobile shopping. Based on these theoretical arguments, a hypothesis is formulated to be tested as follows.

H1a. The significant effect of Hedonic Motivation on the Behavioral Intention of high school students in Jakarta utilizing the Shopee application is evident.

H1b. The significant effect of Hedonic Motivation on the Behavioral Intention of university students in Jakarta utilizing the Shopee application is evident.

2.4. This study investigates the association between Social Influence and Behavioral Intention.

Social influence refers to the phenomenon in which a person attaches importance to a particular issue, even when facing opposing viewpoints from others who urge a new approach (Venkatesh et al., 2003). Therefore, consumer perceptions and views are influenced mainly by community affiliates' preferences and value systems, including family members, friends, relatives, neighbors, and other individuals interacting with technology (Rana et al., 2015). Furthermore, this phenomenon becomes especially evident when shifts influence individuals' use of certain technologies in the views of members of their social networks towards using other technological platforms (Baptista & Oliveira, 2015). The results of

further research strengthen this. Baabdullah et al. (2018) and Al-Azawei (2020) identified a substantial positive relationship between social influence and behavioral intentions. However, other studies reveal the opposite opinion. The investigation of Yanxiang et al. (2021) and Rohmatulloh et al. (2022) provided results that did not provide statistically significant evidence to show a positive correlation between social influence and behavioral intentions.

Therefore, it can be related to this research that if social influence affects behavioral intention, then university and high school students adopt behavioral intention mobile shopping. Based on these theoretical arguments, a hypothesis is formulated to be tested as follows.

H2a. The social effect greatly affects the behavioral intention of high school students in Jakarta who employ the Shopee Application.

H2b. The social effect greatly affects the behavioral intention of university students in Jakarta who employ the Shopee Application.

2.5. This study investigates the relationship between Hedonic Motivation and Gamification.

According to Deterding (2011), gamification refers to using game-related components to change human behavior in contexts that are not essentially game-like. Additionally, gamification originates from games. However, this does not necessarily mean feelings of joy. Games are valuable because they offer interactivity and present stimulating challenges for players. Additionally, combining gaming incentives, immersion, and autonomy in gamification has positively influenced individual enjoyment, resulting in users experiencing satisfaction. Satisfaction of users' intrinsic motivation is achieved by applying various hedonic motivation system techniques, as shown by the research of M Qomarul and Huda et al. 2020. These tactics include online purchases, educational activities, gaming, social networking, and participation in recreational games. The same conclusion was obtained from research by Cera (2020), M Qomarul, and Huda et al. (2020), revealing a meaningful and statistically significant correlation between hedonic motivation and gamification.

Therefore, it can be related to this research that if Hedonic Motivation influences Gamification, then the hedonic motivation of university and high school students will affect the use of gamification features. Based on these theoretical arguments, the following hypothesis is formulated to be tested.

H3a. The gamification of the Shopee Application is greatly influenced by hedonic motivation among high school students in Jakarta.

H3b. The gamification of the Shopee Application is greatly influenced by hedonic motivation among university students in Jakarta.

2.6. This study investigates the relationship between Social Influence and Gamification.

Hamari et al. (2013) researched gamification services that provide unique games to enable users to create goals, rewards, and actions in addition, the integration of gamification elements adds a social component. The social dimension includes earning badges, achieving rankings on a score list, and accumulating points made for social purposes, such as seeking social recognition. This was researched by Hamari et al. (2013). Furthermore, predictions of attitudes toward gamification, intention to continue using it, and propensity to recommend it to others may be determined by social factors, including network effects, social influence, recognition, and mutually beneficial relationships. This strengthens the findings of research by Alalwan et al. (2017), who stated that social factors have a positive influence on individuals' use of technology. This impacts the gamification technology proposed by Hamari et al. (2013). The same conclusion was obtained from research by Hamari and Koivisto (2015). It was found that social factors benefit individual behavior and their tendency to use gamification.

Therefore, it can be related to this research that if Social Influence affects Gamification, then the Social Influence of university and high school students will affect their use of gamification features. Based on these theoretical arguments, a hypothesis is formulated to be tested as follows.

H4a. The primary effect of social influence on the adoption of gamification among high school students

utilizing the Shopee Application in Jakarta is positive.

H4b. The primary effect of social influence on the adoption of gamification among university students utilizing the Shopee Application in Jakarta is positive.

2.7. This study investigates the relationship between Gamification and Behavioral Intention.
According to Xu et al. (2020), empirical evidence shows that implementing gamification strategies effectively meets psychological needs and significantly impacts customers' tendencies to make online purchases. Furthermore, gamification is developing, promising to increase client motivation and performance in the online business area. Nonetheless, ongoing and dynamic discussions continue among gamification experts regarding the possible influence of specific gamification components on consumers' innate and external motives and their perceived satisfaction and propensity to make purchases (Wu et al., 2022). Based on these considerations, gamification involves using game elements to increase user involvement in online business adoption. This is confirmed by research conducted by Aparicio et al. (2021), which construct gamification components, including badges, dynamics, mechanics, leaderboards, and points, proven to increase user engagement on websites.

Therefore, it can be related to this research that if gamification influences behavioral intention, then gamification actions carried out by university and high school students will influence the adoption of mobile shopping behavioral intentions. Based on these theoretical arguments, the following hypothesis is formulated to be tested.

H5a. The influence of gamification on the behavioral intentions of high school students in Jakarta utilizing the Shopee application is significantly favorable.

H5b. The influence of gamification on the behavioral intentions of university students in Jakarta utilizing the Shopee application is significantly favorable.

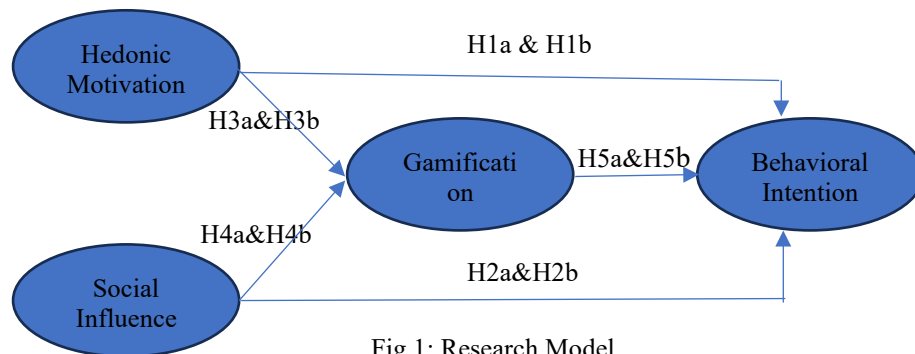The research model can be seen in Figure 1 below.

