The Influence of Gamification Affordance on Customer Loyalty among E-Commerce in Indonesia

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Abstract

Background: The e-commerce industry in Indonesia is experiencing competition due to the rising number of users and price-sensitive consumers, making user loyalty a major challenge for companies. Although gamification, such as task/quest type, was recognized as a strategy to boost loyalty, previous studies showed inconsistent results regarding its impact on hedonic and utilitarian values.

Objective: This study aimed to explore the relationships among task/quest-type gamification affordance (GA), hedonic value (HV), utilitarian value (UV), satisfaction (SA), and loyalty (LOY) among Indonesian e-commerce users.

Methods: A total of 284 e-commerce app users who had engaged in task/quest-type gamification were selected as participants using a convenience sampling method. A quantitative method was adopted and survey data were examined by covariance-based structural equation modeling (CB-SEM) conducted in SmartPLS4.

Results: The analysis showed that gamification affordance significantly impacted users' perceived hedonic and utilitarian values. An increase in these values significantly enhanced user satisfaction, and strongly correlated with loyalty. Gamification affordance also indirectly influenced loyalty through hedonic value, utilitarian value, and satisfaction.

Conclusion: Task/quest-type gamification affordance effectively enhanced user loyalty in Indonesian e-commerce by improving perceived hedonic and utilitarian values and satisfaction. These results suggested that gamification strategies focusing on task/quest-type elements could foster loyalty in a competitive e-commerce environment.

Keywords: Gamification Affordance, Hedonic Value, Utilitarian Value, Satisfaction, Loyalty

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I. INTRODUCTION

Loyalty is a major challenge in the e-commerce industry, as reported by a previous study [1]. According to SurveySensum's 'E-commerce Trends 2022', 42% of consumers have low loyalty and regularly switch between platforms [2]. The increasing number of e-commerce users, along with Indonesian customers' price sensitivity, drives up competition among suppliers. Therefore, service providers need to focus on user loyalty to survive [3], [4], [5]. Retaining existing consumers is more cost-effective and efficient than attracting new buyers, making loyalty a key focus for service providers [4].

Gamification is an increasingly popular strategy in e-commerce, which includes the application of game elements to non-game products or services to promote value-creating behaviors [6], [7]. This concept has shown significant potential in enhancing user motivation, loyalty, engagement, and purchase intention [3], [8], [9]. Gamification has also become an effective way for e-commerce businesses to increase customer revisit rates and profitability. In e-commerce, gamification has evolved from basic mechanics to more engaging experiences, such as mini-games where users earn coins or coupons by completing challenges - a task/quest-type gamification affordance used by platforms, such as Tokopedia and Shopee [10]. The result of a previous study showed that gamification capabilities increase utility and hedonic value, which are key to customer satisfaction and loyalty [3].

The most widely used gamification element in e-commerce includes reward systems, such as points, badges, and leaderboards. These elements have been shown to increase purchase frequency and perceived cost-effectiveness among customers [9]. Furthermore, the elements allow consumers to engage more frequently with the platform by providing incentives for continued use. Consequently, users tend to develop stronger loyalty, which positively impacts e-commerce profitability [9]. Despite the growing body of knowledge on gamification, few studies have specifically focused on task/quest-type gamification affordance in e-commerce, particularly in the context of Indonesian consumers. The effectiveness is highly dependent on the environment applied [6], suggesting that context-specific

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study is necessary for the specific impact of task/quest-type gamification on user loyalty in Indonesian e-commerce applications. This study provides new insights into how gamification strategies can enhance customer loyalty in a competitive market by exploring the role of gamification affordance (GA), hedonic value (HV), utilitarian value (UV) from CPV [11], as well as satisfaction (SA) and loyalty (LOY) from satisfaction-profit chain [12].

In reviewing previous studies, several gaps were identified. Some studies have reported varying results regarding the impact of gamification affordance, specifically task/quest-types, as predictors of hedonic and utilitarian value [3], [13]. Furthermore, previous reports showed that e-commerce users now expect utilitarian benefits and hedonic experiences [4]. There are also inconsistencies in the literature regarding the relationship between hedonic and utilitarian value and loyalty [3], [13], [14]. The majority of these studies have been conducted in developed countries, such as the United States, Taiwan, China, and India, where differences in user culture and market conditions may lead to varying outcomes [15]. Therefore, this study aimed to address the gaps by focusing on the Indonesian market, aiming to enrich previous reports and contribute to a deeper understanding of gamification's role in enhancing e-commerce loyalty.

