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THE EFFECT OF GAMIFICATION TOWARDS REPURCHASE INTENTION IN E-COMMERCE PLATFORM WITH TECHNOLOGY ADVANCEMENT MODEL (TAM) AS A MODERATING VARIABLE.

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Abstract. Indonesia has the 4th most populous country in this world has a lot of potential for e-commerce businesses, this can be seen by the emergence of different e-commerce platform such as Tokopedia, Shopee, Bli Bli and many others. This statement is further supported by the fact that 26,5% of the population in Indonesia is comprised of the Z Generation, a generation which utilises technology on a daily basis including purchasing goods and making payments. When it comes to marketing effort, e-commerce platform utilises several strategies in order to attract someone to make a repurchase. One of the strategy that is commonly used by e-commerce platform is gamification. Therefore, this research aims to understand the relationship between gamification and repurchase intention in Shopee as an e-commerce platform. Since e-commerce platform require the user to use technology such as smart phone, this research also aims to understand the relationship between TAM and repurchase intention, as well as the moderating effect of TAM in the relationship between gamification and repurchase intention. This research utilises SEM-PLS to analyse the data that was gathered using questionnaire. The result of this research showed that gamification didn't have a significant effect towards repurchase intention. While TAM has a significant effect towards repurchase intention. Last but not least, from the research result can be seen that TAM didn't moderate the relationship between gamification and repurchase intention in Shopee as an e-commerce platform.

Abstrak. Indonesia yang merupakan negara terpadat ke-4 di dunia ini memiliki banyak potensi untuk bisnis e-commerce, hal ini dapat dilihat dengan munculnya berbagai platform e-commerce seperti Tokopedia, Shopee, Bli Bli dan masih banyak lagi yang lainnya. Pernyataan ini juga didukung oleh fakta bahwa 26,5% penduduk Indonesia adalah Generasi Z, generasi yang sehari-hari memanfaatkan teknologi termasuk membeli barang dan melakukan pembayaran. Dalam hal upaya pemasaran, platform e-commerce menggunakan beberapa strategi untuk menarik seseorang untuk melakukan pembelian kembali. Salah satu strategi yang umum digunakan oleh platform e-commerce adalah gamification. Oleh karena itu, penelitian ini bertujuan untuk mengetahui hubungan antara gamification dan repurchase intention pada Shopee sebagai platform e-commerce. Karena platform e-commerce mengharuskan pengguna untuk menggunakan teknologi seperti ponsel pintar, penelitian ini juga bertujuan untuk memahami hubungan antara TAM dan niat beli ulang, serta efek moderasi TAM dalam hubungan antara gamifikasi dan niat beli ulang. Penelitian ini menggunakan SEM-PLS untuk menganalisis data yang dikumpulkan dengan menggunakan kuesioner. Hasil penelitian menunjukkan bahwa gamifikasi tidak berpengaruh signifikan terhadap niat beli ulang. Sedangkan TAM berpengaruh signifikan terhadap niat beli ulang. Last but not least, dari hasil penelitian terlihat bahwa TAM tidak memoderasi hubungan antara gamification dan repurchase intention di Shopee sebagai platform e-commerce.

INTRODUCTION

Indonesia is considered as one of the most populous countries in the world. According to data from the worldbank.org, Indonesia is currently the fourth most populous country in the world. Being the 4th most populous country in the world, today Indonesia has 270.203.917 citizen. Among this number, 36.719.764 male and 34.717.318 female belongs to the Z generation which accounts for 26,5% of the whole population. As one of the most populous country in the world, Indonesia has quite a strong purchase power as is reflected in the worldbank.org data. In which, it can be seen that Indonesia if seen from the purchasing power perspective is the 10th largest economy in this world.