Fig.1: Research Model

3. Research Methods

The main instrument used in this study to collect primary data was a questionnaire. These study questionnaire filter questions were created to select only samples that met the criteria to avoid bias in sampling. Before data collection, a pilot study was conducted with 30 respondents. Legibility Survey items were improved based on feedback from respondents. A pilot study found that all measurement items meet the criteria for internal consistency and reliability (>0.80). This research uses PLS-SEM, which follows model and hypothesis validation procedures testing. It is prevalent for estimating complex path models with latent variables (Hair et al., 2017). The model was analyzed with SmartPLS4 software. PLS-SEM has two measurement models: the measurement model and the structural model (Hair et al., 2017). Both models are evaluated based on the results of the PLS algorithm and Bootstrapping (Hair et al., 2017; Ringle et al., 2015). The PLS algorithm is a sequential regression procedure to estimate all unknown elements in a PLS path model (Hair et al.,2017). This algorithm

calculates path coefficients and other model parameters, maximizing the variance of the explained endogenous variables. The bootstrap stage is a non-parametric procedure that tests the statistical significance of various PLS-SEM results (Hair et al., 2013).

The utilization of Structural Equation Modeling with Partial Least Squares (SEM-PLS) enables researchers to examine the association between seen variables (also known as manifest variables) and latent variables (which represent underlying constructs or factors). Additionally, SEM-PLS facilitates exploring the relationships among the latent variables themselves. In addition to these points, it is worth noting that Structural Equation Modeling (SEM) is a statistical technique used for analyzing multivariate data. The process of SEM data processing differs from that of regression data processing or path analysis. The processing of SEM data is inherently complex due to the presence of measurement and structural models within the SEM framework. Three concurrent activities are typically conducted in structural equation modeling (SEM). These activities include assessing the instrument's validity and reliability through confirmatory factor analysis, examining the relationship model between variables using path analysis, and deriving an appropriate predictive model through structural and regression analysis. A comprehensive modeling framework typically comprises two main components: a measurement model and a structural one, often known as a causal one. The measurement model in this study is conducted to generate evaluations of validity and discriminant validity, whereas the structural model is a form of modeling that elucidates the hypothesized relationships. Statistical software can facilitate the processing of SEM data (Lenni et al., 2020).

Moreover, the research methodology employed in this study is explanatory research, which seeks to examine the associations between variables or the impact of a variable on other variables. Descriptive analysis elucidates the causal link between variables under investigation and tests hypotheses that have been previously stated.

Furthermore, the scale used in this research is the Likert Scale of 1 to 5. The Likert Scale measures individuals' or groups' attitudes, opinions, and perceptions towards social phenomena. According to Sekaran and Bougie (2016), the Likert Scale is a measurement model created to check how vital the research subject is. In more detail, each variable is measured using a Likert Scale with a score of 1 to 5, which is explained as follows. Scale 1 = Strongly disagree. This happens if the respondent (student) does not agree at all. This means that the statement/question is not actual at all. Scale 2 = Disagree. This happens if the respondent disagrees with a statement/question. This means there is no strong enough reason for the statement/question to disagree or be firmly neutral. Scale 3 = Neutral. This is if the respondent disagrees with a statement/question. Scale 4 = Agree. This happens if the respondent agrees with a statement/question. This means that the statement/question is correct according to the respondent, but there is no strong enough reason to be neutral or strongly agree. Scale 5 = Strongly agree. This happens if the respondent agrees. Furthermore, this research uses a quantitative positivist methodology, including survey techniques.

Furthermore, this research uses PLS-multi-group analysis (PLS-MGA) as a technique that allows researchers to test differences between different groups of respondents but with identical estimation models (Hair et al., 2017). The main goal of using PLS-MGA is to prove whether there is a statistically significant difference between the two individual group models (university and high school students) with observed characteristics (Hair et al.,2017). This method uses permutation tests and Henseler MGA (Hair et al., 2017; Sharma et al., 2011). PLS-MGA compares differences between groups (Chin & Dibern, 2010)

3.1. Location and Time of Research.

The current study examined the behavior of high school and university student consumers using the Shopee application in Jakarta, Indonesia. Furthermore, the data-gathering process involved disseminating questionnaires offline and online. The administration of the questionnaire occurred from Maret 2023 to July 2023.

3.2. Population, Research Sample, and Sampling Technique.

The sample for this study included high school and higher education/ university students who were active users of the Shopee platform in Jakarta. In this study, a sample size of 290 participants was selected. Moreover, exact estimates regarding the population of student consumers who use the Shopee application in Jakarta cannot be determined with certainty within the scope of this research. Therefore, choosing the sample size for the total population is unknown. Therefore, in this research, the sampling method is Non-Probability Sampling, which uses purposive sampling. Furthermore, especially for unlimited populations, it can be done by referring to the technique proposed by Hair et al. (2016). The researcher stated that based on available evidence or scientific research, it is widely known that a large sample size is required to conduct Covariance Structural Equation Modelling analysis. The respondents obtained ranged from 5 to 10 times the number of items used. In this study, 29 question items were used. The result is a cumulative sample size of 290 respondents, which is obtained from the results of 10 times 29 items. This study focuses on respondents, specifically high school students and university students. More specifically, individual likes of the Shoppe mobile shopping and Shopee Games features.

4. Results and Discussion

4.1. Characteristics of Respondents

This research investigates three primary source dimensions: gender, education level, and experience using Shoppe. Data distribution analysis shows that the prevalence is higher in women than men. This indicates that women tend to participate more in online purchases than men. Based on the results of Table 1, the characteristics of Shoppe user respondents are more female (59.69%) than male (40.31%). This shows that women prefer to use Shopee mobile shopping compared to men. The reason is that Shopee provides goods at lower prices than other platforms, making female consumers more emotionally attracted. The visuals of various Shopee products designed to be cute and eye-catching are a unique attraction for women. Shopee is favored because of its more attractive product variations and competitive price offerings, so it has a unique appeal for female users. Promotional factors that are always attractive and flash sale programs every month also motivate female consumers. Apart from that, free shipping, and cash on demand (COD) as payment options, abundant cashback and vouchers, Shopee Coins, Shopee Pay, Shopee PayLater Shopee Game is a feature where consumers can play various unique and exciting games to add coins and get prizes such as smartphones and shopping vouchers. The Shopee Games user interface (UI), which tends to be bright, cheerful, and girly, was created to attract women's attention. Shopee Games like Shopee Tanam attract female consumers to earn coins and cashback. Another factor dominated by female consumers is comparing product reviews and ratings.

This differs from most male consumers who prefer a mobile shopping user interface (UI) whose design is simple and easy to understand, with few visual additions and promotions, thus making purchase transactions run faster. Furthermore, the number of student respondents is comparable to that of high school participants. These observations indicate no statistically significant differences in the number of survey participants. Based on Table 1, the characteristics of most respondents have long experience using Shoppe Games, 1 to 5 years, amounting to 52.50%. Based on this, most respondents have quite a long experience (1 to 5 years) in using Shopee Games. Shopee Games as a means of online entertainment is popular among students because they are no longer constrained by time. Shopee Games users can play games anywhere with unlimited time. The presence of Shopee Games means students spend more and more time playing these virtual games. The information is presented in Table 1.