II. LITERATURE REVIEW

A. Gamification Affordance

Gamification is the process of designing services and systems to provide experiences similar to those found in games [16]. The phenomenon mixes utilitarian and hedonic values to increase user motivation and participation in areas, such as marketing, education, and healthcare [17] 'Affordances' refers to the components and mechanics that allow for the development of engaging gaming experiences.

Task/quest-type affordances, which are connected to achievements in gamification, boost user motivation by providing tasks that reward users with items for app purchases [16]. This concept allows players to learn new abilities and establish defined goals, making successful acts more obvious [8]. The benefits satisfy the demand for competence, pushing individuals to overcome problems and develop abilities [3]. This mechanism is evident in the Shopee Games feature within the Shopee application, where users are incentivized to complete specific tasks, such as daily check-ins or playing mini-games, to earn Shopee Coins. The earned coins can then be redeemed for discounts in future transactions, reinforcing user engagement and purchasing behavior.

B. Satisfaction-profit chain

According to the satisfaction-profit chain principle, better levels of customer satisfaction improve business performance [12]. Customer satisfaction refers to the emotional response of consumers to a product or service experience that meets or exceeds expectations [18]. High satisfaction enhances user loyalty, which was defined as a strong desire to continue using the service [19]. By addressing consumer desires, service providers can increase satisfaction, leading to user loyalty and increased business performance through lower retention costs and raised brand perceptions [20].

C. Customer Perceived Value

Customer perceived value (CPV) is essential in both study and practice, comparing the benefits offered with the sacrifices perceived by customers [21]. This concept reflects the balance between perceived gains and losses, showing that customer value comes from the trade-off between benefits and sacrifices when using a product or service [22]. CPV can be divided into two model dimensions, namely utilitarian and hedonic value [11].

Utilitarian value focuses on the efficiency, effectiveness, and fulfillment of consumers' functional needs, which are assessed by functional, economic, time-saving benefits, and the convenience gained from a product or service [11]. Previous studies showed that in the context of gamification in e-commerce applications, utilitarian values have a significant positive impact on user behavior [3], [13], [14]. Meanwhile, hedonic value focuses on the intrinsic enjoyment and experience that users feel, including sensual stimulation, entertainment, and escapism that make the experience of using a product or service enjoyable [23]. In the context of technology and gamification, hedonic value strongly influences satisfaction and the intention to use the system [4].

D. Study Framework of Hypotheses Model

Gamification affordance allows users to complete tasks to earn rewards, such as discount coupons or coins that can be used in transactions, which increases the utilitarian value [3], [6]. According to previous reports, the hedonic value could be increased through the entertainment and challenge aspects provided by task/quest type gamification [3], [6]. Therefore, this study assumed that gamification with the task/quest-type method affected the hedonic and utilitarian value felt by users.

H1: Gamification affordance (GA) has a significant effect on hedonic value (HV)
H2: Gamification affordance (GA) has a significant effect on utilitarian value (UV)

User satisfaction was determined by the impression of the value obtained [24]. A previous study recommended the use of utilitarian and hedonic values as direct predictors of user satisfaction [25]. In the context of gamification, a positive relationship was found between satisfaction and hedonic and utilitarian values [6], [13], [24], leading to the development of the following two hypotheses:

H3: Hedonic value (HV) has a significant effect on satisfaction (SA)
H4: Utilitarian value (UV) has a significant effect on satisfaction (SA)

Loyalty is a strong desire to continue buying a preferred product or service despite situational influences [25]. A positive relationship between hedonic and utilitarian values and loyalty has been identified, with significant relationships also observed in the context of gamification, suggesting the influence on user loyalty [3], [26]. Based on these results, the following hypotheses were proposed:

H5: Hedonic value (HV) has a significant effect on loyalty (LOY)
H6: Utilitarian value (UV) has a significant effect on loyalty (LOY)

Several previous studies have found a relationship between customer satisfaction and loyalty in various contexts [4], [20], [27]. The relationship between user satisfaction and loyalty was also tested in the context of gamification [3], [13]. These results confirmed that user satisfaction had a positive and important relationship in influencing user loyalty. Based on these results, the following hypothesis was proposed:

H7: Satisfaction (SA) has a significant effect on loyalty (LOY)

The mediation hypothesis was developed to explain how the independent variable affects the dependent variable through one or more mediator variables, showing an indirect effect in the model. Figure 1 shows the study hypothesis model, depicting the conceptualization.

