

09/06/2026 12:37:08	Ya	Ya	Pere mpua n	Pelaj ar	< Rp. 3.00 0.00 0	2 - 5 kali	1	2	2	2	4	4	4	3	5	4	5	4	5	5	5	5	5	4	3	2
09/06/2026 12:38:04	Ya	Ya	Pere mpua n	Maha siswa	< Rp. 3.00 0.00 0	2 - 5 kali	4	5	5	4	4	4	5	4	4	5	4	5	5	4	5	4	5	4	5	5
09/06/2026 12:38:48	Ya	Ya	Pere mpua n	Kary awan	Rp. 3.00 0.00 0 - < Rp. 5.00 0.00 0	6 - 10 kali	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	3	4	4
09/06/2026 12:39:06	Ya	Ya	Laki- laki	Kary awan	Rp. 5.00 0.00 0 - < 10.0 00.0 00	2 - 5 kali	5	5	5	4	3	3	4	4	4	3	3	5	4	5	5	5	3	3	3	3
09/06/2026 12:39:46	Ya	Ya	Pere mpua n	Kary awan	Rp. 3.00 0.00 0 - < Rp. 5.00 0.00 0	2 - 5 kali	5	5	5	4	4	4	5	4	5	4	5	5	4	4	5	5	4	3	3	3

09/06/2026 12:40:29	Ya	Ya	Laki-laki	Wiraswasta	Rp. 5.000.000 - < 10.000.000	2 - 5 kali	5	5	4	4	4	5	5	4	5	4	5	5	5	5	5	4	4	2	4	4
09/06/2026 12:40:59	Ya	Ya	Perempuan	Mahasiswa	> Rp. 10.000.000	6 - 10 kali	5	5	5	5	5	5	5	5	3	3	3	5	5	4	5	5	4	3	4	3
09/06/2026 12:41:13	Ya	Ya	Perempuan	Karyawan	Rp. 3.000.000 - < Rp. 5.000.000	6 - 10 kali	5	5	5	5	5	5	5	5	5	4	5	5	5	5	5	4	4	4	5	5
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09/06/2026 12:43:39	Ya	Ya	Laki-laki	Mahasiswa	< Rp. 3.000.000	2 - 5 kali	5	5	4	4	4	4	4	4	5	4	4	4	4	4	4	4	2	1	3	4
09/06/2026 12:44:01	Ya	Ya	Perempuan	Wiraswasta	Rp. 5.000.000 - < 10.000.000	6 - 10 kali	4	5	5	5	4	5	5	4	5	5	5	4	4	5	4	4	4	4	5	4
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09/06/2026 12:44:27	Ya	Ya	Perempuan	Karyawan	Rp. 5.000.000 - < 10.000.000	2 - 5 kali	4	4	4	3	3	3	3	4	4	4	4	5	5	5	5	5	5	3	5	5
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4	5	4	5	3	3	4	5	5	5	5	5	4	5	5	5	3	2	3	3
4	3	4	3	5	4	3	5	4	4	4	5	5	5	5	5	4	4	4	5
5	5	5	5	5	5	5	5	4	5	5	5	5	5	5	5	5	5	5	5
5	5	5	5	5	4	5	5	5	5	5	5	5	5	5	5	5	5	4	5
5	5	5	5	4	5	5	5	5	5	5	5	5	5	5	4	5	4	4	4

Appendix 4. Smart PLS Result

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
Impulsive Buyin...	0.183	0.181	0.074	2.460	0.014
Level Upgrading...	0.461	0.458	0.096	4.796	0.000
Moderating Effe...	-0.072	-0.126	0.165	0.436	0.663
Perceived Enjoy...	0.393	0.379	0.091	4.319	0.000
Reward Giving -...	0.250	0.275	0.092	2.719	0.007