Table 1 Characteristics of Respondents

Characteristics	Respondent	Total Respondent (person)	*Percentage (%)*
Gender	- Man	129	40.31
	- Woman	191	59.69
Education Level	- High School Students	145	50
	- University Students	145	50
Long experience using Shopee Games	- Over ten years	0	0,00
	- 5 to 10 years	16	5,00
	- 1 to 5 years	168	52,50
	- Less than one year	136	42,50

Source: Primary Data Processed (2023)

4.2. The Assessment of The Measurement Model

The purpose of the measurement model is to evaluate the association between the latent variable and their indicators. In addition, the substantiation of the measuring instrument's validity is established through the assessment of convergent validity, discriminant validity, and internal reliability. Concurrent validity refers to a statistical evaluation that measures the degree to which indicators within a latent variable exhibit a positive correlation with other indicators within the same construct (Hair et al., 2017). Moreover, the reliability of individual indicators is deemed substantial when they exhibit a strong correlation value, specifically over 0.7. Nevertheless, utilizing a loading factor scale ranging from 0.5 to 0.6 during the research development phase is deemed acceptable, as Chin (1988) suggested.

The results of convergent validity measurements show that all outer loading coefficients are above the threshold of 0.5. It can be explained that all indicators from hedonic motivation, social influence, gamification, and behavioral intention meet the requirements for convergent validity.

Another factor to consider when evaluating convergent validity is the Average Variance Extracted (AVE), which should exceed 0.5, according to Hair et al. (2014). The findings of this study mean the measured variance extracted (AVE) value exceeds the threshold of 0.5, indicating that all variables (hedonic motivation, social influence, gamification, and behavioral intention) show a satisfactory level of convergent validity. Moreover, internal consistency reliability is demonstrated through composite reliability (CR), which assesses the stability and consistency of internal measurement models. The CR value must be 0.7 and above to be considered satisfactory (Hair et al., 2017). These values indicate that CR is more significant than 0.7 for a sample of university and high school students and is considered satisfactory. Reliability tests of the values in this study are reported in Table 2.

Table 2. Reliability and Convergent Validity

Construct	Item	High School			University Student			Complete			Result
		LF	AVE	CR	LF	AVE	CR	LF	AVE	CR	
Behavioral Intention (B I)	B I 1	0.69	0.549	0.884	0.73	0.610	0.913	0.78	0.679	0.934	Valid and Reliable
	B I 2	0.74			0.78			0.81			Valid and Reliable
	B I 3	0.73			0.70			0.80			Valid and Reliable
	B I 4	0.71			0.82			0.83			Valid and Reliable
	B I 5	0.79			0.73			0.82			Valid and Reliable
	B I 6	0.72			0.85			0.85			Valid and Reliable
	B I 7	0.76			0.74			0.82			Valid and Reliable
	B I 8	0.75			0.84			0.83			Valid and Reliable

Construct	Item										Status
Gamification (G M S)	G M S 1	0.74	0.557	0.916	0.76	0.611	0.929	0.79	0.638	0.938	Valid and Reliable
	G M S 2	0.75			0.78			0.81			Valid and Reliable
	G M S 3	0.75			0.81			0.82			Valid and Reliable
	G M S 4	0.69			0.72			0.72			Valid and Reliable
	G M S 5	0.77			0.77			0.77			Valid and Reliable
	G M S 6	0.79			0.81			0.82			Valid and Reliable
	G M S 7	0.69			0.80			0.80			Valid and Reliable
	G M S 8	0.70			0.79			0.79			Valid and Reliable
	G M S 9	0.80			0.77			0.82			Valid and Reliable
	GMS 10	0.74			0.76			0.80			Valid and Reliable
Hedonic Motivation (HM)	HM1	0.80	0.603	0.871	0.83	0.631	0.893	0.84	0.644	0.900	Valid and Reliable
	HM2	0.81			0.89			0.87			Valid and Reliable
	HM3	0.73			0.73			0.73			Valid and Reliable
	HM4	0.80			0.76			0.80			Valid and Reliable
	HM5	0.73			0.72			0.72			Valid and Reliable
	HM6	0.76			0.79			0.81			Valid and Reliable
Social Influence (SI)	SI1	0.72	0.543	0.881	0.79	0.706	0.942	0.75	0.646	0.923	Valid and Reliable
	SI2	0.73			0.87			0.81			Valid and Reliable
	SI3	0.70			0.83			0.80			Valid and Reliable
	SI4	0.72			0.86			0.82			Valid and Reliable
	SI5	0.71			0.83			0.78			Valid and Reliable
	SI6	0.76			0.87			0.84			Valid and Reliable
	SI7	0.77			0.78			0.77			Valid and Reliable
	SI8	0.74			0.84			0.81			Valid and Reliable

Source: Primary Data Processed (2023)

Table 3. Discriminant Validity – HTMT

	University Student (US)				High School (HS)				Complete			
	BI	GM	HM	SI	BI	GM	HM	SI	BI	GM	HM	SI
BI												
GM	0.75				0.61				0.77			
HM	0.68	0.63			0.62	0.61			0.72	0.69		
SI	0.88	0.70	0.55		0.85	0.61	0.63		0.82	0.69	0.62	

Source: Primary Data Processed (2023)

Objectives One popular method for assessing discriminant validity in structural equation modeling is the heterotrait-monotrait (HTMT) correlation ratio (Roemer et al., 2021). Additionally, Table 3 summarizes the discriminant validity of the HTMT approach in the high school, university students, and combined groups, indicating that the correlation values between constructs are below 0.9. The results are valid for all variables. Therefore, it can be concluded that an instrument has precision or accuracy in measuring all these variables. The reliability test used to determine the consistency of the measuring instrument in this study is reliable and remains consistent if measurements are carried out repeatedly. The discriminant validity through the HTMT criteria was successfully fulfilled. Furthermore, once the measurement model assumptions (validity and reliability) are met, the next step is to test the hypothesis with bootstrapping.

4.3 Assessment of structural model
R-square aims to measure a value that shows how much the independent (exogenous) variable influences the dependent (endogenous) variable. R-squared ranges from 0 to 1, showing how much the

independent variables' combination affects the dependent variable's value. The R-squared value (R^2) assesses how much influence a particular independent latent variable has on the dependent latent variable. Based on this, there are three grouping categories in the R square value: strong, moderate, and weak. Hair et al. (2011) stated that an R-square value of 0.75 is in the strong category, an R-square value of 0.50 is in the medium category, and an R-square value of 0.25 is in the weak category. This study found that the R^2 value for behavioral intention was 0.739 in the university student sample group, 0.609 in the high school sample group, and 0.710 when the two groups were combined. Behavioral intention can moderately explain the connection between hedonic motivation, social influence, and gamification. Additionally, the coefficient of determination (R^2) for the implementation of gamification in the university student group is 0.521, while it is 0.396 for the high school group and 0.531 when the two groups were combined. The meaning is that gamification can moderately explain the connection between hedonic motivation and social influence for university students, and the two groups were combined. However, gamification is weak, especially in the high school group. This is reported in Table 4.