H8: Hedonic value (HV) mediates the relationship between gamification affordance (GA) and satisfaction (SA)
H9: Utilitarian value (UV) mediates the relationship between gamification affordance (GA) and satisfaction (SA.
H10: Hedonic value (HV) mediates the relationship between gamification affordance (GA) and loyalty (LOY)
H11: Utilitarian value (UV) mediates the relationship between gamification affordance (GA) and loyalty (LOY)
H12: Satisfaction (SA) mediates the relationship between hedonic value (HV) and loyalty (LOY)
H13: Satisfaction mediates (SA) the relationship between utilitarian value (UV) and loyalty (LOY)
H14: Hedonic value (HV) and satisfaction mediate the relationship between gamification affordance (GA) and loyalty (LOY)
H15: Utilitarian value (UV) and satisfaction mediate the relationship between gamification affordance (GA) and loyalty (LOY)
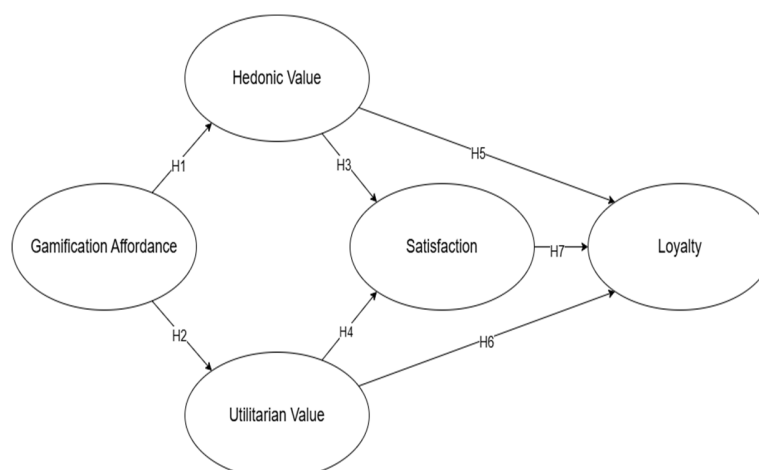

Fig. 1 Study Hypothesis Model

III. METHODS

A quantitative method was adopted to objectively test theories by measuring relationships between variables and collecting comprehensive data from e-commerce users [28], [29]. Data collection was conducted through an online survey, which distributed questionnaires to participants [30]. A pilot study was initially carried out on the questionnaire to identify and rectify any deficiencies [31]. The main study followed, using a larger sample size to comprehensively answer the study questions or hypotheses [32].

A. Participants

Participants were selected using convenience sampling, a strategy based on ease of access where participants were recruited randomly from various locations [33]. The subjects were e-commerce users in Indonesia, aged at least 17, who had engaged with task-type gamification in mini-games at least once. In this study, a total of 284 valid responses were collected through Google Forms. A sample size of 200 was generally considered sufficient to be representative of Structural Equation Modeling (SEM) analysis [34]. The demographics of the participants were presented in Table 1.

TABLE 1
DEMOGRAPHIC STATISTICS (N: 284)

Characteristics	N
Gender	
Male	91
Female	193
Age	
17 – 25	270
26 – 35	84
Domicile	
Java Island	161
Sumatra Island	84
Kalimantan Island	11
Sulawesi Island	10
Bali/NTT/NTB island	10
Maluku/Papua Island	8
Length of E-commerce Application Usage	
More than 2 years	227
Last 2 years	18
Last 1 year	6
Less than 1 year	13
Length of Gamification Usage	
More than 3 months	160
Last 3 months	63
Last 1 month	26
Less than 1 month	35
Frequency of gamification use per week	
More than 5 times	32
4 - 5 times	30
2 - 3 times	117
0 - 1 time	105

