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# Enhancing user engagement and loyalty in online travel agents: a gamification approach

Online travel  
agents

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## Abstract

**Purpose** – This study aims to investigate the effects of gamification features on brand engagement dimensions in online travel agents (OTAs), specifically brand awareness and loyalty.

**Design/methodology/approach** – The proposed model is empirically evaluated through an online survey of 406 Indonesian OTA users. Partial least squares structural equation modeling analysis was used to assess the model.

**Findings** – The findings reveal that gamification boosts emotional and social brand engagement, while achievement improves cognitive brand engagement. Cognitive brand engagement only affects brand loyalty, excluding brand awareness; however, emotional and social brand engagement substantially impact brand awareness and loyalty.

**Originality/value** – This study addresses the gap in the limited empirical studies on gamification in the tourism and hospitality industries, with a particular focus on OTAs.

**Keywords** Gamification, Online travel agencies, Brand engagement, Brand awareness, Brand loyalty

**Paper type** Research paper

在在线旅行社中增强用户参与度和忠诚度：游戏化方法

## 摘要

**研究目的** – 本研究旨在调查游戏化特性对在线旅行社（OTAs）品牌参与维度，特别是品牌认知度和忠诚度的影响。

**研究方法** – 通过对406名印度尼西亚OTA用户的在线调查对所提出的模型进行了实证评估。采用偏最小二乘结构方程模型分析来评估模型。

**研究发现** – 研究结果表明，游戏化能够提升情感和社交品牌参与度，而成就感则提升了认知品牌参与度。认知品牌参与度仅影响品牌忠诚度，而不影响品牌认知度；然而，情感和社交品牌参与度对品牌认知度和忠诚度都有显著影响。

**研究创新** – 本研究填补了旅游和酒店行业中关于游戏化的实证研究的空白，特别是针对OTAs的研究。

**关键词**： 游戏化，在线旅行社，品牌参与，品牌认知度，品牌忠诚度

**文章类型** 研究型论文



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## Introduction

The rapid development of tourism products and technology-savvy consumers have transformed new experiences. One mature and developed technology embraced by the tourism industry is gamification (Silva *et al.*, 2023). Implementing gamification by online travel agents (OTAs) is an effective strategy to improve user experience (Shi *et al.*, 2022), brand awareness and consumer engagement (Garcia *et al.*, 2019). This innovation combines games and business to provide diverse and exciting experiences. It applies game principles to nongame tasks to motivate participants with rewards such as digital points or badges (Deterding *et al.*, 2011). However, persuasive technologies such as gamification can benefit and harm users (Thorpe and Roper, 2019). The Harvard Business Review states that a 5% increase in client attention increases revenue by 25%–30%, making 87% of retailers use a gamified system that boosts revenue, brand awareness and consumer loyalty (Tyagi and Singh, 2023). However, gamification may cause emotional and psychological problems and undesirable social consequences (Srivastava *et al.*, 2023). Empirical studies understand the nuances and trade-offs involved in using persuasive technology.

Studies have demonstrated that gamification is an effective strategy for enhancing consumer engagement and cultivating loyalty (Abou-Shouk and Soliman, 2021), fostering consumer loyalty by providing tangible and intangible benefits (Chen *et al.*, 2021). Many OTAs (Shi *et al.*, 2022) or platforms, such as TripAdvisor and Airbnb (Liang *et al.*, 2017) have used gamification. They offer advantages, such as incentives (Shi *et al.*, 2022), discounts or self-expression, competition and emotional values, such as enjoyment and excitement (Talwar *et al.*, 2020). However, despite the advantages, concerns have been raised regarding their efficacy owing to low client participation rates (Meyer-Waarden *et al.*, 2023).