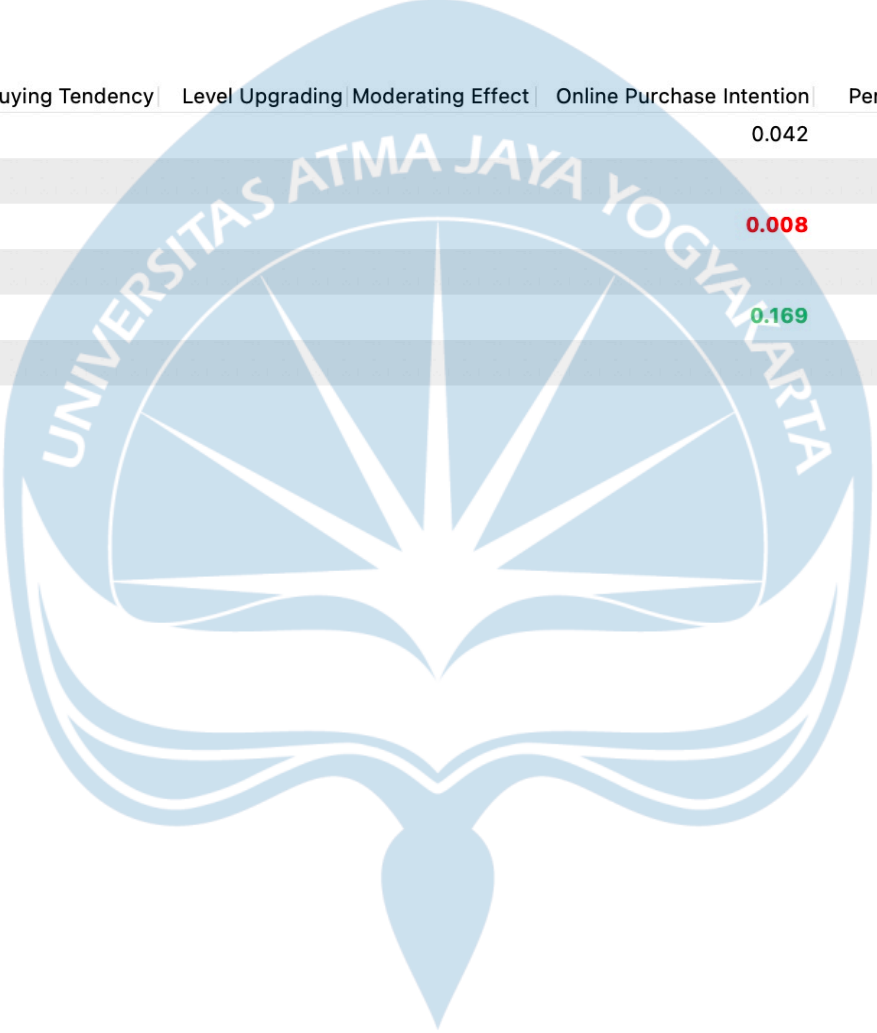
	Impulsive Buying Tendency	Level Upgrading	Moderating Effect	Online Purchase Intention	Perceived Enjoyment	Reward Giving
Impulsive Buyin...	0.802					
Level Upgrading	0.295	0.811				
Moderating Effe...	-0.161	-0.306	0.554			
Online Purchase...	0.296	0.372	-0.270	0.778		
Perceived Enjoy...	0.253	0.540	-0.400	0.473	0.833	
Reward Giving	0.174	0.315	-0.060	0.342	0.395	0.773
	R Square	R Square Adjusted				
Online Purchase...	0.263	0.248				
Perceived Enjoy...	0.347	0.338				

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Impulsive Buyin...	0.820	0.852	0.878	0.644
Level Upgrading	0.741	0.756	0.852	0.658
Moderating Effe...	0.872	1.000	0.852	0.306
Online Purchase...	0.836	0.843	0.884	0.606
Perceived Enjoy...	0.853	0.859	0.900	0.693
Reward Giving	0.774	0.782	0.855	0.597

	Impulsive Buying T	Level Upgrading	Moderating Effect	Online Purchase Ir	Perceived Enjoyment	Reward Giving
Impulsive Buyin...				0.042		
Level Upgrading					0.293	
Moderating Effe...				0.008		
Online Purchase...						
Perceived Enjoy...				0.169		
Reward Giving					0.086	

	VIF
IBT1	1.666
IBT1 * PE1	5.662
IBT1 * PE2	3.055
IBT1 * PE3	4.390
IBT1 * PE4	4.984
IBT2	2.039
IBT2 * PE1	7.646
IBT2 * PE2	3.945
IBT2 * PE3	5.504
IBT2 * PE4	4.740
IBT3	1.990
IBT3 * PE1	6.111
IBT3 * PE2	4.822
IBT3 * PE3	5.613
IBT3 * PE4	8.260
IBT4	1.814
IBT4 * PE1	7.000
IBT4 * PE2	6.134
IBT4 * PE3	6.562

	VIF
IBT4 * PE2	6.134
IBT4 * PE3	6.562
IBT4 * PE4	8.029
LU1	1.519
LU2	1.561
LU3	1.383
OP1	3.218
OP2	1.657
OP3	1.771
OP4	1.634
OP5	2.735
PE1	1.818
PE2	1.928
PE3	2.201
PE4	2.115
RG1	1.562
RG2	1.654
RG3	1.661
RG4	1.350