B. Questionnaire item Development

The questionnaire variable was developed based on key components from previous studies, including gamification affordance [3], utilitarian value [3], hedonic value [3], satisfaction [6], and loyalty [20]. The items for each variable were designed to be consistent with the context of this study. In this study, the questionnaire was designed to capture participants' experiences and perceptions regarding task/quest-based gamification features in e-commerce applications. It consists of four sections and the first section validates participants' familiarity with the gamification features. The second section collects general demographic information, including gender, age, region, and duration of app and gamification feature usage. Meanwhile, the third section comprises 19 close-ended items measured with a 5-point Likert scale, from strongly disagree (1) to strongly agree [35]. These items were adapted from previous studies to measure five key variables, namely Gamification Affordance, Hedonic Value, Utilitarian Value, Satisfaction, and Loyalty. The fourth section consists of four open-ended questions to explore participants' motivations, expectations, satisfaction, and perceived influence of gamification on their continued app usage.

Each variable in the third section was designed to measure a specific dimension of user experience. Gamification Affordance measures how participants perceive the presence, importance, usability, and reuse tendency of gamification features. Hedonic value captures the emotional enjoyment participants derive, such as feelings of happiness, comfort, and entertainment. Utilitarian value captures the functional benefits participants perceive, such as usefulness, efficiency, and rewards. Satisfaction evaluates participants' fulfillment and continued contentment with the experience. Meanwhile, loyalty assesses the intention to recommend, continue using the application, and resist switching to alternatives. This structure enables the study to comprehensively examine the relationship between gamification elements and user behavior in the context of Indonesian e-commerce.

The measurement items for gamification affordance, hedonic value, and utilitarian value were based on four indicators from [3], while satisfaction was measured using three indicators from [24], and loyalty with four indicators from [20]. The questionnaire items were thoroughly reviewed by a university faculty expert to assess their relevance in measuring each variable and to ensure both content and linguistic accuracy. Modifications were made to improve clarity and the questionnaire was validated in a pilot study with 35 participants to ensure its reliability and validity. The pilot study assessed validity using the Pearson product-moment correlation and reliability using Cronbach's alpha (CA) with SPSS 26. The validity test results showed that all questionnaire items had R-values greater than the critical value, confirming that the items were valid for measuring the intended variables. Additionally, the reliability test showed that all variables had CA values exceeding 0.6, suggesting a reliable questionnaire. In general, the CA for the entire questionnaire was 0.937, showing high internal consistency and making the instrument suitable for data collection. Table 2 shows the variables, indicators, and references of the study instrument.

TABLE 2
STUDY INSTRUMENT

Variable		Items	References
Gamification Affordance	GA1	I frequently use the Shopee Games (Shopee Cocoki) feature.	[3]
	GA2	I believe using the Shopee Games (Shopee Cocoki) feature is important for me.	[3]
	GA3	After using Shopee Cocoki/Tata Paket, I intend to use it again.	[3]
	GA4	The Shopee Games (Shopee Cocoki) feature is easy to use.	[3]
Hedonic Value	HV1	I feel happy when using the Shopee Games (Shopee Cocoki) feature.	[3]
	HV2	I find Shopee Games (Shopee Cocoki) more enjoyable than other features on Tokopedia.	[3]
	HV3	I feel comfortable spending time using the Shopee Games (Shopee Cocoki) feature.	[3]
	HV4	I can forget about other problems while using Shopee Cocoki/Tata Paket.	[3]
Utilitarian Value	UV1	I find the Shopee Games (Shopee Cocoki) feature beneficial.	[3]
	UV2	I receive appropriate rewards when using Shopee Cocoki/Tata Paket.	[3]
	UV3	Using Shopee Games (Shopee Cocoki) does not feel like a waste of time.	[3]
	UV4	Compared to other features, Shopee Games (Shopee Cocoki) is more useful to me.	[6]
Satisfaction	SA1	Using Shopee Games (Shopee Cocoki) is a highly satisfying experience.	
	SA2	Using Shopee Games (Shopee Cocoki) gives me great pleasure.	
	SA3	After using Shopee Games (Shopee Cocoki) for some time, I remain satisfied with my decision to use it.	[6]
Loyalty	LOY1	After using Shopee Games (Shopee Cocoki), I consider the related app as my primary e-commerce platform.	[6]
	LOY2	After using Shopee Games (Shopee Cocoki), I share positive experiences about the app with others.	[20]
	LOY3	I find it difficult to change my opinion about the app after using Shopee Games (Shopee Cocoki).	[20]
	LOY4	Even if close friends recommend other e-commerce platforms, I would still choose this app after using Shopee Games (Shopee Cocoki).	[20]