The continuation intention of gamification (Yang *et al.*, 2017) and users' behavioral choices to try new gamified applications in tourism and hospitality remain under research. Gamification is an important marketing strategy in Indonesia. An InMobi report published between January 2020 and January 2021 showed that 80% of Indonesian respondents were highly engaged players. Of the 1,000 respondents, 29% played games for up to 30 min at a time (Irawan, 2022), making gamification schemes well-developed in Indonesia. As calculated in December 2022, 63.1% of Indonesian respondents were familiar with Traveloka, followed by Tiket.com (40.4%), Pegipegi.com (15.4%), Agoda (12.4%), Booking.com (11.9%) and Expedia (2.1%) (Statista, 2023). The gamification features enable users to gain a deeper understanding of products and services and encourage them to spend more time, making the experience enjoyable. This innovation has received positive feedback from users, a 60% increase in longer app usage, and a 15% increase in daily user growth (Irawan, 2022). This data indicates the Indonesian market's enthusiasm for OTA-gamified systems. Therefore, exploring the relationships among gamification, brand engagement and equity using gamified apps is necessary. Despite previous research that has explored online brand communities (Xi and Hamari, 2020), this study focuses specifically on OTAs. It contributes to tourism literature by providing empirical studies with limited investigation (Shi *et al.*, 2022). In addition, this study expands retail and marketing literature by considering the increasing adoption of gamification in tourism business marketing strategies (Yang *et al.*, 2017).

## Literature review

### *Gamification in online travel agencies*

OTAs have substantially changed the tourism and hospitality industries (Chang *et al.*, 2019). OTAs rely on innovative tools, and gamification is recognized as a powerful marketing tool (Pradhan *et al.*, 2023). Gamification adopts game design in a nongaming

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context (Deterding *et al.*, 2011), with rewards and challenges as popular mechanisms, points, badges and leaderboards as the most tested gamification features (Tobon *et al.*, 2020). The gamification design approach yields positive game-like experiences stimulating participation motives and affects user behavior (Sailer *et al.*, 2017). The tourism literature examines how antecedents affect the adoption of gamified schemes and tactics by measuring brand engagement and loyalty (Pradhan *et al.*, 2023). Accordingly, gamified systems have been extensively studied in tourism and hospitality businesses to improve awareness, user engagement and loyalty (Xu *et al.*, 2017). However, studies of OTAs gamification are limited.

Table 1 shows the top five Indonesian OTAs gamified app mechanisms, motivations and components applied, such as point range, badge set, forums, scorecard, status and playing tasks. Studies have shown that game elements, with substantial evidence, gamification components fulfill fundamental psychological needs for competence, autonomy and relatedness (Alsawaier, 2018), comprising intrinsic and extrinsic motivations that drive behavior and decision-making. Nicholson (2015) found that badge-earners felt satisfied when their status was announced in a gamified setting. Gamification builds a player's social reputation in a game (Richter *et al.*, 2015). Subsequently, points hold a prominent position (Alsawaier, 2018) as they are considered essential elements by users. These concepts improve user experience and foster relationships with OTAs (Eppmann *et al.*, 2018); gamification elements increase consumer engagement by providing potential benefits to purchase (Eisingerich *et al.*, 2019). In addition, gamified experiences allow people to socialize and enable fun experiences (Xu *et al.*, 2017). They engage players, maximize their cocreation value and change their purchase and loyalty behaviors (Xu *et al.*, 2017).

Xi and Hamari (2020) characterized gamification as immersion, achievement and social. Immersion is the attention devoted to an activity while ignoring other demands (Lee, 2023). This concept applies to the game's virtual environment through interaction and the capacity to engage. Several examples show how gamification engages and encompasses narratives,

The gamification of website/mobile apps	Gamification features	Motivational affordances experiential benefits/values
Upload a (hotel, restaurant, city, attraction) review, photo and/or video	Gain/add a "point" badges	Competence (advancement and mechanics for improving status)
Participate in online forums	Forums/groups and messaging (score)	Competence (achievement, competition), relatedness, socializing, relationships
Upload a useful and reliable review, because other users can: rate the quality of your reviews; vote if the review is helpful; and give you a compliment	Social points community rating gifting items to others	Competence (achievement, competition)
Provide personal information to get personalized travel content and notifications	Notification control	Autonomy
Send a message to another user (C2C interactions enabling the provision of travel advice amongst users)	Messages, chat	Relatedness, socializing, relationships
Add content and interact with others online to allow the user to enrich his/her travel experience and knowledge	Leader board - Scorecard, Status, progression	Competence (achievement, competition, mechanics for improving status)

**Source:** Table adapted from Sigala (2015) with data adjusted from Traveloka, Tiket.com, Agoda, Pegi pegipegi.com, Booking.com, Expedia websites and mobile applications

**Table 1.**  
Play tasks, game mechanics, motivational affordances and experiential values of the OTA's gamified business model



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challenges and social factors that collectively trigger emotional reactions (Goethe, 2019). Avatars and role-play techniques immerse users in self-directed exploration (Xi and Hamari, 2020), allowing them meaningful experiences and consistency. Given that producing an immersive experience is a continuous process that necessitates consistent time to attain an immersed state, player involvement acts as an “entryway” for users to get immersed in a game (Tsou and Putra, 2023) that leads to users’ intention to continue or discontinue using the gaming app (Balapour *et al.*, 2023). When immersed, users engage in close relationships, thus encouraging positive behavioral intentions, such as emotional, cognitive and social engagement (Xi and Hamari, 2019). Therefore, this study hypothesized the following:

H1a. Immersion positively impacts emotional brand engagement.