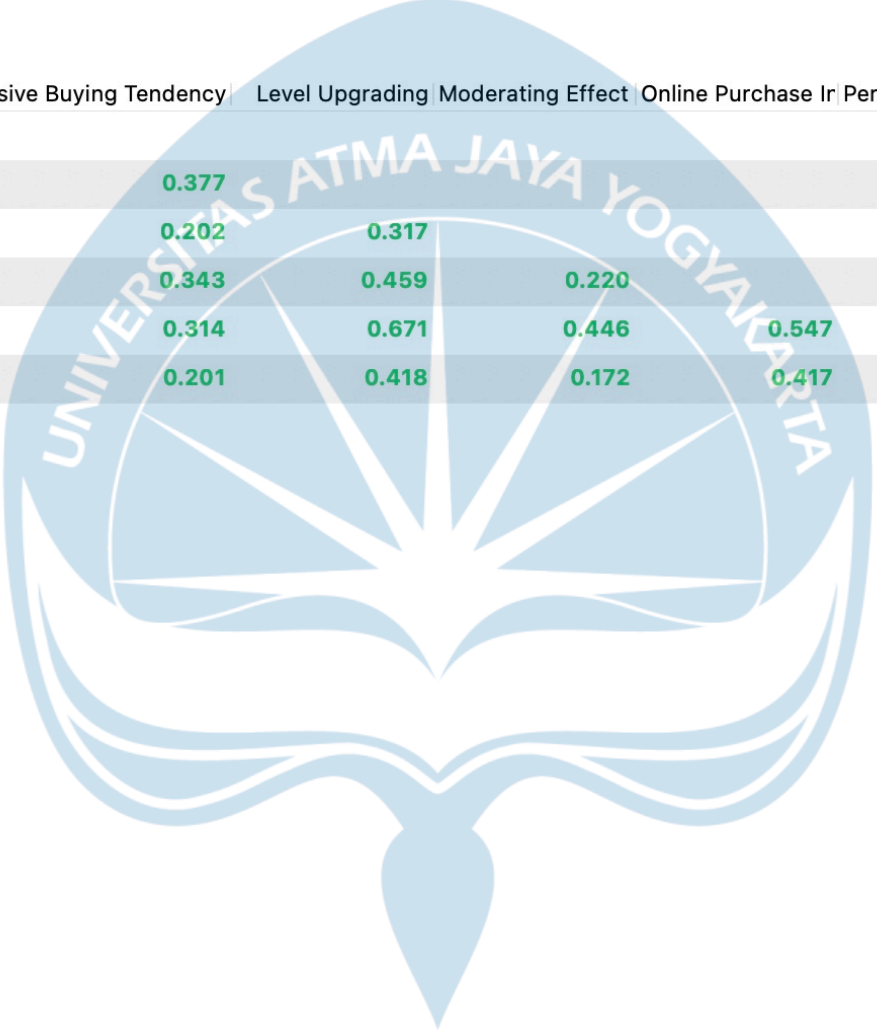
	Impulsive Buying Tendency	Level Upgrading	Moderating Effect	Online Purchase Intention	Perceived Enjoyment	Reward Giving
Impulsive Buying Tendency				0.042		
Level Upgrading					0.293	
Moderating Effect 1				0.008		
Online Purchase Intention						
Perceived Enjoyment				0.169		
Reward Giving					0.086	

	Impulsive Buying Tendency	Level Upgrading	Moderating Effect	Online Purchase Intention	Perceived Enjoyment	Reward Giving
IBT1	0.811					
IBT1 * PE1				0.183		
IBT1 * PE2				0.142		
IBT1 * PE3				0.011		
IBT1 * PE4				0.252		
IBT2	0.808					
IBT2 * PE1				0.665		
IBT2 * PE2				0.546		
IBT2 * PE3				0.500		
IBT2 * PE4				0.658		
IBT3	0.858					
IBT3 * PE1				0.760		
IBT3 * PE2				0.821		
IBT3 * PE3				0.629		
IBT3 * PE4				0.740		
IBT4	0.726					
IBT4 * PE1				0.879		
IBT4 * PE2				0.917		
IBT4 * PE3				0.749		
IBT4 * PE4				0.855		

	Impulsive Buying Tendency	Level Upgrading	Moderating Effect	Online Purchase Intention	Perceived Enjoyment	Reward Giving
IBT4 * PE2				0.917		
IBT4 * PE3				0.749		
IBT4 * PE4				0.851		
LU1	0.811					
LU2	0.856					
LU3	0.764					
OP1				0.861		
OP2				0.712		
OP3				0.783		
OP4				0.731		
OP5				0.794		
PE1					0.829	
PE2					0.814	
PE3					0.858	
PE4					0.829	
RG1						0.784
RG2						0.815
RG3						0.786
RG4						0.701

