

# The role of gamification, social, hedonic and utilitarian values on e-commerce adoption

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Kunthi Afrilinda Kusumawardani  
*President University, Cikarang Baru, Indonesia*

Hanif Adinugroho Widyanto  
*Radboud University, Nijmegen, The Netherlands and President University,  
Cikarang Baru, Indonesia, and*

Jessica Eva Gloria Tambunan  
*President University, Cikarang Baru, Indonesia*

## Abstract

**Purpose** – The purpose of this study is to investigate the factors influencing intention to continue using and spreading the word of mouth for e-commerce applications in the gamification context.

**Design/methodology/approach** – Using primary data from an online questionnaire, 219 users of e-commerce applications who played games on e-commerce platforms were gathered as the sample of the research and analysed using structural equation modelling.

**Findings** – The results showed that network exposure from gamification significantly influenced social influence, recognition and reciprocal benefit. However, only social influence and utilitarian shaped attitudes, leading to the intention to continue using the e-commerce platform and spread word of mouth. Recognition, reciprocal benefit and hedonic shopping motivation were not found to significantly influence attitude.

**Practical implications** – This study provides practical recommendations for e-commerce applications in implementing gamification into their platforms.

**Originality/value** – This study delivers a better understanding of the implementation of gamification in e-commerce by examining the in-game social interactions and the shopping behaviour in e-commerce to continue using the platform and spread the word of mouth about the gamification method.

**Keywords** Gamification, Behavioural intention, Network exposure, Attitude, Social motivations, Hedonic, Utilitarian

**Paper type** Research paper



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## Resumen

**Propósito** – Los investigadores estudiaron los factores que influyen en la intención de seguir utilizando y promocionar las aplicaciones de comercio electrónico en el contexto de la gamificación.

**Metodología** – Se realizó una encuesta online a 219 usuarios de aplicaciones de comercio electrónico que jugaban en plataformas de comercio electrónico y los datos se analizaron mediante un modelo de ecuaciones estructurales (SEM).

**Hallazgos** – Los resultados mostraron que la exposición a la gamificación influyó significativamente en los valores sociales, el reconocimiento y el beneficio recíproco. Sin embargo, sólo los valores sociales y el beneficio recíproco influyeron en las actitudes, lo que condujo a la intención de seguir utilizando la plataforma de comercio electrónico y a la difusión del boca a boca. El reconocimiento, el beneficio recíproco y la motivación de compra hedónica no influyeron significativamente en la actitud.

**Implicaciones prácticas** – Este estudio proporciona recomendaciones prácticas para las aplicaciones de comercio electrónico a la hora de implementar la gamificación en sus plataformas.

**Valor** – Este estudio proporciona una mejor comprensión de la implementación de la gamificación en el comercio electrónico al examinar las interacciones sociales dentro del juego y el comportamiento de compra en el comercio electrónico para continuar utilizando la plataforma y difundir el boca a boca sobre el método de gamificación.

**Palabras clave** Gamificación, Intención de comportamiento, Exposición a la red, Actitud, Motivaciones sociales, Hedónico, Utilitario

**Tipo de artículo** Trabajo de investigación

游戏化、社会化、享乐主义和功利主义价值观对电子商务采纳的作用

## 摘要

**目的** – 研究人员调查了在游戏化背景下继续使用和传播电子商务应用的口碑的影响因素。

**设计/方法/途径** – 利用在线问卷的主要数据,收集了219名在电子商务平台上玩游戏的电子商务应用用户作为研究的样本,并使用结构方程模型(SEM)进行分析。

**研究** – 结果显示,游戏化带来的网络接触对社会影响、认可和互惠利益有显著影响。然而,只有社会影响和功利性塑造了态度,导致了继续使用电子商务平台和传播口碑的意向。认可、互惠利益和享乐型购物动机没有被发现对态度产生显著影响。

**实践意义** – 本研究为电子商务应用提供了在其平台上实施游戏化的实际建议。

**原创性/价值** – 本研究通过研究游戏中的社会互动和电子商务中的购物行为,使人们更好地理解游戏化在电子商务中的实施,从而继续使用该平台并对游戏化方法进行口碑传播。

**关键词** 关键词游戏化,行为意向,网络曝光,态度,社会动机,享乐主义,功利主义

**文章类型** 研究型论文

## 1. Introduction

Since its inception, e-commerce has been used as a socio-technical framework for sharing commercial data, keeping up commercial connections and conducting trade exchanges by implementing telecommunications systems. Among the Southeast Asian nations, Indonesia has enjoyed the fastest growing e-commerce growth and revenues. More than 10% of the country's 270 million residents make online purchases, and that percentage is likely to rise (Singh, 2019). To maintain such growth, customer experience becomes an essential factor in modern retailing (Rose *et al.*, 2011). To this end, marketers have incorporated gamification elements in e-commerce platforms to keep customers interested. Gamification is the use of game dynamics to process programs and platforms in non-traditional ways (Swan, 2013). It is considered a form of loyalty development, as it provides users with various interactive features. Over the years, it has been intensely used to cater to customers' needs, deal with attitude changes and serve as an inspirational draw (Deterding *et al.*, 2011). Gamification's

primary purpose is to influence the behaviour of its users by providing service design and offering a game-like experience (Huotari and Hamari, 2012).

In essence, gamification is implemented to satisfy users and motivate them so that they would become fixated with the e-commerce platform (Yudhoatmojo and Ramadana, 2016). Gamification can also be understood as an elaborate mixture between aspects of services and gaming and has been extensively used in marketing to ensure continued use of the platform. Specifically, in the e-commerce field, gamification is often used to stimulate customers' intention to repurchase and even retain their loyalty to the platform (Aparicio *et al.*, 2021). Shopee was one of the first online marketplaces in Indonesia which introduced gamification to engage and retain customers. Users were able to swap their points for gift prizes that could be used to buy items on the marketplace (Sukmaningsih *et al.*, 2020). On top of motivating users of a marketplace to repurchase products on the platform, gamification also contributes to users' word of mouth (Wang *et al.*, 2020). Additionally, consumer attitudes have been found to predict both intentions to repurchase and spread word of mouth towards gamification (Hsu *et al.*, 2017), which is a crucial evaluation that can lead to support and behaviour to purchase.