H1b. Immersion positively impacts cognitive brand engagement.

H1c. Immersion positively impacts social brand engagement.

Achievement-related features, such as badges, leaderboards and progression metrics, are used to retain users and boost brand engagement and loyalty (Hamari and Tuunanen, 2014; Xi and Hamari, 2020). This affordance allows players to gain prizes and feel accomplished with game tasks (Shen *et al.*, 2020) and value it if they receive rewards such as incentives and vouchers (Shi *et al.*, 2022). Prior studies have found that gamification psychologically increases brand engagement (Berger *et al.*, 2018). Therefore, this study explores whether applying achievement in gamification can foster brand engagement that benefits OTAs according to the following hypotheses:

H2a. Achievement positively impacts emotional brand engagement.

H2b. Achievement positively impacts cognitive brand engagement.

H2c. Achievement positively impacts social brand engagement.

Social interaction in gamification helps users interact (Jang *et al.*, 2018). Social worth raises status, forges bonds and promotes consensus (Sweeney and Soutar, 2001). Gamification allows users to socialize as a team or compete in gameplay (Hamari and Tuunanen, 2014). Marketing ad campaigns motivate OTA gamers and peer participation (Zhao *et al.*, 2019). OTAs’ ability to create relationships and exchange gaming experiences creates social value. Shared experiences can affect emotional, social and cognitive engagement due to enhanced sociability among like-minded people and groups (Chiu *et al.*, 2006). Thus, we hypothesized:

H3a. Social positively impacts emotional brand engagement.

H3b. Social positively impacts social brand engagement.

H3c. Social positively impacts cognitive brand engagement.

### Brand engagement

Gamification may increase engagement (Hollebeek *et al.*, 2017) when consumers engage in brand-related cognitive (thoughts), emotional (affective) and behavioral (action) activities (Hollebeek *et al.*, 2014). This gamified scheme helps the company increase user engagement through social interaction and reward accumulation aimed at behavioral change (Robson *et al.*, 2016), helping marketing campaigns improve user and stakeholder engagement (Hsu and Chen, 2018; Jang *et al.*, 2018). Emotional brand engagement entails deep and affective

bonds between consumers and brands (Dwivedi, 2015). This dimension addresses marketing strategies by seeking emotional relationships with a brand. Tourism researchers and practitioners have identified users' brand loyalty and awareness as brand equity components (Huerta-Álvarez *et al.*, 2020). A study found that engaged users are more satisfied, leading to increased awareness and loyalty, whereas brand awareness is the ability to recognize and recall a brand as a product category member, brand loyalty is the commitment to a brand (Weiger *et al.*, 2017). According to the related literature, gamified OTAs generate fun and amusement, sources of emotional value (Shi *et al.*, 2022) that enhance their engagement qualities and positively impact brand equity (Xi and Hamari, 2020). Thus, this study proposes the following hypothesis:

*H4a.* Emotional brand engagement positively impacts brand awareness.

*H4b.* Emotional brand engagement positively impacts brand loyalty.

Cognitive brand engagement is how consumers subconsciously concentrate brand information on rational attachment and decision-making processes (Dwivedi, 2015; Hollebeek, 2011), assimilating knowledge and equity (Matthews *et al.*, 2014). Shen *et al.* (2020) described the first gamification adopters as knowledge collectors who explored tourist attractions using gamified travel. For example, destination marketing organizations usually use gamification to increase tourism knowledge and improve tourist brand awareness (Xi and Hamari, 2019). Prior research in tourism found a relationship between cognitive engagement and brand loyalty (Ahn and Back, 2018; Harrigan *et al.*, 2017). In addition, Leckie *et al.* (2016) emphasized that when consumers devote their cognitive ability toward a particular brand, they develop loyalty. Hence, this study hypothesized the following:

*H5a.* Cognitive brand engagement positively impacts brand awareness.