C. Data Analysis

The model was tested using covariance-based structural equation modeling (CB-SEM) with SmartPLS 4. Before processing, the model and data were pre-analyzed. Model identification showed that df was positive, implying that the suggested model was overidentified and could be examined with CB-SEM [35]. To reduce bias in study results, assumption testing considered the account sample size, data normality, and outlier elimination [34]. Confirmatory factor analysis (CFA) was used to estimate the measurement model, ensuring the reliability and validity of the model and observed data. Furthermore, the structural model was analyzed to evaluate the relationships between variables in the proposed model. In order to support the statistical results, qualitative data analysis was carried out using the coding method to organize and interpret the content of the interview responses [30]. Data were collected through four open-ended questions presented in the fourth section of the questionnaire. The responses were then analyzed to identify recurring codes within each answer provided by the participants. The coding process began with an initial reading of

all responses to gain a general understanding of the content. This was followed by the identification of key themes and patterns, then meaningful units were assigned specific codes that represented the underlying concepts. The codes were then grouped into broader categories to reflect common themes. This method allowed for the extraction of nuanced insights that complemented the quantitative results, offering a richer understanding of participants' perspectives.

IV. RESULTS

The collected data were carefully prepared to ensure the reliability and validity of the analysis. A sufficient sample size of 200 data points was achieved, meeting the minimum requirement for representative results [34]. Before the analysis, the data were subjected to a thorough cleaning process, including the identification and removal of outliers using the Mahalanobis d-squared values, and a total of 46 data points were excluded. Subsequently, the data were found to be normally distributed both univariately and multivariately, enduring its suitability for the subsequent statistical analyses.

A. Measurement Model Test

The measurement model was assessed to examine the relationships between indicators and variables, including GA, HV, UV, SA, and LOY. Several stages of testing are carried out, such as indicator reliability, internal consistency reliability, convergent validity, and discriminant validity [36]. The factor loading values ranged from 0.717 to 0.817, exceeding the 0.70 threshold, thereby confirming good indicator reliability [36]. Composite reliability (CR) and Cronbach's alpha (CA) values are shown in Table 3, with both exceeding the 0.70 benchmark, showing strong internal consistency reliability [36]. All average variance extracted (AVE) values are in the range of 0.586 to 0.724, which shows good convergent validity [36].

TABLE 3
INDICATOR RELIABILITY, INTERNAL CONSISTENCY RELIABILITY, CONVERGENT VALIDITY

Variable	Items	Factor loadings	CA	CR	AVE
Gamification Affordance (GA)			0.840	0.837	0.637
	GA1	0.804			
	GA2	0.771			
	GA3	0.843			
	GA4	0.518			
Hedonic Value (HV)			0.847	0.843	0.586
	HV1	0.790			
	HV2	0.754			
	HV3	0.847			
	HV4	0.717			
Utilitarian Value (UV)			0.870	0.868	0.626
	UV1	0.850			
	UV2	0.791			
	UV3	0.760			
	UV4	0.801			
Satisfaction (SA)			0.887	0.888	0.724
	SA1	0.843			
	SA2	0.863			
	SA3	0.870			
Loyalty (LOY)			0.870	0.872	0.629
	LOY1	0.802			
	LOY2	0.814			
	LOY3	0.759			
	LOY4	0.830			

Discriminant validity was confirmed using the HTMT method, which compared the average correlation of indicators across variables with the correlation of those measuring the same variable. Table 4 shows that all HTMT values are below the maximum value of 0.90 [36], thereby supporting the adequacy of the measurement model.

The model's fit was evaluated using several indices, including the goodness of fit, shown in Table 5. The result showed an acceptable fit between the collected data and the study model: CMIN/df = 1.803, RMSEA = 0.060, SRMR = 0.035, GFI = 0.90, AGFI = 0.867, NFI = 0.927, TLI = 0.957, and CFI = 0.966. These indices suggest that the model is well-suited for structural analysis [37], [38].