Table 4. R-Square (R^2)

	R^2					
	US	Criteria	HS	Criteria	Complete	Criteria
Behavioral Intentions	0.739	Moderate	0.609	Moderate	0.710	Moderate
Gamification	0.521	Moderate	0.396	Weak	0.531	Moderate

In Table 4, it is explained that the exogenous variable (gamification and hedonic motivation) has a low impact on the endogenous variable (behavioral intention) in the university group, high school students, and the combined group. This means that gamification and hedonic motivation do not influence mobile shopping adoption for all groups. However, social influence strongly affects the behavioral intention in the university, high school students, and combined groups. This means that social influence on all groups strongly influences the adoption of mobile shopping.

Table 5. F-Square (F^2) Effect Size

Path	F^2					
	US	Criteria	HS	Criteria	Complete	Criteria
Gamification→Behavioral	0.071	Weak	0.039	Weak	0.149	Weak
Hedonic→Behavioral	0.102	Weak	0.025	Weak	0.088	Weak
Social→Behavioral	0.699	Strong	0.547	Strong	0.377	Strong
Hedonic→Gamification	0.169	Moderate	0.149	Moderate	0.243	Moderate
Social→Gamification	0.377	Strong	0.138	Moderate	0.249	Moderate

The function of the f-square is to assess the magnitude of the influence between variables with Effect Size or f-square (Sarstedt et al., 2011). The f-square value in this study shows that the impact of exogenous variables on endogenous variables is significant. This research has two endogenous variables: the behavioral intention (Y) and the gamification (Z). Moreover, effect size (F2) and values of 0.02, 0.15, and 0.35 imply weak, moderate, and vigorous effects, respectively (Cohen, 2013). Furthermore, the exogenous variable (hedonic motivation) moderately influences all groups' endogenous variables (gamification). This means that the hedonic motivation of university students and high school students is not too great for using gamification. However, exogenous variables (social influence) strongly influence endogenous variables (gamification) in the university student group. This means that the social environment around them strongly influences university student groups to use gamification. However, Social Influence moderately affects high school students and combined groups. This means that groups of high school students are sometimes influenced by their social environment to use gamification. The findings of the F-Square Effect Size are summarized in Table 5.

4.4. Measurement of Invariance Between Two Groups

Before doing the PLS-MGA analysis, it was necessary to assess the acceptability of the measurement model concerning the higher education and high school groups by comparing the path coefficient values. This step was taken to establish measurement invariance, as Hair et al. (2017) outlined. Measurement invariance is conducted to ascertain that the model accurately determines the attribute measurements in various groups across diverse conditions. Measurement invariance guarantees that any disparities observed between two distinct groups can be attributed to the samples' variations rather than being influenced by varying measurement models from various settings.

The examination of measurement invariance, often known as MICOM, is conducted using SmartPLS4. To satisfy the requirement of compositional invariance as outlined in the MICOM Step 2, it is necessary to examine the initial correlation value, equal to or greater than 5%, and the permutation p-value, equal to or greater than 0.05. The findings of the invariance measurements are displayed in Table 7, which indicates that compositional invariance has been effectively attained. Subsequently, a permutation test was conducted to examine the outcomes of assessing the similarity between the composite mean and variance values using MICOM Step 3, as presented in Tables 6 and 7. The findings demonstrate a partial invariant measurement, indicating that The Composite Mean and Variance differed significantly between the two groups. Once the successful attainment of compositional invariance and equality of composite mean values and variances has been accomplished, it becomes possible to proceed with the structural model measurements and comparative analysis of path coefficients using Multiple Group Analysis (MGA).

Table 6. MICOM Step 2

	Original correlation	Correlation Permutation Mean	5.00%	Permutation p-value	Compositional invariance
Behavioral	0.999	1.000	0.999	0.092	Yes
Gamification	0.999	1.000	0.999	0.069	Yes
Hedonic	0.998	0.999	0.998	0.112	Yes
Social	1.000	1.000	0.999	0.449	Yes

Table 7. MICOM Step 3a (Mean)

	Original difference HE-HS	Permutation Mean difference HE-HS	Permutation p-value	Equality Composite Mean?
Behavioral	-1.179	0.000	0.000	No
Gamification	-0.923	-0.004	0.000	No
Hedonic	-0.801	-0.001	0.000	No
Social	-0.507	0.001	0.000	No

Table 8. MICOM Step 3b (Variance)

	Original difference HE-HS	Permutation Mean difference HE-HS	Permutation p-value	Equality Composite Variance?
Behavioral	-0.258	0.003	0.083	Yes
Gamification	-0.245	-0.004	0.150	Yes
Hedonic	0.271	-0.002	0.216	Yes
Social	-0.399	-0.005	0.028	No

4.5. Multi-Group Analysis (PLS-MGA)

This study uses a non-parametric multi-group analysis (PLS-MGA) approach to examine essential disparities in parameter estimates across two different study groups: a university sample and high school students. Both methodologies measure the difference between the path coefficients of two specific sample groups. This is done by calculating p-values to ascertain whether the observed differences are statistically significant. Moreover, calculations were carried out with 5,000 bootstrap samples, using a

significance level of 5%. This explains the p-value of less than 0.05, indicating statistical evidence supporting differences between the sample groups of university and high school students.

More clearly, the hypothesis test findings from the two sample groups are presented in Table 9. Based on this table, statistical analysis of the student sample group shows that the hypothesis is significant for hypotheses H1a, H2a, H3a, H4a, and H5a because the p-value is below 0,05 and follows the predetermined significance level, which must be below 0.05. On the other hand, statistical analysis on a sample group of high school students shows different evidence. It was found that the hypothesis was significant for Hypotheses H2b, H3b and H4b. However, the findings are not significant in hypotheses H1b and H5b. This is based on a p-value of 0.05 in H1b and a p-value of 0.086 in H5b, exceeding the specified significance level below 0.05.

These findings show a lack of substantial correlation between the application of hedonic motivation to behavioral intention (H1b) and the application of gamification to behavioral intention in the sample group of high school students (H5b).