The Z generation can be defined as a generation that was born after 1995 (Cilliers, 2017 ; Dolot, 2018). Other researcher define Generation Z as someone who was born between 1993 until 2012 (White, 2017 ; Dolot, 2018). This research will uses the definition from Cilliers (2017; Dolot, 2018). The Z Generation, just like the previous generations has its own generation cohort characteristics. Some of the characteristics are they can function and easily switch between the real and virtual world, as they perceive them as a complimentary to one another (Zarczynska-Dobiesz, Chomatowska in Dolot, 2018). Beck and Wright (2019) mentions that Z Generation or iGen is the first generation of true digital natives, which means they have been surrounded by digital technology ever since they were born. This indicates that the Z Generation is very familiar with the internet and technology. This statement is also supported by statements from Grace and Seemiller (2019) which mentions that 78% of the Generation Z teens use a smartphone.

With the abundance of apps both for iPhone and Android phones, the Z Generation uses their mobile phone for various activities, such as payment methods or mobile banking, Online buying, eMedicine, GPS, Social connection, information and entertainment, to learn new things through DIY hacks and how-to videos, and many more (Grace and Seemiller, 2019).

According to statista.com, in 2020 Indonesia has approximately 191 million internet users. With around 70% of the population are using the internet, Indonesia can be considered as one of the biggest online markets in the world.



Picture 1. E-commerce spending by category

Source : <https://datareportal.com/reports/digital-2021-indonesia>



Picture 2. E-commerce spending by category

Source : <https://datareportal.com/reports/digital-2021-indonesia>

Based on the data taken from datareportal.com above, it can be seen that Indonesian people spend a total of 38,2 billion dollar in the e-commerce sectors. It can be concluded that Indonesia’s market has begin to move from the traditional transaction into an online transaction via e-commerce. And from the second picture above, it can be seen that The Z Generation places in the second place regarding the number of member from the generation who made an online purchase. With 84,8% of the generation member made an online purchase in a month, they’re only lost to the millennials generation by 4%. Therefore it is important to research about the Z Generation, considering that they’ll become the next biggest customer in the near future.

In Indonesia itself there are numerous online market place, such as Shopee, Lazada, Tokopedia, BliBli and many more.



Picture 3. E-Commerce with the most visitor (February 2022)

<https://dataindonesia.id/digital/detail/tokopedia-jadi-penguasa-ecommerce-indonesia-pada-februari-2022>

From the graph above it can be inferred that e-commerce platform with the most visits in February 2022 is Tokopedia, followed by Shopee in the second place, Lazada in the third place, Bukalapak in the fifth place and so on. With the emergence of numerous other competitor in these recent times, e-commerce in Indonesia has to be creative in their marketing strategies in order to get more clicks and ultimately more market share. There several marketing ways that are commonly used by the e-commerce to get more customer and market share, such as digital advertising which includes instagram and facebook ads, as well as youtube ads ; Offline marketing such as banner and sign board ; and many more. One of the more recent ways of marketing that utilised by e-commerce platform in Indonesia is gamification. Gamification itself can be defined as the use of game elements in a non-game context (Merhabi, Petridis and Khusainova, 2021). When it comes to incorporating games on a platform, most e-commerce has incorporate some sort of gamification inside its platform. To encourage people to play the games, usually an e-commerce platform will give some sort of voucher or coins or in-apps money such as gopay coins, shopee coins and many more which can be used to purchase or to get some sort of discounts or other benefit such as free delivery fees any many more. As what has been mentioned above, e-commerce platforms in Indonesia has incorporate a form of gamification into its apps. Tokopedia has a total of 5 games incorporated into its platform, these games are Panen Telur, Panen Telur Panen Bareng, Tap Tap Kotak, Kuis Tokopedia and Top Quest, while Lazada has Laz Games. As for the apps which has the most games incorporated into its apps is Shopee with a total of 9 games incorporated inside its apps (Shopee Snake, Shopee Run, Shopee Lucky Prize, Shopee Pets, Shopee Tebak Kata, Shopee Bubble, Shopee Capit, Shopee Candy, dan Shopee Tanam).