*H5b.* Cognitive brand engagement positively impacts brand loyalty.

Social brand engagement is the meaningful connection, creation and conversation among customers using brands that expand and refocus on word-of-mouth (Kozinets, 2014). Social brand engagement positively impacts user awareness (Godey *et al.*, 2016) and loyalty toward the targeted brand (Dwivedi, 2015). Social connections with other users boost awareness and loyalty because brand equity increases when individuals openly share a brand with other consumers (Hutter *et al.*, 2013). Social interaction with a service significantly enhances user loyalty concerns (Jang *et al.*, 2018). Thus, the following possibilities are proposed.

*H6a.* Social brand engagement positively impacts brand awareness.

*H6b.* Social brand engagement positively impacts brand loyalty.

## Research methodology

This study uses a sample of 406 Indonesian OTA consumers who used the top five OTAs. The data were gathered via an online survey conducted using Google Forms, using snowball sampling to ensure the inclusion of hard-to-reach populations (Raifman *et al.*, 2022) and to achieve saturation efficiently in the first and second quarters of 2023. A pilot test was conducted in Indonesia with 30 hospitality students in Bahasa (native language). To ensure the semantic consistency of meaning, as native speakers, the authors used back-translation approaches to translate the survey from English to Bahasa before translating it back into English (Behr, 2017). We initially distributed a one-time login link via WhatsApp to more

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than five representatives of each generation within the academic community. However, due to the difficulty in accessing certain consumer segments, the researchers encouraged the initial respondents to forward the link to other potential participants who possessed extensive knowledge and actively used gamification in OTAs.

Respondents were informed that information would only be used for data analysis and that it was confidential. The questionnaire uses a five-Likert scale from 1 ("strongly disagree") to 5 ("strongly agree"). It was divided into three sections. The initial question was about their experience using gamification in OTAs to screen the respondents. Subsequently, the demographic and behavioral test comprised five questions, whereas the research framework comprised 37 questions and ensured a credential link to manage one-time participation. Table 2 shows that all the respondents were OTA users from the top five ranks in Indonesia. Subsequently, their involvement in OTA was examined. Over 50% of the respondents were male, with Gen Z accounting for 63.79%, followed by approximately one-third of Gen Y.

Reading travel reviews on OTAs had the highest average of 3.32 compared to other behaviors. Subsequently, respondents mostly played games on OTA apps before purchasing (45.32%). Respondents' motivations to play games on OTA apps were to gather information (33.74%), earn points or rewards (25.12%) and obtain discounts (17.49%), as depicted in descriptive behavioral (Table 3).

Variables	Frequency	%
<i>Gender</i>		
Male	216	53.20
Female	182	44.83
Prefer not to say	6	1.48
<i>Age</i>		
18–26 years old (Gen Z)	259	63.79
27–40 years old (Gen Y)	118	29.06
41–56 years old (Gen X)	23	5.66
Above 57 years old (Gen baby boomers)	6	1.48
<i>Education</i>		
High school	106	26.10
Bachelor's degree	117	28.81
Studying at the graduate level	171	42.11
Master's degree and above	12	2.95
<i>Occupation</i>		
Student	233	57.39
Paid-employed	78	19.21
Self-employed	54	13.30
Unemployed	22	5.41
Others	19	4.68
<i>Monthly expenses</i>		
< IDR 500.000	91	22.41
< IDR 500.001–IDR 1.000.000	89	21.92
< IDR 1.000.001–IDR 2.000.000	65	16.01
< IDR 2.000.001–IDR 3.000.000	67	16.50
> IDR 3.000.001	94	23.16