Despite the significance of gamification in the context of e-commerce applications, there is limited knowledge of the interplay between the social motivation provided by gamification and the shopping motivation that might motivate the customers' behaviour. With this backdrop, the current study contributes to the gamification literature by exploring both extrinsic and intrinsic motivations. It sheds light on how social and shopping motivation influence attitudes towards e-commerce apps. Gamification in e-commerce can get people hooked and stay with the platform but, more importantly, provide certain benefits that may trigger people to make a purchase. However, the incorporation of shopping motivation that is closely related to attitude and customer behaviour (Sumarliah *et al.*, 2021) in the context of gamification in e-commerce has not been comprehensively studied before. Thus, this study aims to investigate the influence of both social and shopping motivation in shaping the attitude towards e-commerce apps in the context of gamification. To better engage end users, the researchers believe that the current study would fill a gap in the extant literature and contribute to the emerging yet under-researched topic surrounding the attitude towards the platform. Secondly, this study enhances the understanding of the impacts of gamification in e-commerce applications on consumer behaviour, specifically for continued intention to use and spread word of mouth. This is crucial since gamification has been shown in previous studies to improve customer loyalty and promote word of mouth (Kim, Costello, and Lee, 2020). Lastly, the study of gamification in e-commerce is rarely investigated in the Southeast Asian context, as existing studies were mostly conducted in China and measured the repurchase intention (Zhang *et al.*, 2020). Therefore, the findings of this study will enable e-commerce platforms to improve their apps and boost their engagement initiatives.

## 2. Literature review

### 2.1 Gamification

Gamification has been interpreted in many ways. It started with relatively generic statements such as the integration of game mechanisms (Hamari, 2013). Then it evolved as the service design that aims to provide consumers with game-like experiences, most commonly to influence user behaviour (Hamari and Koivisto, 2013). Moreover, Bui *et al.* (2015) expanded gamification by not limiting it only to services but also incorporating game design principles into non-game products or services to influence users' behaviour towards desired goals. Therefore, gamification is a method in which gaming design is integrated into

products or services that are non-game to create game-like experiences and stimulate additional behavioural consequences.

Enhancing user experiences by incorporating gaming aspects into products and services has been a common strategy in recent years. Gamification can be used and integrated into various non-game platforms, such as websites, online communities, business services and even marketing campaigns (Hsu *et al.*, 2017). This is possible since gamification can educate customers and entice them to take a more active role in it (Hamari, 2013). When consumers participate more deeply in gamification, it can later create desirable consequences such as satisfaction, brand love, brand loyalty, positive word of mouth and resistance to negative information. More companies and customers are benefiting from gamification since it could boost client retention, loyalty and ultimately sales. Likewise, customers may use gamification to provide value to a service (Hsu and Chen, 2018).

Due to its effectiveness, gamification gains popularity and remains one of the most successful methods in achieving certain consumer behaviour. Previous studies have shown the effectiveness of gamification in the field of physical exercise (Koivisto and Hamari, 2014), education (Vanduhe *et al.*, 2020) and e-commerce (Aparicio *et al.*, 2021). In the e-commerce context, gamification is still under-researched, although its practical contributions have been demonstrated in many other sectors. Previous studies on gamification in e-commerce have mostly explored the theory of acceptance model and social motivations factor (Yüksel and Durmaz, 2016; Aparicio, Costa, and Moises, 2021) separately. In contrast, the immersion of shopping motivation (i.e. hedonic and utilitarian) and the gamification effect on social motivation, to the best of the researchers' review of extant literature, has never been thoroughly investigated before.

### 2.2 Network exposure

Hamari and Koivisto (2013) explained that attitude could be shaped so that it creates a behavioural intention by leveraging network exposure through social motivations as the mediating construct. The amount of network exposure is affected by the time to use the service and therefore is linked to the group inside the service and also the age (Koivisto and Hamari, 2014). In gamification that incorporates social components, the size of a person's relevant network inside a system is likely to impact the quantity of social activity the individual may participate in (Hamari and Koivisto, 2015). Further, Hamari and Koivisto (2015) argued that network exposure that includes social interaction could result in socially valuable content, further influencing attitudes about the system and its use. Network exposure may also be described as the degree to which users are visible to one another, as well as the number of followers (Nivedhitha and Manzoor, 2019). Hence, many users who engage in gamification are critical for attaining any desired behavioural effect (Hamari and Koivisto, 2015; Nivedhitha and Manzoor, 2019).

Network exposure could influence people by using a gamification application when other people follow their activities (Lin and Bhattacharjee, 2008). Thus, network exposure is related to the social influence motivations associated with online behaviour (Kwon *et al.*, 2014). With many people involved in the network for gamification, especially in the e-commerce platform, people will be more engaged in the game, as they can see who has the most followers, more badges and the highest scores:

*H1.* Higher network exposure increases social influence.

*H2.* Higher network exposure increases recognition.