Gamification itself is a relatively novel terms in marketing which first emerged around 2010 (Merhadi, Petridis and Khusainova, 2021). Although it has been 12 years since its emergence, most of the research focused their attention on the general market, research that focuses itself in a certain generation are still very rare. Therefore, it is important to understand whether gamification does has an effect in the repurchase intention, especially in Gen Z which in the near future will become the largest consumers in Indonesia. Aparacio, Costa and Moises (2021) found that in e-commerce context, gamified e-commerce websites positively influence repurchase intention. The same finding is also found by Djohan et al. (2022) which found that the effect of gamification towards repurchase intention was significant and positive. This research goes against findings from Kim et al. (2020) in which the researcher found that gamification does not positively influence repurchase intention. Based on the discussions above it can be concluded that there are still gap that can be fulfilled in regard to the influence of gamification towards repurchase intention.

As what has been mentioned before, one of the characteristics from the Z Generation is tech savvy, in which they are fluent in using the internet, considering that they were born and raised surrounded by the internet. Based on this characteristic, it can be inferred that since the Z Generation is tech savvy and digitally advanced, they will most likely found that the apps are easy to use and the easiness in using the apps might have a positive effects towards the relationship between gamification and repurchase intention. Many research has been done regarding the

influence of TAM towards repurchase intention, such as research from Sawitri and Giantari (2020) which found that perceived ease of use and perceived usefulness have positive and significant effect repurchase intention online and trust. Another research from Syaharani and Yasa (2022) also found that ease of use and perceived usefulness have positively and significantly affect intention to repurchase. Lee, Eze and Ndubisi (2011) also found similar result in which perceived usefulness and perceived ease of use both separately affect online repurchase intention. Last but not least, there is research from Chen (2012) which found that perceived usefulness and perceived ease of use each has an influence towards intention to repurchase. Based on the previous research literature that has been done, not much research was found regarding the moderating effect of TAM in the relationship between gamification and repurchase intention. Therefore, this research aims to understand: (1) the effect of gamification towards repurchase intention, (2) the effect of TAM towards repurchase intention, (3) the moderating impact of Technology Advancement Model or TAM on the relationship between gamification and repurchase intention in Shopee as an e-commerce platform.

LITERATURE REVIEW

In this section, we'll discuss about the literature review and theory regarding each variables that are used in this research. Repurchase intention itself can be defined as a consumer's decision to conduct a repurchase of a certain product or services with considering the possible result that might happen and affected by the liking level of that product (Hellier, 2003 ; Chrisnathaniel, Hartini and Rahayu, 2021). It can also be defined as a consumer's willingness to buy the same brand or products (Can and Erdil in Djohan et al, 2022). Since repurchase intention allows companies to retain customers and prevents them from purchasing similar products from competitors, it plays an important part in determining the success of a company in an industry. (Lukito and Ikhsan, in Syaharani and Yasa, 2022). Repurchase itself is affected by multiple factors. One of the factor which affect repurchase intention is gamification. By offering an enjoyable experience from the games and making the customer more involved with the services, gamification encourages the customers to keep using the e-marketplace services (Djohan et al., 2022)

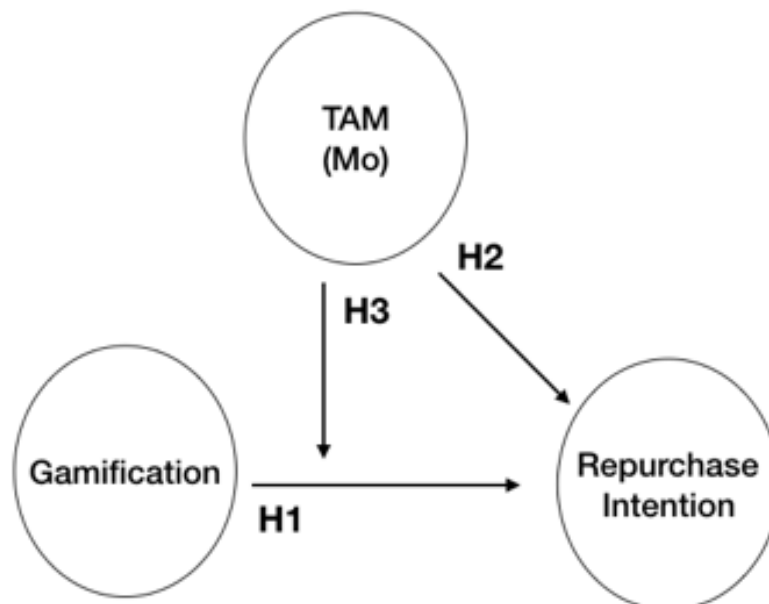
Gamification can be describe as a process that aims to improve service quality by invoking the concept of games into the services provided to customers so that customers could have a gaming experience (Hamari et al., 2014 ; Djohan et al, 2022). Other description of gamification is the use of game elements in a non-game context (Merhabi, Petridis and Khusainova, 2021). Gamification in business and services has been explored and successfully implemented through game components within non-game context (Hamari and Koivisto, 2015 ; Kim et al., 2020). Gamification itself can be used as a tool to attract and retain consumers in online stores (Wolf et al in Rakhmita, Hurriyati, Dirgantari, 2020). In the research that was done by Wicaksono and Subari (2021) found that there is a strong correlation between gamification and repurchase intention and also gamification does indeed influence repurchase intention. Sitthiponnet al. (2022) also found the same result in which gamification has an effect towards repurchase intention with customer satisfaction as a mediating variables. While Djohan et al (2022) also found that gamification positively affect repurchase intention.