**Table 2.**Demographic profiles **Source:** Authors' own creation

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Variable	Frequencies	%
<i>Have you tried the game in online travel agencies?</i>		
Yes	406	100
No	0	—
<i>Choose the TOP 3 OTA that you experience with</i>		
Traveloka	373	91.87
Tiket.com	308	75.86
Agoda	185	45.57
Booking.com	148	36.45
Expedia	26	6.40
<i>Which one that you involved in the most?</i>		
Traveloka	304	74.88
Tiket.com	66	16.26
Agoda	15	3.69
Booking.com	16	3.94
Expedia	5	1.23
<i>Time spent per week</i>		
Less than 15 min	171	42.12
15–30 min	87	21.43
30–45 min	55	13.55
45–60 min	24	5.91
1–3 h	34	8.37
3–6 h	18	4.43
6–9 h	12	2.95
9–12 h	5	1.23
How often do you contribute content (e.g. reviews, videos, photos) on OTA?		2.77
How often do you evaluate others' content (e.g. rate reviews, give compliments for reviews) on OTA?		3.00
How often do you interact with others (e.g. send messages, post in forums) on OTA?		2.75
How often do you browse the travel map of others on OTA?		3.13
How often do you read others' travel reviews on OTA?		3.32
<i>I play a game on the OTA website/mobile apps:</i>		
Before carrying out the trip	41	10.10
During the trip	32	7.88
After returning from the trip	14	3.44
Before purchasing	184	45.32
During purchasing	56	13.79
After purchasing	79	19.46
<i>I play a game on the OTA apps/website to</i>		
Earn points/ rewards	102	25.12
Enhance my travel and fun experience	7	1.72
Explore trips/destinations	66	16.26
Express opinion	4	0.98
Gather information	137	33.74
Get discounts	71	17.49
Get extra free services during the trip	12	2.95
Recommend the trip/website to peers	5	1.23
Share reviews/news with peers	2	0.49

Source: Table adapted from Sigala (2015)

**Table 3.**  
Descriptive  
behavioral

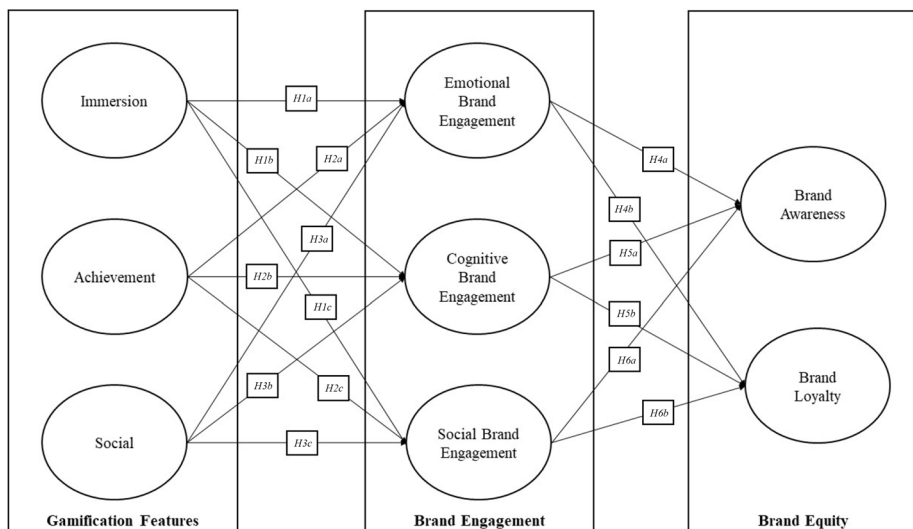
## Data analysis and results

This study used a partial least squares (PLS) component-based structural equation model (SEM). PLS's use of regressions can increase statistical power, even with small sample sizes (Reinartz *et al.*, 2009). PLS minimizes measurement scales, sample sizes and residual distributions (Pavlou and Fygenon, 2006). It also allows researchers to handle multicollinearity and work with nominal, ordinal and continuous data (Pirouz, 2006). SmartPLS 4.0 was used. PLS assessed the study framework in two stages. It initially investigated the indicator's validity, reliability and internal consistency of the indicators in the measurement model (convergent and discriminant validity). Then, it examined the structural model and hypotheses (Figure 1).

Table 4 presents the measured variables to establish the validity of the survey scale; all survey indicators were derived from prior studies.

Table 5 lists the instruments used in this study. For indication reliability, the outer loadings should be more than 0.70 (Ab Hamid *et al.*, 2017). They fulfilled the requirements of the gamification, brand engagement and brand equity constructs. Confirmatory factor analysis (CFA) evaluated the reliability, convergent validity and discriminant validity of the reflected components. Convergent validity was assessed using average variance extracted (AVE), composite reliability (CR) and Cronbach's alpha. First, this analysis found that all loaded items satisfied the criteria. All variables' Cronbach's alpha and AVEs were above 0.5 (Fornell and Larcker, 1981). Table 5 shows that the composite reliability (CR) values range from 0.900 to 0.948, more significant than 0.7 (Fornell and Larcker, 1981).