Table 9. MGA Results

Hypothesis	Variable	University				Student	High School				Student
		B.STD	STD EV	t - value	p-value	Result	B.STD	STD EV	t-value	p-value	Result
H1a	Hedonic→Behavioral	0.205	0.048	4.296	0.000	accepted					
H1b	Hedonic→Behavioral						0.128	0.065	1.960	0.050	rejected
H2a	Social→Behavioral	0.582	0.060	9.742	0.000	accepted					
H2b	Social→Behavioral						0.596	0.064	9.264	0.000	accepted
H3a	Hedonic→Gamification	0.331	0.069	4.798	0.000	accepted					
H3b	Hedonic→Gamification						0.363	0.087	4.185	0.000	accepted
H4a	Social→Gamification	0.494	0.062	7.993	0.000	accepted					
H4b	Social→Gamification						0.349	0.086	4.057	0.000	accepted
H5a	Gamification→Behavioral	0.196	0.071	2.777	0.006	accepted					
H5b	Gamification→Behavioral						0.158	0.092	1.717	0.086	rejected

Based on consumer perceptions, this research investigates the factors that influence behavioral intentions to adopt mobile shopping in Jakarta using Social Cognitive Theory (SCT). The SCT in this study was developed to understand the issue of behavioral intention in the context of the mobile shopping industry. The explanation for this is that human behavior is deliberately driven by known goals and regulated by exercising some control over personal interactions (hedonic motivation), actions, and sources of external/environmental influence (social influence and gamification), as well as behavioral factors (behavior intention) in the context mobile shopping.

Furthermore, ten types of hypotheses were tested; eight hypotheses were statistically accepted, and two were rejected. The empirical results of the research found that hedonic motivation values have a positive and significant effect on behavioral intentions (H1a was accepted). These findings indicate that university student consumers have the fun, entertaining, and enjoyable hedonic motivation to contribute to their intention to adopt mobile shopping Shopee and Shopee Games. This research improves the findings of research conducted by Soodan and Rana (2020); hedonic motivation refers to the significance that customers feel towards the fun, engaging, and valuable aspects of using technology. These findings also strengthen the research of Venkatesh et al. and Xu (2012), who state that hedonic motivation is an individual's subjective perception of the pleasure that arises from adopting and utilizing a technological tool or system. In similar findings, Yang et al. (2013) stated that the impact of hedonic motivation on customer technology adoption is significant, consistent with motivation theory. In

technology adoption, Yang et al. (2013) claim that the effects of hedonic motivation on customers' technology adoption are significant, consistent with motivation theory.

On the other hand, these findings are contradictory evidence that hedonic motivation was insignificant in behavioral intentions among high school student consumers who felt unmotivated to adopt mobile shopping Shopee and Shopee Games (H1b was rejected). The Mobile Shopping company must make efforts to direct high school students to want to adopt mobile shopping. These findings support research from Yaseen et al. (2018), which shows that hedonic motivation is not a positive predictor. Managers need to focus on promoting e-banking services so that Jordanian banks can provide additional entertainment for young people as early adopters and extra comfort for older consumers. The results of the study by Arenas et al. (2015) did not show a positive influence of hedonic motivation on behavioral intention. Banks must make efforts to direct elderly users to internal banking.

Furthermore, the findings of this study explain that social influence is significantly positive on the behavioral intention to adopt mobile shopping among university and high school students (H2a and H2b were accepted). This proves that essential people and opinion leaders influence user behavior and that users should use Mobile Shopping Shopee and Shopee Games. There is also influence from people who have used the Shopee application and Shopee Games, as well as the influence of their opinions being heard. It was also explained that university users and high school students were influenced by most people around them who had used the Shopee application and Shopee Games. These findings support research from Rana et al. (2015). Consumer perceptions and viewpoints are predominantly influenced by community affiliations' preferences and value systems, which include family members, friends, relatives, neighbors, and other individuals who interact with technology. Similar findings by Venkatesh et al. (2003). Technology refers to the phenomena in which one individual assigns importance to a specific issue, even in the face of opposing viewpoints from others who urge adopting a new approach. Furthermore, the same findings of this phenomenon become especially apparent when shifts influence individuals who employ specific technologies in the views of their social network members towards embracing other technology platforms (Baptista & Oliveira, 2015).

It was further found through empirical data that Hedonic Motivation influenced Gamification in all groups of respondents (H3a and H3b were accepted). These findings indicate that university and high school consumers have the fun, entertaining, and enjoyable hedonic motivation to contribute to Shopee Games. These findings support research proposed by M Qomaqrul Huda et al. in 2020; users' intrinsic motivation satisfaction is achieved by applying various techniques, including online purchases, educational activities, gaming, social networking, and participating in recreational games. Cera (2020) research revealed a meaningful and statistically significant correlation between hedonic motivation and gamification.

The following finding is that social influence has a significant and positive impact on gamification in all groups of respondents (H4a and H4b were accepted). It explains that social factors benefit individual behavior and their tendency to embrace gamification, such as earning badges, progression elements, reviews, rewards, ranking on the score list, leaderboard system, and points accumulation on Shopee Games. Furthermore, this strengthens the following previous research. The social dimension includes earning badges, ranking on a score list, and accumulating points for social goals to gain social recognition (Hamari et al., 2013). Predictions of attitudes toward gamification, intention to continue using it, and propensity to recommend it to others may be determined by social factors, including network effects, social influence, recognition, and mutual benefit. According to research findings, combining achievement aspects with a user community facilitates the ability to like and comment on reports, which has great significance in gamification. Alalwan et al. (2017) stated that social factors positively influence individuals' use of technology. Therefore, the aim is to use the gamification technology proposed by Hamari et al. (2013). Furthermore, according to research conducted by Hamari and Koivisto (2015), it was found that social factors have a beneficial impact on individual behavior and their tendency to embrace gamification.

The following finding is that gamification significantly impacts behavioral intention in the university student group (H5a was accepted). This explains that gamification affects university students' mobile shopping adoption intentions. Furthermore, this strengthens the following previous research. Gamification is gaining increasing presence and importance in daily lives, applications, services, and business (Baptista et al., 2017). These findings also support studies that suggest the moderating effect of gamification, showing that the positive relationship between customer intention to adopt and customer intention to recommend Internet banking will be stronger when gamification is higher (Rahi et al., 2019). This research also supports Bitrian et al., 2021; gamification increases user engagement by satisfying competence, autonomy, and relatedness needs. Moreover, user engagement, in turn, leads to greater intention to use, disseminate WOM about, and positively rate the app.

In contrast, the findings that explain gamification do not significantly impact behavioral intentions (H5b was rejected). High school students do not intend to use Shopee Games to adopt Shopee mobile shopping. However, this supports the following research. According to Cera (2020), the primary influence of gamification on mobile banking behavior intention is insignificant. To overcome this problem, it is recommended to include the moderating effect of generational groups. This research reveals that generational groups statistically moderate the relationship between gamification and behavioral intention to influence behavior intention. This means gamified elements influence a person's behavior depending on their generational group.