Repurchase itself is affected by Technology Advancement Model or TAM as what has been mentioned by Oentario in Syaharani and Yasa (2022). Syaharani and Yasa (2022) define TAM as a theory regarding personal perception on an objects that are determined the behaviour interests and attitude. Sawitri and Giantari (2020) mentions there are two key concepts related to Technology Advancement Model (TAM) which are perceived usefulness and perceived ease of use. Research from Chiu et al. (2008) found that perceived usefulness and perceived ease of use are significant predictors of customer's repurchase intentions. Similar findings was also found by Aren et al. (2013) which found that perceived ease of use and perceived usefulness has a positive relationships with repurchase intention. In another research Lee et al (2010) also found that online repurchase intention was affected by perceived usefulness and perceived ease of use.

The measurement for repurchase intention and Technology Advancement Model (TAM) is adapted from Aren et al. (2013). As for measurements for gamification this research uses motivation and involvement, adapted from Wicaksono and Subari (2021) which was adapted from Piligrimiene (2021).

Based on previous researches that was found, it can be concluded that gamification does has an effect towards repurchase intention. Regarding the relationship between TAM and repurchase intention, it can also be seen that TAM does has an effect towards repurchase intention but among the researches that were found, none of them mentions the moderating effect of TAM in the relationships between gamification and repurchase intention. Therefore as what has been mentioned in the introduction, one of the goal of this research is to understand the moderating effect of TAM in the relationship between gamification and repurchase intention.

Therefore based on the discussions above, the model proposed in this research can be seen in the graph below :



Picture 4. Proposed Research Model

Based on the model above as well as from the discussions above, this research proposes 3 hypotheses. These hypotheses are :

1. Gamification has a significant effect towards repurchase intention in e-commerce platform
2. Technology Advancement Model (TAM) has a significant effect towards repurchase intention in e-commerce platform
3. Technology Advancement Model (TAM) positively moderates the relationship between gamification and repurchase intention in e-commerce platform.

RESEARCH METHODOLOGY

The population for this research are people who has made a purchase in e-commerce Shopee Indonesia at least once. While the sample for this research is Generation Z (people who was born from 1995 onwards), who must fulfil these three criteria :

1. The respondents had made at least 1 purchase from Shopee via the Shopee App
2. The respondents has the intention to make another purchase from Shopee via the Shopee App
3. The respondents must have played at least 1 games from the Shopee App