Table 6 demonstrates that discriminant validity requires no construct intercorrelation to exceed the square root of either construct's AVE. Each correlation is 0.01 significant. Each construct's AVE index exceeded the squared inner construct correlations. Table 6 shows that discriminant validity fulfilled the criteria, and the eight multiitem measures met the requirements for discriminant validity.



**Figure 1.**  
The research  
framework and  
hypothesis

**Source:** Xi and Hamari (2020)

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Variable	Indicator	Items	References
7	Immersion	IMM01 The frequency of interacting with avatar/virtual identity/profile	Xi and Hamari (2020)
		IMM02 The frequency of interacting with customization/personalization	
		IMM03 The frequency of interacting with the narrative/story	
	Achievement-related features	ACV01 The frequency of interacting with badges/medals/trophies	
		ACV02 The frequency of interacting with virtual currency/coins	
		ACV03 The frequency of interacting with points/scores/experience points	
		ACV04 The frequency of interacting with status bars/progress bars	
18		ACV05 The frequency of interacting with avatar/virtual identity/profile levels	Xi and Hamari (2020)
		ACV06 The frequency of interacting with leaderboards/rankings/high score lists	
		ACV07 The frequency of interacting with increasingly difficult tasks	
	Social-related features	SOC01 The frequency of interactions with competition	
2		SOC02 The frequency of interacting with the team/cooperation	Vivek (2009), Vivek et al. (2014) and So et al. (2014)
		SOC03 The frequency of interacting with social networking features	
	Emotional dimension	BEED01 I feel excited about this brand	
		BEED02 I am heavily into this brand	
		BEED03 I am passionate about this brand	
		BEED04 I am enthusiastic about this brand	Vivek (2009), Vivek et al. (2014) and So et al. (2016)
		BEED05 I love this brand	
	Cognitive dimension	BECD01 I like to learn more about this brand	
		BECD02 I pay a lot of attention to anything about this brand	
		BECD03 Anything related to this brand grabs my attention	
		BECD04 I think about the brand a lot	Vivek (2009), Vivek et al. (2014) and So et al. (2014)
	Social dimension	BESD01 I love talking and using products of the brand with my friends	
		BESD02 I enjoy talking and using products of the brand more when I am with others	
		BESD03 Talking and using products of the brand are more fun when other people around me do it too	
		BESD04 I feel good about sharing my experiences with the products of the brand with others	
		BESD05 I feel fellowship with other people who use the products of the brand	
		BESD06 I like recommending the products of the brand to others	Chaudhuri and Holbrook (2001), Washburn and Plank (2002), Yoo and Donthu, (2001)
	Brand loyalty	BL01 I will not buy from another online travel agent if my favourite OTA is not available	
		BL02 I am committed to this online travel agent	
		BL03 I will likely buy this online travel agent the next time I buy	
		BL04 I would be willing to pay a higher price for this brand over other online travel agents (assuming the products were otherwise similar in features)	Chaudhuri and Holbrook (2001), Washburn and Plank (2002), Yoo and Donthu, (2001)
	Brand awareness	BA01 I am very familiar with this brand	
		BA02 I can recognize the brand among other competing brands	
		BA03 Some characteristics of the brand come to my mind quickly if I think about the brand	
		BA04 I can quickly recall the symbol or logo of this brand	
		BA05 It is not very difficult for me to imagine this brand	

Source: Authors' own creation

**Table 4.**  
Variables and items

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Variable	Indicator	Outer loading	Composite reliability	AVE	Cronbach's $\alpha$
Immersion	IMM01	0.835	0.900	0.751	0.835
	IMM02	0.887			
	IMM03	0.876			
Interaction with achievement-related features	ACV01	0.812	0.941	0.927	0.696
	ACV02	0.863			
	ACV03	0.849			
	ACV04	0.847			
	ACV05	0.838			
	ACV06	0.825			
	ACV07	0.804			
Interaction with social-related features	SOC01	0.900	0.926	0.807	0.881
	SOC02	0.902			
	SOC03	0.894			
Emotional dimension	BEED01	0.863	0.946	0.776	0.928
	BEED02	0.882			
	BEED03	0.886			
	BEED04	0.895			
	BEED05	0.879			
Cognitive dimension	BECD01	0.887	0.947	0.816	0.925
	BECD02	0.901			
	BECD03	0.925			
	BECD04	0.900			
Social dimension	BESD01	0.847	0.948	0.753	0.934
	BESD02	0.885			
	BESD03	0.860			
	BESD04	0.879			
	BESD05	0.879			
	BESD06	0.857			
Brand loyalty	BL01	0.851	0.917	0.734	0.879
	BL02	0.879			
	BL03	0.860			
	BL04	0.836			
Brand awareness	BA01	0.884	0.946	0.778	0.929
	BA02	0.888			
	BA03	0.897			
	BA04	0.856			
	BA05	0.884			