Similarly, the more users a person comes into contact with, the more recognition and reciprocal benefit he or she is likely to get. As a result, network exposure is also partially mediated by social influence in the form of acknowledgement and additional reciprocal benefit (Hamari and Koivisto, 2013; Hamari and Koivisto, 2015; Moghavvemi *et al.*, 2018). Based on the relationship mentioned above, this study posits the following hypothesis:

*H3. Higher network exposure increases the reciprocal benefit.*

### *2.3 Social influence*

Social influence is a term that refers to an individual's perception of how others who are important to them view the desired behaviour as well as whether they expect one to practice it (Ajzen, 1991). Due to social influence, people are motivated to establish correct views of reality and respond accordingly, build and sustain positive social ties and maintain a positive self-concept (Cialdini and Goldstein, 2004). In gamification, social influence is likely to represent how the user perceives how other users view the service's use. For instance, by getting likes and comments, a user can gauge how successfully he or she has met the perceived expectations of other users (Hamari and Koivisto, 2013). Social influence in gamification plays a crucial role in engaging new users through social interaction and community (Koivisto and Hamari, 2014). Hamari and Koivisto (2013) argued that social influence has a positive effect on recognition perceptions. The more firmly a person believes that others expect and encourage particular behaviours, the more comfortable it feels to follow those expectations:

*H4. Higher social influence increases recognition.*

Additionally, when the appropriate behaviour is encouraged and approved by others, social influence positively affects the attitude towards adopting a technical innovation (Alfany *et al.*, 2019), to the point where it even mediates the relationship between social influence and intention to use the technology (Kulviwat *et al.*, 2009). In the context of gamified marketing, social influence has been proven to have a significant influence on attitude (Yang *et al.*, 2017). Hence, this study proposes the following:

*H5. Higher social influence increases attitude.*

### *2.4 Recognition*

Koivisto and Hamari (2014) composed three factors of the social dimension, namely, network exposure, social influence, recognition and reciprocal benefit. Recognition is described as the social feedback users receive on their actions (Cheung *et al.*, 2011). In social interaction, the social community's acceptance results in recognition, which may drive a person to comply with society's expectations. Friedrich *et al.* (2020) explored the gamification mechanism in knowledge-sharing motivation and explained that recognition could be in the form of feedback, rewards and status. Feedback may be used to leverage the peer effects of social incentives by generating chances for mutual recognition, which can be in the form of badges, ranking positions or a rating system. The most often used reward type in gamification is badges, which may communicate a sense of expertise and acknowledgement for underlying performance, making them a social motivation (Shepperd, 2001). A respectable status can be achieved once an individual has a collection of points, badges, ranking positions and specific roles that they have, which demonstrate their competence and gain a reputation within their social group (Friedrich *et al.*, 2020). As an extrinsic motivation,

recognition leads to many positive outcomes, for instance, satisfaction with the system (Hamari and Koivisto, 2015):

*H6.* Higher recognition increases reciprocal benefit.

Besides, recognition has also been linked to positive attitudes towards the service (Hamari and Koivisto, 2013; Hamari and Koivisto, 2015). Moreover, when an individual receives recognition, he or she will have a desire to recognise others reciprocally within a service, which increases social interaction even more (Hamari and Koivisto, 2013). Therefore, the researchers infer:

*H7.* Higher recognition increases attitude.

### *2.5 Reciprocal benefit*

Reciprocity, or receiving and contributing in a way that the community deems useful, is likely to be critical in motivating users to engage in gamification-encouraged behaviours (Hamari and Koivisto, 2013). Reciprocal benefits included how often people trust them to gain benefits by sharing information (Silic *et al.*, 2018). As for the fairness of the social exchange, people choose to share their experiences if they can profit from their acts in return (Huber, 2001). Therefore, the reciprocal benefit in the context of gamification refers to a method of encouraging other users to promote the advantages gained from the use of the system, which can create a positive causal link between reciprocal advantages and attitudes towards the system's use may be predicted (Hamari, 2015). When users feel reciprocity between receiving and contributing to the system that seems advantageous, they will be more motivated to engage in gamification activities since they expect that they might gain benefit in the future (Kankanhalli *et al.*, 2005). Past research showed that the reciprocal benefit is a strong predictor of attitude (Hamari and Koivisto, 2015). Reciprocal benefits influence attitude by accentuating it, and the attitude effect on behaviour should be increased (Liska *et al.*, 1984). Thus, the researchers propose:

*H8.* Higher reciprocal benefit increases attitude.

### *2.6 Hedonic and utilitarian value in gamification*

One of the motivations for shopping is the shopping value acquired as a result of the purchasing experience. There are two types of shopping motivations, namely, hedonic and utilitarian. Utilitarian shopping motivation is focused on the efficiency of the shopping process and relates to goal-oriented customers whose primary objective is to complete the shopping job. On the other hand, hedonic shopping motivations are related to utilitarian buying motives in that the "goal" is to experience hedonic satisfaction, such as enjoyment, imagination and sensory stimulation (Babin *et al.*, 1994). Hedonic consumption is underpinned by other emotional factors that promote an impulse to purchase behaviour (Park *et al.*, 2006). Besides, hedonic consumption has also been proven to affect people spending more money, making people consumptive and hedonic for pleasure (Muruganatham and Bhakat, 2013).

Gamification is a unique approach to affecting the behaviour of users, as it could combine both hedonic and utilitarian values at the same time but develop it through an experience similar to gaming and incorporating a sense of flow and emotions of mastery and autonomy (Hamari and Koivisto, 2015). Hedonic experiences are offered through audiovisual content and provide enjoyment, while the utilitarian value is from the economic incentives in the loyalty program through gamification and creating a sense of productivity.

Thus, gamification may be seen as a strategy for encouraging users into utilitarian objectives via hedonic, intrinsically driven behaviour. Consequently, gamification may be viewed as a hedonic technique for productivity (Hamari and Koivisto, 2013; Hamari and Koivisto, 2015; Koivisto, 2017).

Hedonic and utilitarian performance expectancy has shown a relationship towards attitude, with hedonic value having a more significant driver in using mobile shopping services (Yang, 2010), whereas utilitarian factors exert a greater impact on utilitarian mobile applications (Akdım, Casaló, and Flavián, 2022). In the context of online gamification, both utilitarian and hedonic characteristics significantly impact users' experience, which in turn influences their value assessment and attitude (Hsu *et al.*, 2017). Moreover, attitude mediated the utilitarian value towards continued use intention of a mobile application that uses gamification (Hamari and Koivisto, 2015). Hence, the researchers propose:

*H9.* Higher hedonic value increases attitude.

*H10.* Higher utilitarian value increases attitude.