	Impulsive Buying T	Level Upgrading	Moderating Effect	Online Purchase In	Perceived Enjoyme	Reward Giving
IBT1 * PE1	-0.075	0.216	0.157	-0.012	0.192	0.104
IBT1 * PE2	-0.002	0.172	0.122	0.158	0.180	-0.002
IBT1 * PE3	-0.003	0.146	0.009	0.027	0.190	-0.052
IBT1 * PE4	-0.038	0.032	0.217	-0.021	0.068	-0.059
IBT2	0.808	0.297	-0.154	0.170	0.231	0.052
IBT2 * PE1	-0.164	-0.103	0.571	-0.082	-0.232	0.061
IBT2 * PE2	-0.056	-0.038	0.469	0.055	-0.240	-0.003
IBT2 * PE3	-0.038	-0.050	0.430	-0.006	-0.246	-0.002
IBT2 * PE4	-0.095	-0.131	0.566	-0.099	-0.288	-0.021
IBT3	0.858	0.256	-0.174	0.264	0.211	0.229
IBT3 * PE1	-0.214	-0.081	0.654	-0.213	-0.084	-0.116
IBT3 * PE2	-0.104	-0.198	0.705	-0.201	-0.187	-0.080
IBT3 * PE3	0.002	-0.155	0.541	-0.129	-0.040	-0.150
IBT3 * PE4	-0.102	-0.181	0.636	-0.163	-0.116	-0.091
IBT4	0.726	0.210	-0.176	0.177	0.288	0.078
IBT4 * PE1	-0.174	-0.243	0.756	-0.156	-0.350	-0.052
IBT4 * PE2	-0.080	-0.261	0.788	-0.175	-0.480	0.055
IBT4 * PE3	0.052	-0.201	0.644	-0.104	-0.415	0.043
IBT4 * PE4	-0.048	-0.240	0.732	-0.051	-0.383	0.132

	Impulsive Buying T	Level Upgrading	Moderating Effect	Online Purchase Ir	Perceived Enjoyment	Reward Giving
IBT4 * PE2	-0.080	-0.261	0.788	-0.175	-0.480	0.055
IBT4 * PE3	0.052	-0.201	0.644	-0.104	-0.415	0.043
IBT4 * PE4	-0.048	-0.240	0.732	-0.051	-0.383	0.132
LU1	0.282	0.811	-0.248	0.272	0.415	0.238
LU2	0.297	0.856	-0.284	0.352	0.500	0.243
LU3	0.120	0.764	-0.204	0.271	0.386	0.295
OP1	0.254	0.299	-0.285	0.861	0.370	0.373
OP2	0.209	0.266	-0.124	0.712	0.366	0.200
OP3	0.182	0.400	-0.208	0.783	0.469	0.243
OP4	0.272	0.237	-0.106	0.731	0.314	0.267
OP5	0.246	0.217	-0.316	0.794	0.298	0.239
PE1	0.257	0.453	-0.321	0.478	0.829	0.399
PE2	0.153	0.460	-0.411	0.336	0.814	0.211
PE3	0.233	0.477	-0.303	0.373	0.858	0.363
PE4	0.184	0.404	-0.305	0.371	0.829	0.320
RG1	0.135	0.231	0.002	0.317	0.304	0.784
RG2	0.170	0.291	-0.176	0.308	0.345	0.815
RG3	0.118	0.214	-0.030	0.286	0.291	0.786
RG4	0.110	0.233	0.043	0.130	0.274	0.701



	Impulsive Buying Tendency	Level Upgrading	Moderating Effect	Online Purchase In	Perceived Enjoyment	Reward Giving
Impulsive Buying Tendency						
Level Upgrading	0.377					
Moderating Effect 1	0.202	0.317				
Online Purchase Intention	0.343	0.459	0.220			
Perceived Enjoyment	0.314	0.671	0.446	0.547		
Reward Giving	0.201	0.418	0.172	0.417	0.475	

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Preliminary Study of Perceived Enjoyment, Impulse Buying Tendency, Gamification, and Online Purchase Intention on e-Commerce using Stimulus-Organism-Response (S-O-R)

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Abstract

With the increase of online shoppers in Malaysia, many e-commerce platforms are trying to increase their customers' online purchase intention. Hence, this study posits that gamification can influence the consumers' online purchase intention. In this study, gamification will be classified as multidimensional and distinct factors i.e., reward giving as an economic-related gamification factor and level upgrading as the achievement-related gamification factor which will be guided by the Stimulus-Organism-Response (S-O-R) model. In specific, this research expanded the S-O-R model by introducing gamification as potential factors that could promote perceived enjoyment. Concurrently, this study will also uncover the moderating role of impulse buying tendency (IBT) that could further explain the nature of the relationship between perceived enjoyment and online purchase intention. This research hopes to help companies to have a better understanding and serve as a good guideline for managers, online sellers, system developers to re-think about the overall architecture of their e-commerce platform and to also focus on the importance of consumers' trait.