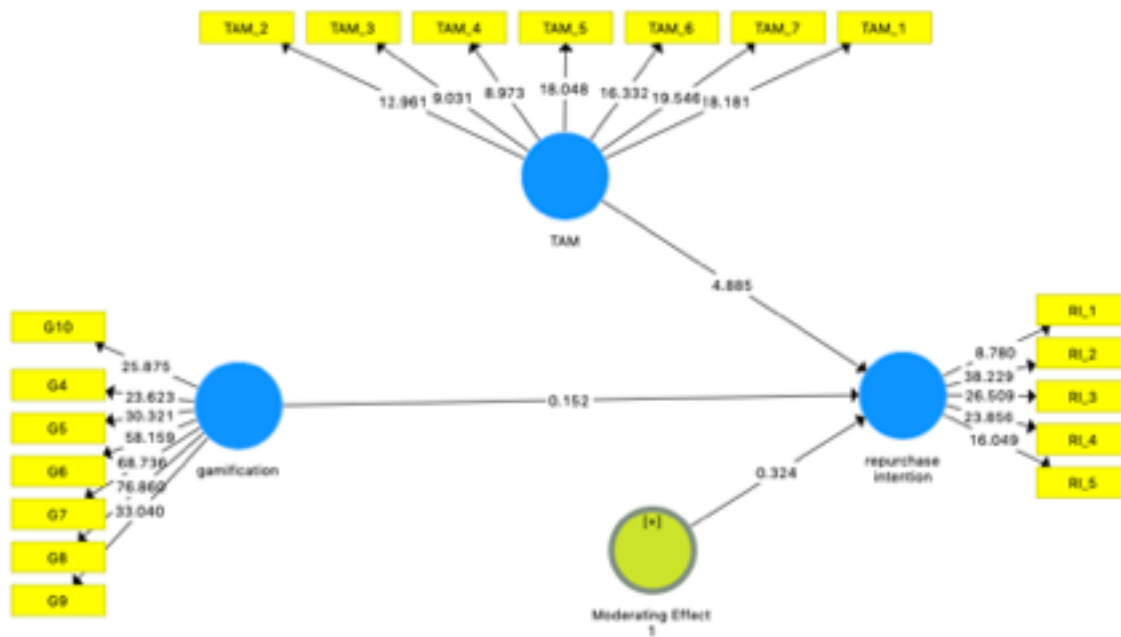
This research uses a non-probability sampling method. Purposive sampling technique is used as the sampling technique in this research. The number of respondent used in this research are 100. The amount of respondents used in this research is determined by using a method from Hair et al. The data for this research uses primary data that will be taken from questionnaire. The questionnaire itself is measured using a 5 point likert scale. Data collected from the questionnaire will then be analysed using a SEM-PLS application and examined by using several tests, which are: outer model tests which is used to check the validity and reliability and inner model tests as the hypothesis test.

RESEARCH RESULT

Below can be seen the test result that was done by using SEM-PLS. As what has been mentioned above, this research utilises several tests from the SEM-PLS such as :

- The Outer Model Test

The outer model test is utilised to check the validity and reliability of the measurements used in this research. The analysis model of this research taken from SEM-PLS result can be seen below :



Picture 5. Model Analysis

The outer model tests are consist of :

Convergent Validity Test

The result for convergent validity test can be seen from the value of AVE and loading factors. An indicator is categorised as valid if it has more than 0,7 for its loading factors value, furthermore the indicator should also has more than 0,5 for its AVE value. Some of the indicators in this research were not used because it didn't pass either of the requirements above. The result of the outer loading test can be seen below.

Test Result			
variable	TAM	Gamification	Repurchase Intention
G10		0,876	
G4		0,870	
G5		0,905	
G6		0,937	
G7		0,950	
G8		0,953	
G9		0,884	
RI_1			0,728
RI_2			0,901
RI_3			0,888
RI_4			0,878
RI_5			0,803
TAM_2	0,815		
TAM_3	0,704		
TAM_4	0,723		
TAM_5	0,789		
TAM_6	0,813		
TAM_7	0,829		
TAM_1	0,811		

Table 1. Outer Loading Results

Test Score	
Variable	AVE Score
TAM	0,616
Gamification	0,831
Repurchase intention	0,709

Table 2. AVE Score

As what can be seen on Table 1 and 2, every indicators used in this research posses more than 0,5 for its AVE Score and more than 0,7 for its outer loading result. Thus it can be deduced that the indicators and measurements used in this research are valid.

Discriminant Validity

The discriminant validity test was done by comparing the cross loading value of the construct with the other loading value. The cross loading value of the construct should have a bigger value in comparison to other factor loading value. The result of the test can be seen below.