**Table 5.**

Descriptive analysis **Source:** Authors' own creation

### Structural model analysis

The path coefficients for the model were tested using the newest version of the Smart-PLS. Table 7 displays the results and denotes an acceptable measurement model. The analysis revealed that  $H1a$  ( $\beta = 0.146$ ,  $t$ -values = 2.137) and  $H1c$  ( $\beta = 0.170$ ,  $t$ -values = 2.427) significantly impacted the hypothesis, except for  $H1b$  ( $\beta = 0.095$ ,  $t$ -values = 1.262) which had no significant impact. This finding indicates that gamification immersion positively affects emotional and social brand engagement. Conversely, immersion negatively affected cognitive brand engagement. Meanwhile,  $H2a$  ( $\beta = 0.469$ ,  $t$ -values = 5.919),  $H2b$  ( $\beta = 0.529$ ,  $t$ -values = 6.129),  $H2c$  ( $\beta = -0.443$ ,  $t$ -values = 5.739) significantly impacted the hypothesis. As predicted, a positive relationship exists between gamification achievement and emotional, cognitive and social brand engagement. Moreover,  $H3a$  ( $\beta = 0.176$ ,  $t$ -values =



2.396) and  $H3c$  ( $\beta = 0.203$ ,  $t$ -values = 2.902) significantly impacted the hypothesis, while  $H3b$  ( $\beta = 0.148$ ,  $t$ -values = 1.844) insignificantly impacted. This indicates that social gamification positively impacts emotional and social brand engagement but is not associated with cognitive brand engagement.

Furthermore,  $H4a$  ( $\beta = 0.341$ ,  $t$ -values = 4.228) and  $H4b$  ( $\beta = 0.332$ ,  $t$ -values = 5.499) significantly impacted the hypotheses. Thus, emotional brand engagement significantly affects brand awareness and loyalty. In addition,  $H5a$  ( $\beta = 0.067$ ,  $t$ -values = 0.851) had no significant impact on the hypothesis, while  $H5b$  ( $\beta = 0.215$ ,  $t$ -values = 3.179) significantly impacted the hypothesis. Ultimately, cognitive brand engagement significantly affects brand loyalty but is unrelated to brand awareness. Finally,  $H6a$  ( $\beta = 0.494$ ,  $t$ -values = 5.416) and  $H6b$  ( $\beta = 0.370$ ,  $t$ -values = 6.311) significantly impacted the hypotheses. Social brand engagement significantly affected brand awareness and loyalty.

Regarding the variance explained by the model, the analysis indicated that 76.7% ( $R^2 = 0.767$ ) of the variance of brand awareness, 55% ( $R^2 = 0.550$ ) of cognitive brand engagement, 56.8% ( $R^2 = 0.568$ ) of emotional brand engagement, 58.5% ( $R^2 = 0.585$ ) of social brand engagement and 77.6% ( $R^2 = 0.776$ ) of the brand loyalty. Given the variance, the dependent variables that explain the gamification dimensions contribute significantly to brand engagement. Similarly, brand engagement influences brand equity variability substantially. Figure 2 presents the analysis of the structural model.