### *2.7 Attitude*

In the gamification context, an attitude refers to the overall assessment of the system's performance, whether favourable or unfavourable (Ajzen and Fishbein, 1973; Ajzen, 1991). Gamification is likely to impact people's attitudes and behaviour because of the rewards system in the gamification process, such as points, badges and levels (Shepperd, 2001). A previous study stated that when gamification is implemented for marketing purposes, customers will be more engaged and have a positive attitude towards the brands (Yang *et al.*, 2017). The fun, entertaining and enjoyable experience that users get from the gamification process is becoming one of the reasons it can influence attitude. Moreover, the usefulness of gamification and its social influence could lead to a positive attitude towards the system (Yang *et al.*, 2017).

Numerous research has established a substantial correlation between attitude and intention to use (Lin and Bhattacharjee, 2008; Hamari and Koivisto, 2013; Hamari, 2015). Consumers' attitudes and the likelihood of purchase affect spreading word of mouth (Yüksel and Durmaz, 2016). The gamification mechanism on the website has been used as the fundamental approach to improve the attitude and affect the continued use and intention to spread word of mouth (Hsu *et al.*, 2017). More precisely, when individuals see the results of their action to be advantageous, they will believe the behaviour is favourable. In summary, an e-commerce platform may develop a certain platform attitude, which ultimately results in a particular behaviour, for instance, continued use intention and spread of positive word of mouth. Therefore, this study posited the following hypothesis:

*H11.* A positive attitude will increase continued use intention.

*H12.* A positive attitude will increase the spread of positive word of mouth.

### *2.8 Behavioural intention (continued use of intention and spread word of mouth)*

Many e-commerce platforms currently use the gamification approach so that users can be more engaged and continue to use the application. The platform offers various mini games and rewards so that users keep playing the games and shopping in the marketplace. Besides, one of the successful keys for the marketplace to survive and thrive is having a large number of users, both sellers and buyers. Thus, gamification is believed to be the most

appropriate approach to gain more users as the unique, fun and useful experience can be the content of word of mouth and attract people.

When people are motivated and have a positive attitude or positive emotion towards something, then it will lead to behavioural intention (Kusumawardani and Putri, 2020; Casaló *et al.*, 2021). Continued use intention is heavily affected by many factors, such as quality of operation, quality of information, quality of the system (Ramayah *et al.*, 2010) as well as ease of use and usefulness of the system (Flavián *et al.*, 2022). Furthermore, based on the expectation–confirmation model theory, a customer’s level of satisfaction with a product or service influences the desire to continue using the product or service (Thong, Hong, and Tam, 2006).

On the other hand, word of mouth strongly impacts the buying decision (Keaveney, 1995). Research has shown that people would consider the word of mouth to be a communication to satisfy their emotional needs (Deangelis *et al.*, 2018). Word of mouth provides an experience with cognitive effects, as it provides customers with awareness of the brand or product (East *et al.*, 2017). Past research has indicated that word of mouth is an expression of deliberate actions caused by various needs (Berger, 2014). Many people trust their friends’ opinions and believe all their comments, so they will make the right and firm decision (Ren *et al.*, 2013). Word-of-mouth spreads are a crucial factor in business since they could influence a wider society (Kim and Son, 2009). Ultimately, once the behavioural intention has been achieved, both continued to use intention and spread positive word of mouth, and the business is expected to grow and be sustainable. If the e-commerce application has successfully implemented gamification in the platform, this study proposes that it will create a beneficial behaviour towards the application. The theoretical framework for this study can be found in Figure 1.

### 3. Research methodology

#### 3.1 Measurement development

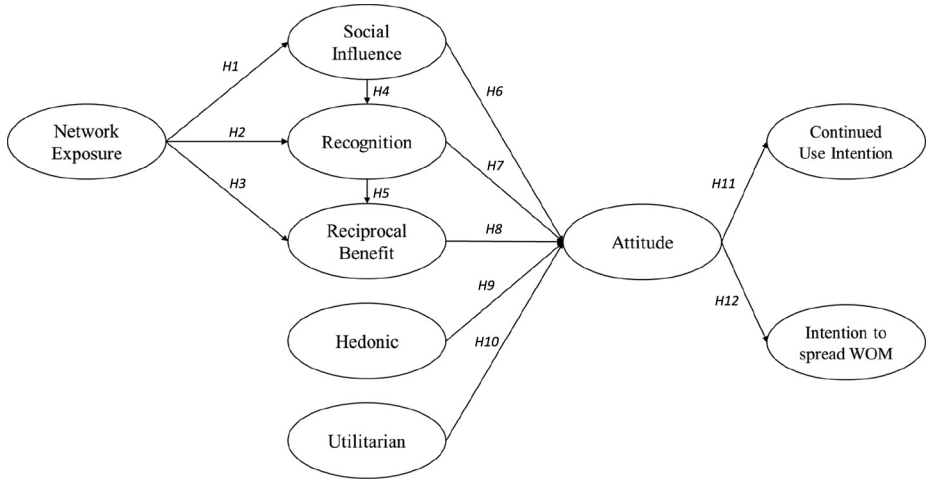
This study uses a quantitative survey questionnaire to investigate the hypotheses mentioned earlier. Each construct measuring items primarily developed from prior studies, and some measures have been slightly adjusted to fit the context of gamification in the e-commerce platform. This research study used the Likert scale to show the extent of the respondent’s response (1 for strongly disagree to 7 for strongly agree). The measurement items are mainly developed by Hamari and Koivisto (2013) for social motivations, including network exposure, social influence, recognition and reciprocal benefit. For the dependent variables (attitude, continued use intention and intention to spread word of mouth), the item measurements were taken from Koivisto and Hamari (2014). Lastly, the shopping motivation values (hedonic and utilitarian) were modified from Hsu and Chen (2018).