Keywords: Gamification, Stimulus-Organism-Response (S-O-R) Model, Perceived Enjoyment, Online Purchase Intention, Impulse Buying Tendency

Introduction

Aligned with the booming of Malaysian online shoppers, more e-commerce players are setting foot into Malaysia to be the key player for online shopping market such as Shopee, Lazada, eBay, Lelong.my, ezbuy and many more. Through the emergence of all the e-commerce platforms, fierce business competition arises among them. As such, each platform

will try to differentiate themselves to create a better competitive advantage which separates them from one another (Ibrahim et al., 2020).

There are tons of key elements that a platform can use or improve to better serve its user such as information sharing Bugshan & Attar (2020), navigation and user interface Ehikioya & Guillemot (2020), security Ardiansah et al (2020), pleasure Hurriyati et al (2020) and many more. As such, a better e-commerce platform will increase a customer positive intention to buy (Bugshan & Attar, 2020; Hurriyati et al., 2020).

One of the uprising strategies that are getting the attention of e-commerce players to engage with consumers is by embedding gamification elements in their e-commerce platforms. There was lots of research that has been conducted to apply the gamification strategy to different kinds of fields. For example, educational gamification has been proven to not only improve academic achievement but also improve student's motivation and engagement (Manzano-León et al., 2021). Aside, Ofosu-Ampong (2020) has further proved that with the help and proper understanding of gamification element towards education, a successful and effective result can be achieved.

As such, there is an increase of interest and research to prove that the gamification elements will be able to help e-commerce players to attract more customers to buy their product. Al-Zyoud (2021) has found that by incorporating the gamification element, consumer loyalty will increase which later improves consumer purchase intention.

On top of that it is also proven that by implementing gamification in e-commerce platforms, various positive reaction from the consumers can be achieved such as perceived enjoyment and perceived ease of use (Raman, 2020), consumer brand engagement (Tseng et al., 2021) and many more. In other words, when it comes to the developing of e-commerce platforms, gamification elements can be considered to improve positive reaction of consumer towards the e-commerce platform.

Literature Review

Online Purchase Intention

Online purchase intention is the desire of a consumer to buy a particular product or service within a given time in an e-commerce platform (Naseri, 2021). In other words, it is a degree of willingness of an individual to perform a specific behavior (e.g., purchase a product) or deciding to buy a product or service virtually via existing e-commerce platforms (e.g., Shopee and Lazada).

There are many factors that could affect a consumer to purchase a product online. For example, brand loyalty has a significant affect towards purchase intention (Dülek & Aydin, 2020). It is believed that consumers tend to buy products from the brand that they have continuously used or familiar with rather than the competing brand. On top of that, with the rising of virtual purchases, many platforms have started to venture out by introducing live video streaming. Many profound research have proven that by introducing a trustworthy streaming site, it could positively affect the online purchase intention among consumers (Zhang et al., 2021).

Gamification

Gamification can be defined as the use of game design elements in a non-gaming context which could improve experience, engagement, and desirable actions (Deterding et al., 2011). In other words, gamification is when we apply some part of the game elements into an unrelated gaming context such as education, health, finance and many more. When it comes

to different applications of gamification, it is very important to consider which elements are suitable to it. For instance, when it comes to applying gamification elements onto e-commerce platforms, gamification could be further divided into two major categories which are economics-related gamification and achievement-related gamification (Zhang et al., 2021).

Economic-Related Gamification (Rewards Giving)

Economic-related gamification is related to game elements that could give financial benefits to the consumers. In other words, when we categorized the game elements, we need to consider whether it could help in the financial aspect of the consumers or not (Zhang et al., 2021). For example, rewards, bonuses, and resources are considered as gamification elements that are economic-related (Hwang & Choi, 2019). In this research, rewards giving was focused on. Rewards can be defined as the benefits that come from completing a task, performing a job, providing a service and many more (Jeni et al., 2020). By giving rewards to an individual upon completing a task, it could motivate them to do better and to engage more which in return will develop a positive behavior or attitude.