TABLE 4
DISCRIMINANT VALIDITY

Variable	GA	HV	LOY	SA	UV
GA					
HV	0.898				
LOY	0.841	0.811			
SA	0.833	0.851	0.864		
UV	0.866	0.787	0.842	0.801	

TABLE 5
GOODNESS OF FIT

Fit Index	Criteria		Value	Remarks
	Good Fit	Acceptable Fit		
CMIN/df	$0 \leq \chi2/df \leq 2$	$2 < \chi2/df \leq 3$	2,004	Acceptable Fit
RMSEA	$0 \leq RMSEA \leq 0.05$	$0.05 < RMSEA \leq 0.08$	0,067	Acceptable Fit
SRMR	$0 \leq SRMR \leq 0.05$	$0.05 < SRMR \leq 0.10$	0,037	Good Fit
GFI	$0.95 \leq GFI \leq 1.00$	$0.90 \leq GFI < 0.95$	0,892	Poor Fit
AGFI	$0.90 \leq AGFI \leq 1.00$	$0.85 \leq AGFI \leq 0.90$	0,853	Acceptable Fit
NFI	$0.95 \leq NFI \leq 1.00$	$0.90 \leq NFI < 0.95$	0,916	Acceptable Fit
TLI	$0.97 \leq TLI \leq 1.00$	$0.95 \leq TLI < 0.97$	0,946	Acceptable Fit
CFI	$0.97 \leq CFI \leq 1.00$	$0.95 \leq CFI < 0.97c$	0,956	Good Fit

B. Structural Model Test

Path coefficients were tested using SmartPLS 4 to evaluate the structural model. Hypotheses were considered statistically significant at a 5% margin of error, requiring a p-value < 0.05 and a t-value > 1.96 [36]. The squared multiple correlation coefficient (R^2) was used to measure the effect size of the model. The R^2 value for HV was 0.782, suggesting that GA explained 78.2% of its variance. Similarly, GA explained 74.6% of the variance in UV, with an R^2 value of 0.746. Furthermore, the R^2 values for SA and LOY were 0.784 and 0.803, respectively, implying strong explanatory power for both variables.

Hypothesis testing result showed that GA was a significant predictor of HV (β = .884, t = 27.408, p < .000) and UV (β = .864, t = 26.712, p < .000), leading to the acceptance of H1 and H2. HV was also shown to be a significant predictor for SA (β = .566, t = 7.748, p < .000), and UV had a significant effect on SA (β = .374, t = 3.763, p < .000), hence H3 and H4 were accepted. Furthermore, UV (β = .461, t = 4.192, p < .000) and SA (β = .440, t = 2.855, p < .004) are significant predictors of LOY, but HV has no significant effect (β = .095, t = .745, p < .456). This result supported hypotheses H6 and H7, but not H5.

TABLE 6
HYPOTHESIS TEST RESULTS

Hypothesis	Relationship						Original sample	T statistics	P values	Results
H1	GA		>		HV		0.884	27.408	0.000	Accepted
H2	GA		>		UV		0.864	26.712	0.000	Accepted
H3	HV		>		SA		0.566	5.784	0.000	Accepted
H4	UV		>		SA		0.374	3.763	0.000	Accepted
H5	HV		>		LOY		0.095	0.745	0.456	Rejected
H6	UV		>		LOY		0.416	4.192	0.000	Accepted
H7	SA		>		LOY		0.440	2.855	0.004	Accepted
H8	GA	>	HV	>	SA		0.501	5.371	0.000	Accepted
H9	GA	>	UV	>	SA		0.323	3.757	0.000	Accepted
H10	GA	>	HV	>	LOY		0.084	0.737	0.461	Rejected
H11	GA	>	UV	>	LOY		0.360	4.040	0.000	Accepted
H12	HV	>	SA	>	LOY		0.249	2.279	0.023	Accepted
H13	UV	>	SA	>	LOY		0.165	2.439	0.015	Accepted
H14	GA	>	HV	>	SA	> LOY	0.220	2.235	0.026	Accepted
H15	GA	>	UV	>	SA	> LOY	0.142	2.460	0.014	Accepted

Indirect effects were tested to measure the mediation of HV, UV, and SA in connecting GA to LOY. The results showed that seven out of eight hypotheses were accepted. HV was able to mediate the relationship between GA and SA (β = .501, t = 5.371, p < .000), but not GA and LOY (β = .084, t = .737, p < .461), leading to the acceptance and rejection of H8 and H10, respectively. UV had a significant mediating ability in connecting GA and SA (β = .323, t = 3.757, p < .000) as well as GA and LOY (β = .360, t = 4.040, p < .000), supporting H9 and H11. Furthermore, SA proved to mediate the relationship between HV and LOY (β = .249, t = 2.279, p < .023) as well as UV and LOY (β = .165, t = 2.439, p < .015), supporting H12 and H13. The test result showed that GA affected LOY through mediation

by HV and SA (β = .220, t = 2.235, p < .026) as well as UV and SA (β = .142, t = 2.460, p < .014), supporting H14 and H15.