The researchers ran a small-scale pilot test to assess the questionnaire’s content validity. Twenty e-commerce site customers who had previously played the game were invited to participate in the pilot test, with their responses used to determine the content validity ratios. Several phrases and terms are adjusted based on the pilot test results to guarantee the questionnaire’s readability and clarity. Finally, the questionnaire is divided into three sections: an introduction letter, background information and instruments for testing the conceptual model’s components.

#### 3.2 Sample and data collection

The valid respondents of this study are users of one of the biggest e-commerce platforms in Indonesia and have played the mini game called *Goyang Shopee* (Shopee Shakes) at the Shopee e-commerce platform at least twice in the last six months. The data collection was between January and February 2021. The respondent must have their e-commerce

**Figure 1.**  
Theoretical  
framework



application account to be able to play the game on the platform. In short, a single-user device is needed. In terms of sample size, for the significance level of 5% and the minimum  $R^2$  of 0.10, Cohen (1992) recommended a minimum sample size of 122, which this study has more than fulfilled with 219 responses. Purposive sampling is used in this study. This sampling technique was chosen because it is easy to obtain, inexpensive and convenient. In addition, the non-probability sampling technique was chosen based on population characteristics and the purpose of the analysis (Tongco, 2017). The demographic profile of the respondents is shown in Table 1.

The researchers used Google Forms and distributed the questionnaire through various instant messaging services and social media platforms to gather the data. This study uses an online questionnaire since it is efficient and lowers costs. This analysis also includes secondary data from past studies, books and websites to support the research. After collecting the data, they are assessed and analysed with partial least squared structural equation modelling (PLS-SEM) as the statistical technique in this study, using SmartPLS as the statistical tool.

## 4. Result and analysis

### 4.1 Measurement scale validation

The data in this study were analysed using PLS-SEM. Given the variety of statistical techniques available for data analysis, PLS-SEM is chosen for various reasons. PLS-SEM is particularly useful for extremely complicated prediction models with non-normal data, formatively measured constructs and small sample sizes (Hair *et al.*, 2017), which correlates to the relatively small sample size ( $N = 219$ ) and complex causal-effect connections in the present study. Moreover, it can estimate path models using latent variables. PLS-SEM can include information from each level of an attribute to show the characters as a full image in the overall model (Hair *et al.*, 2017). Accordingly, PLS-SEM is considered to be more appropriate for this research's conditions than other statistical techniques. The mean, standard deviation and loadings can be found in Table 2.

This study assessed construct validity and reliability in a variety of methods. To begin, convergent validity was determined using average variance extracted (AVE) and factor loadings. Additionally, the AVE for each construct in this study model exceeded the

**Table 1.**  
Demographic profile  
of respondents

Variable	Cases (%)	Variable	Cases (%)
<i>Gender</i>			
Men	83 (37.9%)	Products bought from the e-commerce app	
Women	136 (62.1%)	Health and beauty	67 (30.6%)
		Fashion and accessories	58 (26.5%)
<i>Age</i>			
18-25	192 (87.7%)	Electronics	58 (26.5%)
26-35	25 (11.4%)	Household items	14 (6.3%)
>35	2 (0.9%)	Automotive products	10 (4.5%)
		Others	12 (5.5%)
<i>Monthly income</i>			
<IDR 1 mn	28 (12.8%)		
IDR 1,000,001-3,000,000	107 (48.8%)		
IDR 3,000,001-5,000,000	43 (19.6%)		
IDR 5,000,001-10,000,000	26 (11.8%)		
>IDR 10 mn	15 (6.8%)		

Variables	1	2	3	4	5	6	7	8	9
1. Attitude	<i>0.877</i>								
2. Continued use intention	0.800	<i>0.901</i>							
3. Hedonic value	0.714	0.818	<i>0.863</i>						
4. Intention to WOM	0.749	0.789	0.724	<i>0.867</i>					
5. Network exposure	0.587	0.711	0.709	0.593	<i>0.848</i>				
6. Reciprocal benefit	0.646	0.768	0.755	0.567	0.752	<i>0.907</i>			
7. Recognition	0.661	0.798	0.802	0.610	0.716	0.839	<i>0.952</i>		
8. Social influence	0.788	0.863	0.825	0.696	0.703	0.761	0.849	<i>0.918</i>	
9. Utilitarian value	0.708	0.767	0.753	0.683	0.675	0.760	0.713	0.735	<i>0.830</i>

**Notes:** The diagonal elements (in italics) are the square root of the AVE. Values below the diagonal elements are the inter-construct correlations (Fornell and Larcker's test)

**Table 2.**  
Discriminant validity

threshold of 0.5, and all factor loadings were positive and significant at the 0.001 level, indicating that the constructs had convergent validity. Secondly, Fornell and Larcker's (1981) criterion is used to analyse the discriminant validity by examining the square roots of AVE, which were all greater than correlations with other components (see Table 2). The square root of AVE, shown by the diagonal numbers, was larger than the off-diagonal elements in the respective rows and columns, indicating that the study possessed acceptable discriminant validity. Next, the researchers assessed Cronbach's  $\alpha$  and composite reliability (CR) of the constructs. CR is the ratio of a scale's estimated actual score variance to its total variance, whereas AVE is a measure of the latent variable component score's reliability. These results were more than the acceptable CR score of 0.7 (Fornell and Larcker, 1981). As shown in Table 3, the value of these two indicators is above the 0.7 criteria for all constructions, indicating acceptable internal consistency and dependability.