Gamification, on the other hand, is an exciting phenomenon that seeks to motivate people by applying game design elements to non-gaming contexts such as healthcare. In this paper, we look at how the gamification of health apps can provide consumers with motivating and engaging interaction concepts to encourage the adoption of wearable devices for a healthy lifestyle. Our results highlight that although the public shows high interest in wearable devices and gamification, the combined added value of both is still unknown to potential consumers. The practical contribution of this paper is that the industry should clarify its function and relevance. Potential consumers consider activity tracking, fitness, and health functions the most important. (Spil, et al., 2017).

5. Conclusion

This research builds on an existing MGA study by offering new insights into the factors influencing behavioral intentions to adopt Shopee mobile shopping among university and high school students in Jakarta. Furthermore, accepting the role of hedonic motivation on behavioral intentions in adopting Shopee mobile shopping is considered enjoyable for students. They experience fun and entertainment by interacting with the Shopee platform and participating in Shopee games, but not for high school students.

The same thing was also found in the acceptance of the contribution of mobile shopping gamification to behavioral intentions in adopting mobile shopping, which was considered satisfactory in the higher education student group. They find Shopee Games attractive with its badge system, dynamic elements, game mechanics, leaderboards, points, and scoring system. This gamification element in mobile commerce significantly influences the tendency of higher education students to accept and interact with Shopee Games. However, this condition does not apply to the group of high school students. Moreover, the acceptance of social influence on behavioral intention, acceptance of hedonic motivation, and social influence on gamification were all significantly positive for all groups. These findings provide valuable theoretical and practical insights into utilizing hedonic motivation, social influence, and gamification in understanding consumer behavior in mobile commerce, especially among university and high school students. Based on this, marketing strategies should consider these variations among different demographic segments to enhance proficiency. In summary, this research provides significant theoretical and empirical knowledge regarding consumer psychology and technology usage patterns in the mobile purchasing field. Conducting additional research that includes a broader range of participants and situations would be advantageous. Further research should be

performed by having other variables and context.

6. Theoretical Contribution and Practical Contribution

6.1. Theoretical Contribution

The results of this research support the social cognitive theory (SCT) proposed by Bandura (1977, 1986), which investigates the influence of various elements on individual learning processes. These findings strengthen Ratten's (2007, 2009) statement that social cognitive theory (SCT) includes individual behavior influenced by personal cognition and contextual factors, thereby enabling predictions of technology adoption for innovation. Furthermore, this research expands the meaning of social cognitive theory, which states a correlation between individual cognitive processes, especially hedonic motivation, and external factors, especially social influence and gamification, which impact the formation of adoption behavioral intentions in mobile shopping.

6.2. Practical Contribution

Hedonic motivation is related to pleasure and shows the highest factor loading. In higher education, the loading factor for this item is 0.898, while in high school, it is 0.812. Based on this, it was concluded that all groups perceived the 'enjoy using Shopee Games' component as a significant dominant determinant in forming the hedonic motivation variable. This means that existing types of games must be maintained.

The social influence variable shows a dominantly significant factor loading on the indicator 'people who have close relationships.' A value of 0.879 was observed in respondents with higher education. Based on existing data, college students tend to actively listen to the points of view and opinions of people who use the things in question. Shopee Games plays a vital role in determining various social factors that have a positive impact. The initial stages carried out include maintaining the user suggestion feature on Shopee Games, as well as improving and maintaining the Shopee Games discussion function on various social media platforms that are often accessed by individuals who are college students. This activity aims to encourage and facilitate discussions about Shopee Games, which is expected to increase individuals' involvement in Shopee Games. One such approach is to produce various forms of distinctive content on social media platforms. Another method incorporates live streaming functionality. Specifically, the indication of 'intention to reuse' is 0.856. Based on existing data, students expressed their desire to continue using Shopee. The importance of these signals requires their preservation and enhancement through the retention of existing traits. The Shopee company must maintain the dominant, most preferred form of Shopee gaming. Additionally, efforts should be made to improve and perfect the unique gaming system. This initiative aims to increase customer loyalty and encourage continued use of the Shopee and Shopee Games programs.

Respondents with higher education have the highest factor loadings on mechanical indicators. Specifically, the value is 0.819. Based on existing statistics, implementing rewards, such as coins, badges, and ratings, positively impacts user engagement with Shopee Games. This element mainly determines the formation of gamification variables. This means that these mechanical indicators need to be maintained.

The contribution related to the methodology, namely Structural Equation Modeling with Partial Least Squares (SEM-PLS), allows researchers to test the relationship between visible variables (also known as manifest variables) and latent variables (which represent the underlying constructs or factors), which is adequate for research like this. Moreover, contributions related to the mobile shopping context in this research have added new insights into the e-commerce industry. Furthermore, contributions related to samples of higher education and high school students in this research have added new insights into the e-commerce industry in Indonesia. Finally, efforts to enhance knowledge in the marketing strategy realm should consider variations among diverse demographic segments to enhance effectiveness. This research offers substantial theoretical and empirical insights into consumer

psychology and technology usage patterns in the context of mobile purchases.

7. Limitations and Suggestions for Future Research

One weakness of this research is the method used using Google Forms, an online survey platform. Potential bias can arise when individuals filling out surveys do not match the exact target respondents because the researcher does not meet the respondents face to face. In addition, many questionnaires do not meet the predetermined criteria due to inaccurate responses and cases where certain items are not answered.

It is recommended that empirical research on various entities, such as different levels of education, be conducted. In addition, it is recommended that several different variables from this research be integrated. Additionally, including a larger sample size could strengthen the reliability and validity of the results obtained in this research investigation. This research further investigates demographic gaps, including gender, age, years of professional service, income, and social status. To reduce bias, it is recommended to administer the questionnaire through face-to-face interaction rather than using an online platform. Research can be conducted in locations other than Jakarta, using qualitative methodology or integrating qualitative and quantitative approaches. This research provides a comprehensive understanding of students' adoption of mobile purchasing in diverse urban environments.

References

Al-Azawei, A., & A. Alowayr (2020)." Predicting the intention to use and hedonic motivation for mobilenav learning: A comparative study in two Middle Eastern countries," Technology in Society, 62(June), 101325. https://doi.org/10.1016/j.techsoc.2020.101325

Alalwan, A. A., Dwivedi, Y. K. & Rana, N. P. (2017). Factors Influencing Adoption of Mobile Banking by Jordanian Bank Customers: Extending UTAUT2 with Trust, International Journal of Information Management 37 (3): 99–110.

Aparicio, M., Costa, C. J., & Moises, R. (2021). Gamification and reputation: key determinants of e-commerce usage and repurchase intention. Heliyon, 7(3), e06383. https://doi.org/10.1016/j.heliyon.2021.e06383

Arenas Gaitan, J., Peral, B. and Ramon Jeronimo, M.A. (2015). Elderly and Internet Banking: An Application of UTAUT2. Journal of Internet Banking and Commerce 20 (1): 1-23.