Achievement-Related Gamification (Level Upgrading)

Level upgrading or levelling mechanism are one of the gamification elements that allows a user to increase their status or conditions to a better version of it (Ray et al., 2021). In other words, once a threshold has been passed via completing a series of specified tasks, a level can be increased. In the gaming context, level upgrading is considered as one of the most important elements (Yang et al., 2020). Normally, level upgrading will come with its perks such as greater rewards, greater experience and many more. This is important to increase the engagement with a user, an appropriate mechanism is needed.

The levelling up mechanism is considered as one of the most important elements when it comes to the development of games. The same can be applied when we want to implement gamification onto e-commerce platforms. This is because through this mechanism, a player will have the potential or possibility to achieve a satisfying gaming experience, pleasure, and enjoyment (Lee et al., 2021).

Perceived Enjoyment

There is quite a few research that has been conducted to show how a person's intention to use or to act upon something can be significantly affected by perceived enjoyment. For example, there are significant relationship of perceived enjoyment towards intention to shop online Ramayah & Ignatius (2005), intention to use technology for teaching Teo & Noyes (2011) repurchasing and revisiting an Airbnb So et al (2021) and many more.

On top of that further studies have shown how perceived enjoyment plays a major role in producing a desirable response, especially when it comes to the involvement of gamification. One study has found out that respondent would be more attentive and will enjoy their time when filling a survey if it has the element of games incorporated into it (Triantoro et al., 2020). Generally, when it comes to online surveys, it tends to be monotonous in nature which will lessen the attention and motivation of respondents. Hence, by incorporating the gamifications onto the surveys, it has the potential to increase the level of enjoyment and attention while filling the surveys.

Economic-Related Gamification (Rewards Giving) and Perceived Enjoyment

Rewards are considered as "financial benefits" which have the potential to improve the consumers' fun experience (Hwang & Choi, 2021). Specifically, in the e-commerce context, rewards giving are classified as an economic-related gamification mechanism which in return will affect the consumer's perceived enjoyment from online shopping (Hwang & Choi, 2021). It is believed from past year studies that economic-related gamification mechanism could trigger positive reaction (i.e., enjoyment) through incentives and rewards such as coins, vouchers, discounts and many more (Zhang et al., 2021).

Based on the paper review on past year research, three elements of gamification have been widely studied which are rewards, badges/level, and leaderboard which rewards being the most studied elements (Azmi et al., 2021). This is because rewards would influence the psychological and motivational aspects of a consumer such as feeling happy which later could result in not only, they will buy the products online but also repeat their purchase. Indirectly increase their loyalty towards the e-commerce platforms. Specifically, when the rewards received are in the forms of vouchers, points, or discount which consumer could use to redeem it to buy products in a cheaper price. This could give financial benefit to the consumers. Hence, rewards giving being categorized as economic-related gamification.

To further support this claim, further investigation was conducted on how virtual rewards could affect the players overall experience such as enjoyment, presence-immersion, competence, tension, and effort Johnson et al (2018) which found that rewards play a significant role in the player's experience which relate to their enjoyment, effort, and presence-immersion. That is to say that players will be able to enjoy their time and feel happy when they are given rewards upon completing a task. Once they are in a state of happiness, they reflect it with a more desirable course of action.

Hence, it is believed that when a consumer receives rewards such as points, vouchers, and discounts from completing a pre-designed task, they will have a pleasant experience which they will feel happy, and they will enjoy their time while browsing the e-commerce platform. Thus, the following hypothesis can be proposed:

H1: There is a positive relationship between rewards giving on perceived enjoyment.

Achievement-Related Gamification (Level Upgrading) and Perceived Enjoyment

In contrast to rewards giving, level upgrading is considered as an achievement-related gamification mechanism (Zhang et al., 2021). This is due to the nature of levelling mechanism itself which refers to the degree of which a gamified e-commerce platform enables the consumer to increase their sense of accomplishment and achievement after completing a pre-designed task (Xi & Hamari, 2020). In other words, when a consumer uses the e-commerce platforms and when they can complete a certain task, they will have a chance to level up. This in return will make the consumer to feel happy and feel a sense of achievement.

Numerous empirical findings have suggested that higher hedonic (e.g., pleasure, enjoy, fun) perception can be achieved with the levelling system across different domains in the world. For example, it is indicated that people tend to compare themselves with others in terms of achievement, level, scores which in turn challenges them to do better than their peers (Lu & Ho, 2020). They further explained that when individuals can achieve the targeted goals, this could further fulfill their pleasure and sense of fun.

Another interesting view that could be taken into consideration is that when developers develop a game, they will be generous to players in the sense that they will encourage players

to level up (Reynolds, 2021). This is because they know that when players level up, it means that they are really playing it and the possibility for them to spend will increase. Eventually, it will become a habit and players will be happy to spend more. Hence, with the help of level up mechanism, user tend to spend and remain happy.