#### 4.2 Multicollinearity test and structural equation model

According to Kock (2015), common method bias in PLS-SEM is caused by the measurement methods used (i.e. Likert-type scales) and can be identified by looking at the multicollinearity test. For the structural model's independent constructs, the multicollinearity test is used to determine whether there are strong relationships between them (inner model). If there is a

Items	Mean	SD	Standardised loadings
<i>Network exposure (Hamari and Koivisto, 2013) <math>\alpha = 0.901</math>; CR = 0.927; AVE = 0.718</i>			
I get admired by friends while moving up to a higher level on the gamified shopping application	4.457	1.839	0.783
I have a lot of friends on the gamified e-commerce application who follow my activities	4.123	1.953	0.842
Many people follow my activities on the gamified e-commerce application	4.904	1.784	0.792
I follow many people on the gamified e-commerce application	4.475	1.750	0.914
I have many friends in the gamified e-commerce application	4.498	1.776	0.899
<i>Social influence (Hamari and Koivisto, 2013) <math>\alpha = 0.9531</math>; CR = 0.964; AVE = 0.842</i>			
If my friends think it is fun to win in the gamified e-commerce application, I will do it	5.406	1.569	0.926
My friends would think using gamified e-commerce application is a good idea	5.297	1.501	0.935
People whom I appreciate would encourage me to use gamified e-commerce applications	5.215	1.412	0.914
People who influence my attitudes would recommend gamified e-commerce applications	5.215	1.600	0.908
People who are important to me would think positively of me using gamified e-commerce applications	5.215	1.551	0.903
<i>Recognition (Hamari and Koivisto, 2013) <math>\alpha = 0.948</math>; CR = 0.967; AVE = 0.907</i>			
I feel good when my achievements in the gamified e-commerce application are noticed	4.991	1.712	0.949
I like it when other gamified e-commerce application users comment and like my achievement	5.055	1.682	0.959
I like it when my gamified e-commerce application peers notice my exercise reports	4.909	1.619	0.949
<i>Reciprocal benefit (Hamari and Koivisto, 2013) <math>\alpha = 0.927</math>; CR = 0.949; AVE = 0.823</i>			
I find that participating in the gamified e-commerce application community can be mutually helpful	4.817	1.606	0.918
I find my participation in the gamified e-commerce application community can be advantageous to me and other people	4.790	1.697	0.916
I think that participating in the gamified e-commerce application community improves my motivation to exercise	4.854	1.687	0.897
The gamified e-commerce application community encourages me to exercise	4.945	1.607	0.853
I find my participation in the gamified e-commerce application community can be advantageous to me and other people	5.082	1.542	0.854
<i>Hedonic value (Hsu and Chen, 2018) <math>\alpha = 0.913</math>; CR = 0.936; AVE = 0.745</i>			
This gamified e-commerce application experience was truly a joy	5.046	1.558	0.899

**Table 3.**  
Scale refinement

(continued)

Items	Mean	SD	Standardised loadings
Compared to other things I could have done, the time spent playing in the gamified e-commerce application is truly enjoyable	5.493	1.574	0.914
I felt the gamified e-commerce application was exciting	5.242	1.424	0.910
I felt the gamified e-commerce application gives me pleasure	4.941	1.628	0.810
I like the services offered by this gamified e-commerce	5.553	1.395	0.773
<i>Utilitarian value (Hsu and Chen, 2018) <math>\alpha = 0.767</math>; CR = 0.867; AVE = 0.689</i>			
I use this gamified e-commerce application for obtaining the services I want	5.799	1.075	0.670
I use this gamified e-commerce application for helping me effectively do shopping	5.073	1.574	0.913
I feel this gamified e-commerce application is cleverly designed	4.616	1.744	0.885
<i>Attitude (Hamari and Koivisto, 2013) <math>\alpha = 0.925</math>; CR = 0.943; AVE = 0.769</i>			
I find using the gamified e-commerce application to be a good idea	5.699	1.358	0.866
I find using the gamified e-commerce application to be favourable	5.443	1.375	0.853
I find using the gamified e-commerce application is a wise idea	5.215	1.366	0.882
I find using the gamified e-commerce application to be a positive thing	5.530	1.332	0.895
I find using the gamified e-commerce application to be a wise thing to do	5.379	1.306	0.887
<i>Continued use intention (Koivisto and Hamari, 2014) <math>\alpha = 0.942</math>; CR = 0.956; AVE = 0.811</i>			
I intend to keep using the e-commerce application at least as much as I have played the game in the app	5.320	1.426	0.890
I predict that I will use the application more frequently within the next three months	5.306	1.441	0.911
I think I will keep using the application in the near future at least as much as I have during the last few months	5.146	1.445	0.881
I plan to increase the amount of using the application rather than decrease it	5.507	1.509	0.917
I will keep using the application as regularly as I do now	5.484	1.428	0.905
<i>Intention to spread WOM (Hamari and Koivisto, 2013) <math>\alpha = 0.917</math>; CR = 0.938; AVE = 0.751</i>			
I would recommend the gamified e-commerce application to my friends	5.612	1.250	0.822
I would recommend the gamified e-commerce application to my family	5.406	1.301	0.847
I will recommend the gamified e-commerce application to anyone who seeks my advice	5.361	1.352	0.885
I will refer my acquaintances to the gamified e-commerce application	5.689	1.343	0.866
I will say positive things about the gamified e-commerce application to other people	5.498	1.370	0.909

Notes:  $\alpha$  = Cronbach's  $\alpha$ ; CR: composite reliability; AVE: average variance extracted

Table 3.

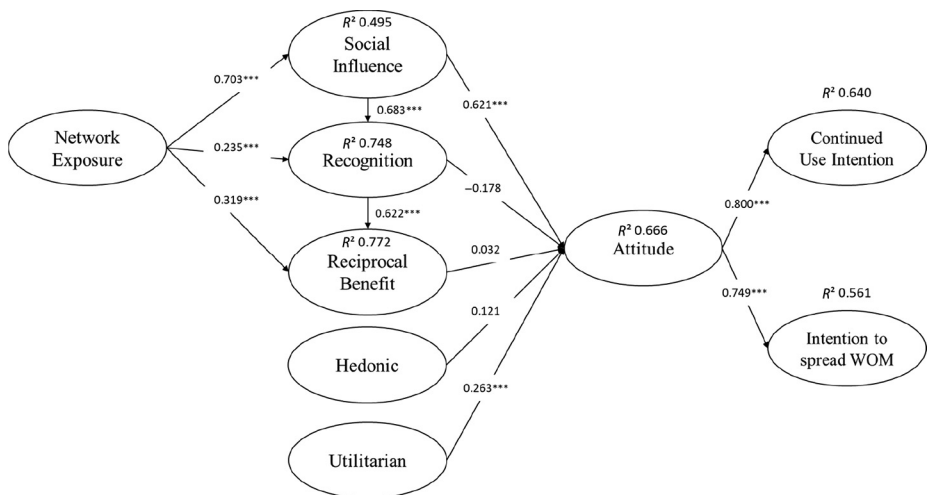
significant correlation between one of the exogenous variable's dimensions and the endogenous variable, this test can identify any potential issues. Multicollinearity test in PLS-SEM can be examined through the variance inflation factor (VIF), and the value must be less than 10, which is the level of concern for collinearity (Hair *et al.*, 2019; Pituch and Stevens, 2016; Neter *et al.*, 1996). The VIF values in this study are all considerably below 10 (Table 4).