C. Qualitative Analysis

The analysis of interview responses provided additional insights into user behavior and preferences related to gamification. A total of 12, 8, and 6 distinct codes appeared for participants' desire to engage in gamification, user satisfaction, user loyalty, and expectations, respectively. Table 7 shows the detailed coding analysis, suggesting key themes that highlight the motivational factors behind users' engagement with e-commerce gamification features.

TABLE 7
QUALITATIVE ANALYSIS RESULTS

Factor	Code	N
User motivators in using gamification	Economic benefits offered	26
	Improved efficiency	2
	Skill development	2
	Entertainment and fun offered	12
	Challenge and achievement	16
	Distinctive appeal	2
	Attractive visual appearance	2
	Ease of use	1
	Leisure time filling	4
	Relaxation ability	2
	Social influence	10
	Advertising Exposure	2
Satisfaction	Economic benefits gained	17
	Entertainment and enjoyment gained	15
	Leisure time fulfillment	11
	Relaxation gained	4
	Effectiveness and efficiency	11
	Challenge and success	9
	Sharpening skills	3
Loyalty	Visual appeal and appearance	5
	Positive emotional feelings	18
	Economic benefits	34
	Challenge and achievement	8
	Ease of use	5
	Efficiency	2
	Attractiveness and uniqueness	6
User expectations for gamification	Decreased game difficulty	19
	Increased challenge	7
	Greater increase in benefits	16
	Technical improvements and added innovation	11

V. DISCUSSION

Several results were drawn from the outcomes of hypothesis testing. First, the acceptance of H1 and H2 was consistent with previous results [3], [6], [10], but diverged from other reports in distinct settings [13]. This discrepancy was attributed to different gamification settings and varying object focuses. Specifically, the results showed that task/quest-type gamification affordances significantly affected hedonic value, primarily due to the ability to provide entertainment and challenge [3], [6]. Meanwhile, the increase in utilitarian value arises from tangible rewards, such as physical prizes and incentives, which provide users with practical benefits [6]. The result was corroborated by the interview data, as users cited economic rewards, entertainment, enjoyment, challenge, and achievement as key motivators for engaging with gamification. Based on this result, the combination of entertainment, challenge, and tangible rewards in gamification enhanced both hedonic value and utilitarian value, though the degree of impact may vary depending on the user's focus.

H3 and H4 were also supported by the data, further showing the influence of both hedonic and utilitarian values on user satisfaction. Consistent with the CPV framework and previous studies [3], [6], [11], [24], the result confirmed that both hedonic and utilitarian values were direct predictors of satisfaction. These results were further supported by the interview responses, as participants reported high satisfaction levels, primarily due to the enjoyment and entertainment of gamification as well as the convenience and reward. Both emotional and practical experiences played an integral role in shaping user satisfaction with gamified e-commerce platforms. The synergy between enjoyment from game-like interactions and tangible rewards enhances perceived value, thereby driving higher satisfaction-an essential precursor to loyalty.

Despite the strong influence of both value types on satisfaction, the direct relationship between hedonic value and loyalty was not supported. This result suggested that Indonesian consumers tended to prioritize direct advantages, such as rewards or incentives, over-emotional fulfillment when interacting with gamification features [2], [3]. The interview data also showed that several users expressed difficulty in completing challenges, which led to frustration and affected the desire to continue using the gamification features [39]. This insight showed a significant challenge for companies using gamification, such as users must feel competent in completing tasks, as negative emotions arising from overly difficult challenges may diminish their loyalty. Therefore, companies needed to strike a balance between developing engaging gamification experiences and ensuring the experiences were not excessively complex or demanding.