Test Result			
variables	TAM	Gamification	Repurchase Intention
TAM	0,785		
Gamification	0,438	0,911	
Repurchase Intention	0,659	0,305	0,842

Table 3. Cross Loading Result

From Table 3 , it can be seen that the cross loadings value is bigger in comparison to the other variables. Thus it can be argued that the indicators tested here passed the discriminant validity test.

Composite Reliability and Cronbach Alpha

Test Result		
Variable	Composite Reliability	Cronbach Alpha
TAM	0,918	0,898
Gamification	0,972	0,966
Repurchase Intention	0,924	0,896

Table 4. Composite Reliability and Cronbach Alpha results

Data from Table 4 showed that every single variable which is used in this research fulfil the requirements of having more than 0,7 for its composite reliability value and all the variable used in this research also has more than 0,6 for its cronbach alpha value. Therefore it can be concluded that all the instruments in this research are reliable.

- The Inner Model Test

The inner model test is used to test the hypothesis that was proposed in this research. Based on the result of the SEM-PLS, the R^2 result of this research is 0,435 or 43,5%, therefore it can be concluded that the independent variable in this research can explain the variability of the repurchase intention construct by 43,5%. Apart from the R^2 result, the inner model test also test the proposed hypotheses in this research by observing the P Value or the probability value results. A proposed hypothesis is accepted if the result of the probability value is smaller than 0,05. The result of the hypothesis test can be seen below.

Test Result					
	Original Sample	Mean Sample	Standard Deviation	T Statistics	P Values
Moderating Effect	0,043	0,031	0,132	0,324	0,746
TAM -> Repurchase Intention	0,671	0,691	0,137	4,885	0,000
Gamification -> Repurchase Intention	0,014	0,019	0,093	0,152	0,880

Table 5. Path Coefficients

As what can be seen in the section above, this research proposes three hypotheses. Among these three proposed hypotheses, not all of them was accepted. Based on Table 5, it can be seen that the Probability value for Gamification -> Repurchase Intention is 0,880 which was bigger than 0,05 therefore it can be concluded gamification does not have a significant effect towards repurchase intention, thus the first proposed hypothesis which is 'Gamification has a significant effect towards repurchase intention in e-commerce platform' is denied. This result goes in accordance with the research result found in Kim et al. (2020) which mention that gamification doesn't positively influence repurchase intention. For the second proposed hypothesis, it can be seen from Table 5 that the probability value result is 0,000 which is smaller than 0,05. Therefore it can be concluded that the second proposed hypothesis 'Technology Advancement Model (TAM) has a significant effect towards repurchase intention in e-commerce platform' is accepted.

This result goes is accordance with the research result from Chiu et al. (2008), Lee et al. (2010) and Aren et al. (2013) all of which mentioned that perceive ease of use and perceive usefulness which were the indicator of Technology Acceptance Model (TAM) does has a positive effect towards repurchase intention. As for the third proposed hypothesis it can be seen from Table 7 that the probability value result is 0,746 which can be concluded that Technology Acceptance Model (TAM) did not moderate the relationship of gamification and repurchase intention.

CONCLUSIONS

From the discussions and test that has been done above, it can be deduced that gamification doesn't have a significant effect towards repurchase intention in e-commerce platform. While TAM has a significant effect towards repurchase intention in e-commerce platform. As for the moderating effect of TAM towards the relationship between gamification and repurchase intention, it was found that TAM does not have a moderating effect in the relationship between gamification and repurchase intention.

From this research it can be suggested that for generation Z, what affect their repurchase intention in an e-commerce platform is actually their ability to adapt to a new technology, the perceived ease of use and the perceived usefulness that the Z generation felt were the factors that affect them to intent to do a repurchase in an e-commerce. While for gamification, as what can be

seen from the result above, gamification doesn't affect the Z generation's intent to do a repurchase in an e-commerce platform. Based on this, it can be suggested that e-commerce platform should focuses more on the perceive ease of use and the perceived usefulness of an e-commerce platform instead of the gamification which was embedded in the platform in order to encourage the Z Generation's intention to repurchase.

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