Figure 2 summarises the output of the PLS model. The coefficient of determination was used to measure the explanatory power of the suggested model, for instance,  $R^2$ .  $R^2$  is a measure that indicates the prediction accuracy of a research model (Hair *et al.*, 2017). It is derived as the squared correlation between the actual and anticipated values of an endogenous construct. The suggested model's  $R^2$  values vary between 0.495 and 0.666, suggesting that the model has a sufficient level of predictive capacity. Specifically, the research model (see Figure 2) could account for 64% of the continued use intention and 56.1% of the intention to spread positive word of mouth to others. Additionally, the shopping value and social factors accounted for 66.6% of attitude variance towards gamification in the e-commerce platform. Besides, the model also reported a 49.5% of the variance in social influence, 74.8% in recognition and 77.2% in reciprocal benefit.

Nine out of twelve causal effects tests showed statistically significant results, as the  $p$ -value is less than 0.5, and the  $T$ -statistics are more than 1.96. This study found that network exposure

Variables	Continued use intention	Intention to spread WOM	Attitude	Reciprocal benefit	Recognition	Social influence
Attitude	1.000	1.000				
Network exposure				2.118	1.979	1.000
Recognition			5.609	2.118		
Social influence			4.580		1.979	
Reciprocal benefit			4.703			
Hedonic			4.061			
Utilitarian			2.974			

**Table 4.**  
Inner VIF values



**Figure 2.**  
PLS analysis result  
for the research  
model

**Note:** \*\*\* $P < 0.001$

positively and significantly related to all social motivations, which are social influence ( $\beta = 0.703$ ;  $p < 0.001$ ), recognition ( $\beta = 0.235$ ;  $p < 0.001$ ) and reciprocal benefit ( $\beta = 0.319$ ;  $p < 0.001$ ), in support of *H1–H3*. Moreover, social influence positively and significantly affects recognition ( $\beta = 0.683$ ;  $p < 0.001$ ) and attitude ( $\beta = 0.621$ ;  $p < 0.001$ ); thus, *H4* and *H5* are supported. In contrast, recognition does not significantly affect attitude ( $\beta = -0.178$ ;  $p = 0.058$ ) but has a positive influence on the reciprocal benefit ( $\beta = 0.622$ ;  $p < 0.001$ ). Thus, *H6* is supported, but *H7* is rejected. Further, reciprocal benefit and hedonic do not have a significant and direct effect on attitude ( $\beta = 0.032$ ;  $p > 0.05$ ;  $\beta = 0.121$ ;  $p > 0.05$ ), which made both *H8* and *H9* rejected. On the contrary, the utilitarian value was significantly influencing attitude ( $\beta = 0.263$ ;  $p < 0.001$ ) in support of *H10*. Lastly, as predicted, the attitude was found to be a significant predictor of both the intention to continue using the service ( $\beta = 0.800$ ;  $p < 0.001$ ) and the intention to promote the service to others ( $\beta = 0.749$ ;  $p < 0.001$ ), in support of *H11* and *H12*.

## 5. Discussion and implications

### 5.1 Discussion

Due to its popularity, the persuasive approach through gamification has been applied to various non-game products or services. However, the study of gamification in the e-commerce industry that incorporated both social motivations and shopping value is still scarce. While the success of gamification is largely dependent on its social aspects, in the context of the online marketplace, shopping motivations remain a critical factor. Unfortunately, earlier studies have mostly focused on either social motivation or shopping motivation on their own. Therefore, on a theoretical level, this research contributes to the literature by developing and empirically analysing a theoretical framework informed by user attitudes about the importance of social motivations and shopping motivations in e-commerce applications.

The result indicated that out of twelve hypotheses, nine were supported, while three were rejected. The findings indicated that social motivations, particularly those associated with social influence, as well as shopping value, the mainly utilitarian value related to gamification, are significant predictors of how gamification is viewed or if the user plans to continue using and recommending the service. When the social factors and shopping features are compared, social influence (62.1%) has a bigger effect on the attitude than the utilitarian feature (26.3%) of the game, which is in line with the previous study (Hamari and Koivisto, 2015).

The findings also showed that network exposure is significantly influencing social influence, recognition and reciprocal benefit. This result corresponds to a previous study on the social motivation of gamification (Hamari and Koivisto, 2013). The result indicated that the more users are exposed to the other users in the network, they will be more involved in the gamification system. Thus, as the network gets larger, the possibility of getting recognition and being exposed to more social influence will also be larger. Nevertheless, the findings indicate that the direct relationship between network exposure to recognition and reciprocal benefits was relatively weak. The finding might suggest that the size of the network is not fundamentally valuable in terms of recognition and reciprocal advantages; rather, the effect is derived from the quality of the connection with other users. The finding resembles the e-commerce application gamification system, as the interaction of users who are never in contact with or do not know each other before is very limited, if not non-existent.