In conclusion, through level upgrading, a positive reaction from the consumers can be achieved. Specifically, in this research, it is believed that when a consumer has the ability level up to the next level, they will feel happy. This is because they feel like they have achieved or accomplished something which will make their experience an enjoyable experience. Aside, it is worth to mention that by leveling up, they could get better rewards proportionate to the level. Thus, the following hypothesis can be proposed:

H2: *There is a positive relationship between levels upgrading on perceived enjoyment.*

Perceived Enjoyment and Online Purchase Intention

When a consumer has a pleasant experience or they enjoy themselves during the process of online shopping, the likelihood to purchase a product or services increases (Suki & Suki, 2007). This is further supported by Won & Kim (2020) which found that hedonic shoppers tend to enjoy shopping and purchase a product more compared to the others.

As such, when a consumer is happy, positive behavior can be achieved. It is important to consider one's feelings when it comes to getting a desirable outcome. Entertainment and enjoyment are essential elements in online shopping (Kamis & Ramlee, 2021). Especially, with the increase in e-commerce players, the need to differentiate themselves from a competitor is compulsory. Those who can grab the attention of customers will be one step ahead in the competition. Numerous research has proven that one factor that marketers can consider in grabbing the attention of customers is through the hedonic elements (Kamis and Ramlee, 2021).

Overall, it can be concluded that perceived enjoyment has a positive affect towards online purchase intention. Specifically, in this research, it is believed that when consumers feel happy or having fun while browsing and searching e-commerce platforms, their intention to buy a product increases. Thus, the following hypothesis can be proposed:

H3: *There is a positive relationship between perceived enjoyments on online purchase intention.*

Impulse Buying Tendency (IBT) as Moderator

Impulse buying tendency or impulsiveness are considered as the degree or possibility of an individual action in buying a product or service without having the intention to buy (Ozer & Gultekin, 2015). There are three major traits that can be found in an impulse buyer which are desire for pleasure, lack of self-control and need to impress others (Mendenhall, 2014). This characteristic could further explain the nature of consumers with impulse buying tendency.

There are many profound findings which have shown that a person's trait is important in evaluating a person's action or intention. For example, research has found out that there is a positive and significant relationship between impulse buying tendency, shopping enjoyment tendency, materialism and product attributes towards a person behavior or intention to buy a product (Atulkar & Kesari, 2018).

On top of that, it was also found that consumers who frequently carry out impulse buying are influenced by their shopping emotions (Destari et al., 2020). They believe that the

greater the shopping emotions exude by the consumers, the higher the probability that they will buy things in the e-commerce platforms. Shopping emotions are basically the mood of the consumers which determines the intensity of their decision making (Destari et al., 2020). In other words, a decision made by consumers is based on the mood that they show at that time. Hence, when positive shopping emotion such as enjoyment is present, they are more likely to buy a product immediately and without a plan.

Overall, based on the previous studies, it was considered that impulse buying tendency to moderate the relationship between perceived enjoyment and online purchase intention. Specifically, in this research, it was believed that consumers with higher impulse buying tendency will be more likely to purchase a products or services using the e-commerce platforms as compared to those with lower impulse buying tendency. Thus, the following hypothesis was proposed:

H4: *The relationship of perceived enjoyment and online purchase intention is stronger for consumer with higher impulse buying tendency.*

Stimulus-Organism-Response (S-O-R) Model

The Stimulus-Organism-Response (S-O-R) model was originally introduced by Mehrabian and Russel in 1974 which was derived from the Stimulus-Response (S-R) theory (Shao, 1921). This model explains that when there is an external and environmental trigger (stimulus), an emotional reaction will happen either cognitive, normative, or affective reactions (organism) which will result in behavioral outcomes or reactions (response). This model has been widely used and proven to be suitable when it comes to investigating and understanding the reason behind a person's behavior or reaction (Zhang et al., 2021; Lee & Chen, 2021). Similarly, in this research, S-O-R model was used to understand the relationship between IV, DV and moderator. Specifically, this S-O-R model was used in the context of e-commerce platforms.

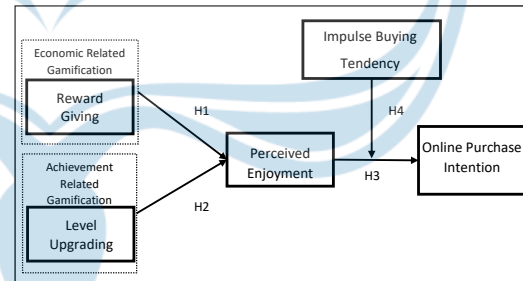


Figure 1. The Proposed Conceptual Framework

Research Methodology

Sampling Procedure

In this study, non-probability sampling was used. Specifically, the purposive sampling. Purposive sampling or judgment sampling is when a sample is selected based on the research criteria and researcher personal judgment on the research. Since this research will take into consideration those online shoppers who had at least 3 months of experiences using e-commerce platform either Shopee or Lazada as the respondents, purposive sampling would be the best technique to be used. On top of that, purposive sampling is fast, low cost and convenience to be used.