Baabdullah, A.M. (2018)." Consumer adoption of Mobile Social Network Games (M-SNGs) in Saudi Arabia: The role of social influence, hedonic motivation, and trust." Journal Technology in Society, Vol. 53, Pages 91–102.

Bandura, A. (1986). Social Foundations of Thought and Action, Prentice-Hall, Englewood Cliffs, NJ.

Bandura, A. (1988). Organisational Application of Social Cognitive Theory, Australian Journal of Management 13(2): 275–302.

Bandura, A. (1999). Social Cognitive Theory: An Agency Perspective. Asian Journal of Social Psychology 2: pp. 21–41.

Baptista, G., & Oliveira, T. (2015). Understanding mobile banking: The unified theory of acceptance and use of technology combined with cultural moderators. Computers in Human Behavior, 50, 418–430. https://doi.org/10.1016/j.chb.2015.04.024

Baptista, G. and Oliveira, T. (2017), "Why so serious? Gamification impact in the acceptance of mobile banking services", Internet Research, Vol. 27 No. 1, pp. 118-139.

Bitrián, P., Buil, I., & Catalán, S. (2021). Enhancing user engagement: The role of gamification in mobile apps. Journal of Business Research, 132(April), 170–185. https://doi.org/10.1016/j.jbusres.2021.04.028

Bùi, T. T. H., & Bùi, H. T. (2018). International Journal of Social Science and Economic Research GAMIFICATION IMPACT ON THE ACCEPTANCE OF MOBILE PAYMENT IN HO CHI MINH CITY, VIETNAM. International Journal of Social Science and Economic Research, 03(09), 4822–4837. www.ijsser.org

Çera, G., Pagria, I., Khan, K. A., & Muaremi, L. (2020). Mobile banking usage and gamification: the moderating effect of generational cohorts. Journal of Systems and Information Technology, 12(3), 243–263. https://doi.org/10.1108/JSIT-01-2020-0005

Chang, I.-C., Liu, C.-C. and Chen, K. (2014), "The effects of hedonic/utilitarian expectations and social influence on continuance intention to play online games", Internet Research, Vol. 24 No. 1, pp. 21-45. https://doi.org/10.1108/IntR-02-2012-0025

Chin, W.W. (1998), "The partial least squares approach to structural equation modeling", in Marcoulides, G.A. (Ed.), Modern Methods for Business Research, Psychology Press, Springer- Verlag Berlin, Germany, pp. 295-336.

Chin, W.W. and Dibbern, J. (2010), "An introduction to a permutation based procedure for multi-group PLS analysis: results of tests of differences on simulated data and a cross cultural analysis of the sourcing of information system services between Germany and the USA", in Esposito, V., Vinzi, W., Chin, W.,

Henseler, J. and Wang, H. (Eds), Handbook of Partial Least Squares: Concepts, Methods and Applications, Springer, Berlin Heidelberg, pp. 171-193, doi: 10.1007/978-3-540- 32827-8_8.

Cohen, J. (2013), Statistical Power Analysis for the Behavioral Sciences, Revised ed., Academic Press, New York.

Davis, F. D. (1989). Perceived Usefulness, Ease of Use, and User Acceptance of Information Technology, MIS Quarterly: 319–340.

Deterding, S., Dixon, D., Khaled, R. & Nacke, L. (2011). "From game design elements to gamefulness: Defining 'gamification," MindTrek '11: Proceedings of the 15th International Academic MindTrek Conference: Envisioning Future Media Environments, Vol. 185, pp. 9–15.

F. Hair Jr, J., Sarstedt, M., Hopkins, L. and G. Kuppelwieser, V. (2014), "Partial least squares structural equation modeling (PLS-SEM): An emerging tool in business research", European Business Review, Vol. 26 No. 2, pp. 106-121. https://doi.org/10.1108/EBR-10-2013-0128.

Garcia et al. (2018), García-Jurado, A., Castro-González, P., Torres-Jiménez, M., & Leal-Rodríguez, A. L. (2019). Evaluating the role of gamification and flow in e-consumers: millennials versus generation X. Kybernetes, 48(6), 1278–1300. https://doi.org/10.1108/K-07-2018-0350.

Gupta, A., Dogra, N. (2018). "What determines tourist adoption of smartphone apps? An analysis based on the UTAUT-2 framework", Journal of Hospitality and Tourism Technology.

Hair, J., Ringle, C.M. and Sarstedt, M. (2013), "Partial least squares structural equation modeling: rigorous applications, better results and higher acceptance", Long Range Planning, Vol. 46 Nos 1/2, pp. 1-12.

Hair, J., Hult, G.T.M., Ringle, C. and Sarstedt, M. (2017), A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM), 2nd ed., SAGE Publications.

Hair, Jr. J. F., Hult, G. T. M., Ringle, C., & Sarstedt, M. 2016. A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM) (2nd ed.). Thousand Oaks: Sage.

Hamari, J. and Koivisto, J. (2015). "Working out for likes: an empirical study on social influence in exercise gamification," Computers in Human Behavior, Vol. 50, doi: 10.1016/j.chb.2015.04.018.

Hamari, J., & Koivisto, J. (2013). Social motivations to use gamification: An empirical study of gamifying exercise. ECIS 2013 - Proceedings of the 21st European Conference on Information Systems, pp 1-12.

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. Journal of the Academy of Marketing Science, 43(1), 115–135. https://doi.org/10.1007/s11747-014-0403-8.

Hooda, A., Nousiainen, T., Vesisenaho, M., Ahlstrom, E., Fort, S., Subirats, L., & Sacha, G. M. (2022). School of Digital Wizards: Exploring the Gamification User Types in a Blended IT Course. Proceedings - Frontiers in Education Conference, FIE, 2022-October 1–5. https://doi.org/10.1109/FIE56618.2022.9962592

Horst Treiblmaier et al. (2020): Treiblmaier, H., & Putz, L. M. (2020). Gamification as a moderator for the impact of intrinsic motivation: Findings from a multigroup field experiment. Learning and Motivation, 71(June), 101655. https://doi.org/10.1016/j.lmot.2020.101655

https://databoks.katadata.co.id/datapublish/2023/07/07/pengunjung-shopee-dan-blibli-naik-pada-kuartal-ii-2023-e-commerce-lain-turun

Kang, J., Tang, L. R. and Fiore, A. M. 2015. Restaurant Brand Pages on Facebook: Do Active Member Participation and Monetary Sales Promotions Matter? International Journal of Contemporary Hospitality Management 27 (7): 1662-1684.

Kim, T.G., Lee, J.H., Law, R. (2008). An Empirical Examination of the Acceptance Behaviour of Hotel Front Office Systems: An Extended Technology Acceptance Model, Tourism Manage 29 (3): 500–513.