The acceptance of H6 showed the relevance of utilitarian value as a significant driver of loyalty, consistent with previous studies [3], [10], [26]. Users in gamified e-commerce placed high importance on practical benefits, such as coins, vouchers, discounts, and other tangible prizes. These benefits provided consumers with immediate and measurable advantages, which encourages continuing involvement [3]. The interview results backed up this result, with many participants claiming to continually use e-commerce platforms primarily because of the rewards obtained through gamification. This shows that utilitarian rewards generate a positive feedback loop. The more practical benefits consumers receive, the more tendency to stay loyal to the platform.

The acceptance of H7 confirmed the well-known satisfaction-profit chain theory, stating that improved user contentment resulted in greater loyalty [12]. This result was consistent with the report of a previous study that found a substantial relationship between satisfaction and loyalty across multiple dimensions [20]. In general, gamification improves user satisfaction, particularly when it effectively combines utilitarian benefits and hedonic enjoyment. These satisfying experiences promote continued engagement with the platform. According to previous studies, customer satisfaction served as an important connection between gamification and loyalty [4], [13]. E-commerce platforms that succeed in providing a fun and rewarding experience tend to retain users over time.

The results for H8 and H9 showed that hedonic and utilitarian values strongly mediate the relationship between gamification affordance and satisfaction. Interview responses consistently emphasized entertainment and economic rewards as primary motivators, reinforcing the need for gamification designs that address both emotional engagement and partial benefits. The rejection of H10 implied that emotional delight was insufficient to directly build loyalty. Hedonic features may enhance satisfaction but do not directly influence loyalty significantly. In this environment, Indonesian consumers appear to prioritize real advantage over emotional fulfillment when making long-term loyalty decisions.

The results in H11 through H15 showed a layered relationship among gamification affordance, hedonic value, utilitarian value, satisfaction, and loyalty. H11 suggested that utilitarian value mediated the connection between gamification affordance and loyalty, showing the effect of practical benefits on loyalty when perceived by users. H12 and H13 showed that both values influence loyalty indirectly through satisfaction. This result was supported by the participant who mentioned that emotional enjoyment and tangible rewards contributed to satisfaction, thereby promoting prolonged platform usage. H14 and H15 further show that satisfaction acts as a crucial bridge through which gamification affordance fosters loyalty.

Based on the previous discussion, this study showed the importance of balanced gamification strategies that cater to both emotional and practical user needs. The result provided valuable implications for theory and practice in the context of Indonesian e-commerce. Furthermore, this study deepens the understanding of user engagement by confirming the influence of task/quest-type gamification on both hedonic and utilitarian value. For society, the results showed how gamified experiences could influence consumer behavior, building more dynamic and rewarding e-commerce environments. From a knowledge advancement standpoint, the results showed the role of cultural differences in shaping motivation, focusing on the preference for functional rewards over emotional incentives in certain contexts. The insights provided offer practical guidance for businesses and developers on developing balanced gamification strategies that prioritize both challenge and reward to nurture long-term users' loyalty.

The following limitations of this study showed opportunities for further investigation. Considering the limitation of participants that are dominated by the Z generation, future studies need to focus on other age groups with different behaviors. This study only considered loyalty along one dimension and could not tackle all aspects. Therefore, there was a need to investigate loyalty characteristics using more dimensions, such as cognitive, affective, conative, and action loyalty. Future studies could implement diverse gamification elements, such as points, leaderboards, and personalization, to examine how different features influence psychological and behavioral outcomes across various contexts.

VI. CONCLUSIONS

In conclusion, gamification affordance had the potential to improve user loyalty by enhancing utilitarian value and satisfaction. Hedonic value could increase satisfaction but had little direct impact on loyalty. Based on these results, the implementation of task/quest-type gamification affordance had a significant impact on the loyalty of Indonesian e-commerce app users. The result of this study opened up new options for e-commerce service providers looking to implement gamification tactics.

Service providers need to provide gamification that offered economic rewards and captured user attention. In addition, the gamification method must elicit positive emotional responses and motivate continued usage. Exciting events regarding gamification, such as a very large prize in a limited time, could also be implemented to increase awareness among users through social media. Some of these solutions were intended to boost satisfaction and loyalty to e-commerce. Service providers that implemented gamification as a marketing strategy evaluated its effectiveness by considering several key factors, including adjusting the level of difficulty and challenge variety, offering relevant and valuable prizes, as well as ensuring the application's technical reliability.

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