Population and Sample Size

Based on Shukla (2020), population can be defined as a set or a group of people that possess the same characteristic of the variables involves in that research to which the result of the research can be generalized. Hence, data or information will be gathered or collected from a specific group or sample within the population. It is important to determine the suitable sample size when it comes to conducting research.

On top of that, it is worth to note that a sample size is always less than the population size. Yamane (1967) has suggested a simplified formula to calculate a sample size (Israel, 1992). However, to apply the formula, the population size was identified beforehand. Based on the survey done by Facebook and Bain and Co in their annual SYNC Southeast Asia report, there are approximately 22 million online consumers in Malaysia for the year 2021 (Vasantha Ganesan/The Edge Malaysia, 2021). Therefore, the following calculation shows the minimum number of sample size for Malaysia online shoppers.

$$n = \frac{N}{1 + N(e)^2}$$

n – Sample size

N – Population size

e – Acceptable sampling error

* 95% confidence level and p = 0.5 are assumed

$$n = \frac{22,000,000}{1 + 22,000,000(0.05)^2}$$

$$= \frac{22,000,000}{1 + 55,000}$$

$$= \frac{22,000,000}{55,001}$$

$$= 399.9927274 \approx 400$$

Thus, a total of 407 respondents were selected as a sample for the research.

Measurement Scale

All the instruments used in this research were adopted from previous research such as in Liu et al (2013); Hamari & Koivisto (2015); Tran (2020); Peña-García et al (2020); Liao et al (2021);

Zhang et al (2021) and were modified to suit the research model. The questionnaire has three main sections. In Section A, the questionnaire included the independent variables (rewards giving and level upgrading), dependent variables (perceived enjoyment and purchase intention) and the moderator variable (impulse buying tendency).

Meanwhile in Section B, items are related to the respondent demographic background (gender, age, race, individual income level, frequency of online shopping, and type of products bought). The instruments were considered as itemized rating scale which use five Likert scales. The respondent was asked to choose their degree of agreement from strongly disagree (1) to strongly agree (5).

Reward Giving

1. *Shopee and Lazada provide rewards such as coin and vouchers*
2. *Shopee and Lazada provide rewards such points when I play the game*
3. *The points will allow me to get better coins and vouchers*
4. *Rewards is a popular incentive mechanism to encourage customers to use Shopee and Lazada*

Level Upgrading

1. *Shopee and Lazada allows me to increase my level inside the game once I complete the task*
2. *Shopee and Lazada's level-up mechanism encourages me to get higher stage or level*
3. *Higher level can give better rewards in Shopee and Lazada*

Perceived Enjoyment

1. *I feel excited when browsing the products and playing the game in Shopee and Lazada*
2. *Browsing the product and playing the game in Shopee and Lazada is fun*
3. *Browsing and playing the game in Shopee and Lazada is interesting*
4. *Overall, browsing products and playing the game in Shopee and Lazada brings me enjoyment*

Online Purchase Intention

1. *I have an intention to shop online*
2. *I would like to recommend friends and family to shop online*
3. *I currently shop online*
4. *I will buy from an online platform in the future*
5. *I prefer to shop online*

Impulse Buying Tendency

1. *I often buy things intuitively rather than deliberately*
2. *"Buy now, think about it later" describes me*
3. *As I browsed Shopee and Lazada, I had the urge to purchase item other than or in addition to my specific shopping goal*
4. *Browsing Shopee and Lazada, I had a desire to buy items that did not pertain to my specific shopping goal*
5. *While browsing Shopee and Lazada, I had the inclination to purchase items outside my specific shopping goal*

Conclusions

In conclusion, this study aims to identify the relationship between gamification and online purchase intention which a moderator of impulse buying tendency was also introduced to further explained the relationship. By underlining the gaps within the existing research, the problem statements and research objectives were identified. Subsequently, with the guidance of S-O-R model, the relationship between the variables can be further explained and identified. Hence, through this study, it is hoped that it will greatly be of helped to marketer or relevant stakeholders to have a better understanding on how to best utilized gamification and to re-think about the overall architecture of their e-commerce platform and its content. On top of that, hopefully through this research, companies could use it as a guidance to attract more consumers by stressing the importance of consumer trait.

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