Lenni Khotimah Harahap, 2020. https://fst.walisongo.ac.id/analisis-sem-structural-equation-modelling-dengan-smartpls-partial-least-square/

Leong, L.Y., Ooi, K.B., Chong, A.Y.L. and Lin, B. 2013. Modeling the Stimulators of the Behavioral Intention to Use Mobile Entertainment: Does Gender Really Matter, Computers in Human Behavior 29 (5): 2109-2121.

Liu, D., Santhanam, R. and Webster, J. (2017). "Toward meaningful engagement: a framework for design and research of gamified information systems," MIS Quarterly, Vol. 41 No. 4, pp. 1011–1034.

Moorthy, K. (2019). "Habit and hedonic motivation are the strongest influences in mobile learning behaviors among higher education students in Malaysia," Australasian Journal of Education Technology, Vol.35 No.4, DOI: https://doi.org/10.14742/ajet.4432.

M. Qomarul Huda, N. Aeni Hidayah, T. Nur Hafizah Hersyaf, I. Sujoko, and Asmawi, "Analysis of Continuance Use of Video on Demand Applications by Using the Hedonic Motivation System Adoption Model," 2020 8th International Conference on Cyber and IT Service Management (CITSM), Pangkal, Indonesia, 2020, pp. 1–6, doi: 10.1109/CITSM50537.2020.9268910.

Rahi, S. and Abd. Ghani, M. (2019), "Does gamified elements influence on user's intention to adopt and intention to recommend internet banking?", The International Journal of Information and Learning Technology, Vol. 36 No. 1, pp. 2-20.

Raman, A. and Don, Y. 2013. Preservice Teachers Acceptance of Learning Management Software: An Application of the UTAUT2 Model, International Education Studies 6 (7): 157-171.

Rana, N. P., & Y. K. Dwivedi. (2015). Citizen's adoption of an e-government system: Validating extended social cognitive theory (SCT). Government Information Quarterly, 32(2), 172–181. https://doi.org/10.1016/j.giq.2015.02.002

Ratten, V. 2009. Adoption of Technological Innovations in the M-Commerce Industry, International Journal of Technology Marketing 4: 355-367.

Ringle, C. M., Wende, S., & Becker, J.-M. (2015). SmartPLS 3. Boenningstedt: SmartPLS GmbH. http://www.smartpls.com.

Roemer, E., Schuberth, F., & Henseler, J. (2021). HTMT2–an improved criterion for assessing discriminant validity in structural equation modeling. Industrial Management and Data Systems, 121(12), 2637–2650. https://doi.org/10.1108/IMDS-02-2021-0082.

Rohmatullah, Iqbal Hanif., Nugraha, Jaka. 2022. "Penggunaan Learning Management System di Pendidikan Tinggi Pada Masa Pandemi Covid-19: Model UTAUT, DOI: https://doi.org/10.26740/jpap.v10n1.p48-66.

Sarstedt, M., Henseler, J. and Ringle, C.M. (2011), "Multigroup analysis in partial least squares (PLS) path modeling: alternative methods and empirical results", in Sarstedt, M., Schwaiger, M. and Taylor, C.R. (Eds), Measurement and Research Methods in International Marketing, Vol. 22, Emerald Group Publishing, West Yorkshire, England, pp. 195-218, doi: 10.1108/S1474-7979 (2011)0000022012.

Sekaran, U. and Bougie, R. 2016. Research Methods for Business. 7th Edition. United States: Wiley.

Sharma, P. N., Liengaard, B. D., Hair, J. F., Sarstedt, M., & Ringle, C. M. (2023). Predictive model assessment and selection in composite-based modeling using PLS-SEM: extensions and guidelines for using CVPAT. European Journal of Marketing, 57(6), 1662-1677. https://doi.org/10.1108/EJM-08-2020-0636.

Soodan, V., & Rana. A. 2020. Modeling Consumers' Intention to Use E-Wallet in A Developing Nation: Extending UTAUT2 With Security, Privacy and Savings. Journal of Electronic Commerce in Organizations 18 (1): 89-114, DOI: 10.4018/JECO.2020010105.

Spil, T., Sunyaev, A., Thiebes, S., & van Baalen, R. (2017). The adoption of wearables for a healthy lifestyle: Can gamification help? Proceedings of the Annual Hawaii International Conference on System Sciences, 2017-January, 3617–3626. https://doi.org/10.24251/hicss.2017.437.

Tobon, S., Ruiz-Alba, J.L. and García-Madariaga, J. (2020). "Gamification and online consumer decisions: Is the game over?" Decision Support Systems, Vol. 128, pp. 113167, https://doi.org/10.1016/j.dss.2019.113167.

Venkatesh, V., Thong, J.Y.L. and Xu, X. (2012). "Consumer acceptance and use of information technology: extending the unified theory of acceptance and use of technology," MIS Quarterly, Vol. 36 No. 1, p. 157, https://www.jstor.org/stable/41410412.

Venkatesh, V., Morris, M.G., Davis, G.B. and Davis, F.D. (2003). "User acceptance of information technology: toward a unified view," MIS Quarterly, Vol. 27 No. 3, p. 425.

Wicaksono, B., & Subari, F. A. (2021). Gamifikasi Dan Korelasinya Dengan Minat Mengunjungi Ulang Pada Marketplace "X." Jurnal Administrasi Bisnis, 17(1), 101–114. https://doi.org/10.26593/jab.v17i1.4726.101-114.

Wu, X. and Santana, S. (2022). Impact of intrinsic and extrinsic gaming elements on online purchase intention. Frontiers in Psychology, 13. https://doi.org/10.3389/fpsyg.2022.885619.

Xu, Y., Chen, Z., Peng, M., & Anser, M. (2020). Enhancing consumer online purchase intention through gamification in China: the perspective of cognitive evaluation theory. Frontiers in Psychology, 11. https://doi.org/10.3389/fpsyg.2020.581200.

Yang, K., & J.C. Forney. (2013). The Moderating Role of Consumer Technology Anxiety in Mobile Shopping Adoption: Differential Effects of Facilitating Conditions and Social Influences. Journal of Electronic Commerce Research 14 (4): 334–347.

Yaseen, S. G., & El Qirem, I. A. 2018. Intention to Use E-Banking Services in The Jordanian Commercial Banks. International Journal of Bank Marketing. https://doi.org/10.1108/IJBM-05-2017-0082.

Yanxiang, Yang., Koenigstorfer, Joerg. 2021. "Determinants of Fitness App Usage and Moderating Impacts of Education-, Motivation-, and Gamification- Related App Features on Physical Activity Intentions: Cross-sectional Survey Study." Journal of Medical Internet Research", MDPI, volume 9, issue 12.

Zichermann, G. and Cunningham, C. (2011), Gamification by Design: Implementing Game Mechanics in Web and Mobile Apps, O'Reilly Media, Sebastopol.