Furthermore, this study investigated the relationship between recognition of reciprocal benefit and attitude. The results show a positive and significant relationship between recognition and reciprocal benefit, which indicates that the more a person gets recognised, the more they will feel the reciprocal benefit of the game (Hamari and Koivisto, 2015), like pride. For instance, when a user is getting the highest score in the game, their name will be shown on the game page of the e-commerce application. However, this study also found that

recognition did not positively correlate with attitude. Similarly, the hypothesis for the reciprocal benefit to attitude was also not supported. The findings match with the empirical evidence, as the communication between users is very limited. Users may find who the top players are, but they cannot really interact, which could lead to their attitude towards the gamification system. The interaction among users or players to get feedback is crucial in creating a positive attitude to gamification (Hamari and Koivisto, 2013).

This study investigated the utilitarian and hedonic features of the gamification system in the e-commerce platform. The findings show that only utilitarian features have a positive and significant relationship with attitude. This result is consistent with previous studies, which stated that the more emotive, non-cognitive frame of enjoyment is directly related to people's willingness to use gamification services, whereas the more cognitive, utility-seeking frame of usefulness is mediated by views about the gamified system (Zaichkowsky, 1994; Hamari and Koivisto, 2015). The results represent the actual situation of the gamification system in the e-commerce platform that offers coins as rewards and can be used as a method of payment on the platform. Thus, this approach makes users play the game for rewards, which can help them get the "goal" of shopping instead of enjoying the game alone. Other studies also noted that both utilitarian and hedonic features are influencing the user experience and lead to attitude but with the mediation of perceived value (Hsu *et al.*, 2017). Moreover, since most of the users of the e-commerce platform being studied are women, this finding is portraying the real situation as women place a higher value on technology's ease of use than men do, and they perceive its advantages to be greater (Koivisto and Hamari, 2014).

Consistent with previous studies on gamification (Hamari and Koivisto, 2013; Hamari and Koivisto, 2015; Yang *et al.*, 2017), the results show that attitude about a gamification service is a significant predictor of one's intention to continue using it, as well as of one's intention to recommend the service to others, and provides more evidence for the importance of attitudes in understanding behavioural intentions (Ajzen, 1991). Furthermore, an attitude like positive impact by using gamification will trigger word of mouth; people tend to suggest to their inner circle the positive things that happened to them (Petty *et al.*, 1983). Thus, it indicates that once users have a positive attitude towards the gamification system in the e-commerce platform, it can lead to continuing to use the service and even spreading the good word of mouth to other people.

### *5.2 Theoretical and managerial implications*

This study investigates the role of network exposure and shopping motivation towards the intention to continue to use and spread word of mouth through social influence, reciprocal benefit, recognition and attitude. Based on the analysis, this study concludes that network exposure significantly influences social influence, recognition and reciprocal benefit. The more people are exposed to the gamified system, then the more they will feel the benefit of the gamified system, feel more recognised by their peers and also have social influence. Moreover, this study found that social influence and utilitarian features can play in increasing the attitude towards the app which later shapes the intention to continue using the app and spread word of mouth. Consequently, the researchers recommend that future studies should consider crucial roles performed by social influence and utilitarian value in gamified e-commerce applications.

The findings of this study can help the e-commerce app to understand the significant role of gamification in the platform. This research discovers that gamification may create users to be exposed to the platform's network. It is becoming an important dimension to do more socially influenced, be recognised and understand the benefit of social interaction. Instead of just having a personal chat with the seller, an e-commerce platform may add some community forums (Franklin *et al.*, 2014). The community forum can be used to talk about

users' experience in shopping at the marketplace and their insight into the gamification system on the platform. The more interaction happens among users, then the more recognition and reciprocal benefit will be gained. Hence, the higher the reciprocity among users, the more collective the group will become (Belanche *et al.*, 2019), leading to a larger network. Furthermore, this study recommends that the e-commerce platform give a reward to people who have more coins or/the highest score in the game. This will encourage other users to play more often (Yüksel and Durmaz, 2016). After they get a positive thing by playing the game on the platform, they will continue to use the platform in the future, and in addition, it will increase sales (Hamari and Koivisto, 2015). The summary of the conclusion, theoretical and managerial implications can be found in Table 5.

### 5.3 Limitations

The study includes limitations, which serve as a guide for future research. Firstly, this study used self-reported online surveys. It may affect the findings since respondents are likely to be more actively involved with the service and hence more inclined to participate in associated activities. As a result, the results may overlook the views and intents of less active and engaged service users. Thus, this study suggests future research incorporate the actual use of statistics and appropriate experiments to bolster the topic's robustness.

Furthermore, this study recommends that future research add more variables to measure the continued use of intention and intention to spread the word of mouth, such as purchase intention, customer loyalty and customer satisfaction through gamification (Xin *et al.*, 2018). Further, future research could also use the experimental design as the method of examining gamification in e-commerce. This research study measures the framework from the e-commerce market context in Indonesia. Future research can also investigate another e-commerce platform with a Gamification method from other countries with a different background than the Indonesian market.

Conclusions	Theoretical and managerial implications
Network exposure significantly influences social influence, recognition and reciprocal benefit	<ul style="list-style-type: none"> <li>• The higher people are exposed to the gamified system, the more likely they will benefit from it, feel more recognised by their peers and have a greater social influence</li> <li>• E-commerce apps should encourage users to share their gaming experience in the app so that more people are exposed to the system</li> </ul>
Gamification creates social and shopping motivation which leads to a positive attitude to continue using the e-commerce app and spread the word of mouth	<ul style="list-style-type: none"> <li>• Together with utilitarian shopping behaviour, when users could influence others about the game, they discovered its benefits for them and developed a positive attitude</li> <li>• E-commerce apps should implement gamification and develop a community forum to make users feel more socially influenced and understand the benefit of social interaction. Rewards given should benefit users in the game and when they are shopping in the apps</li> </ul>

**Table 5.**  
Conclusions,  
theoretical and  
managerial  
implications

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### Corresponding author

Kunthi Afrilinda Kusumawardani can be contacted at: [kunthi.kusumawardani@president.ac.id](mailto:kunthi.kusumawardani@president.ac.id)

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