## Discussion and conclusion

Gamification is a behavioral change associated with loyalty programs, which are more attractive than nongamified ones (Bravo *et al.*, 2023). This study shows that gamification immersion and social aspects enhance emotional and social brand engagement, except for cognitive engagement, whereas achievement increases emotional and social brand engagement. These results are dissimilar to those of Xi and Hamari (2020), who reported that social gamification features significantly impact cognition. Moreover, achievement increases cognitive brand engagement, whereas immersion and socializing increase brand engagement. This could be because achievement features such as rewards or points demonstrate brand knowledge and immersive elements such as avatars or virtual profiles allow users to socialize. These features foster active user engagement and facilitate information exchange among OTA users through open activities (Hwang and Choi, 2020; Yang *et al.*, 2017). Among the three dimensions of brand engagement, cognition alone did not significantly affect brand awareness. This result contradicts previous studies (Abou-Shouk and Soliman, 2021; Xi and Hamari, 2020) that reported that the higher engagement in

Variable	ACV	BA	BECD	BEED	IMM	BL	SOC	BESD
Achievement	<i>0.834</i>							
Awareness	0.675	<i>0.882</i>						
Cognitive	0.726	0.801	<i>0.903</i>					
Emotional	0.730	0.827	0.880	<i>0.881</i>				
Immersion	0.778	0.594	0.614	0.640	<i>0.867</i>			
Loyalty	0.685	0.841	0.832	0.841	0.610	<i>0.857</i>		
Social	0.836	0.637	0.659	0.675	0.730	0.636	<i>0.899</i>	
Social engagement	0.745	0.848	0.868	0.864	0.663	0.845	0.698	<i>0.878</i>

Note: \*Diagonal elements (Italic) show the square root of the average variance extracted (AVE)

Source: Authors' own creation

Table 6.  
Discriminant validity

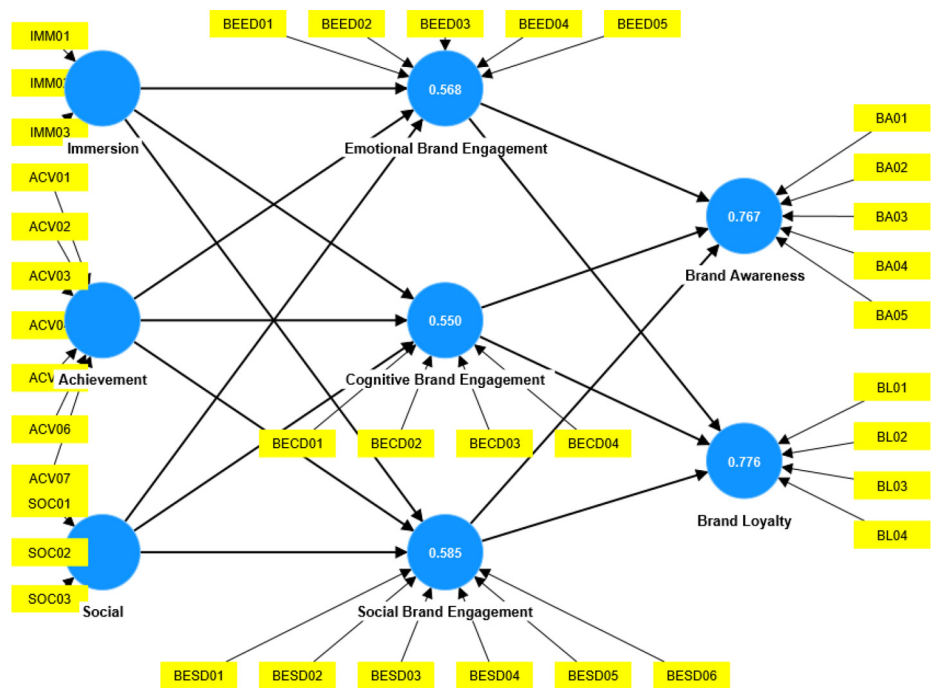


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H	Path	Original sample	SD	t-value	p-values	Result
H1a	Immersion → emotional	0.146	0.069	2.137	0.033	Accepted
H1b	Immersion → cognitive	0.095	0.075	1.262	0.207	Rejected
H1c	Immersion → social engagement	0.170	0.070	2.427	0.015	Accepted
H2a	Achievement → emotional	0.469	0.079	5.919	0.000	Accepted
H2b	Achievement → cognitive	0.529	0.086	6.129	0.000	Accepted
H2c	Achievement → social engagement	0.443	0.077	5.739	0.000	Accepted
H3a	Social → emotional	0.176	0.074	2.396	0.017	Accepted
H3b	Social → cognitive	0.148	0.080	1.844	0.065	Rejected
H3c	Social → social engagement	0.203	0.070	2.902	0.004	Accepted
H4a	Emotional → awareness	0.341	0.081	4.228	0.000	Accepted
H4b	Emotional → loyalty	0.332	0.060	5.499	0.000	Accepted
H5a	Cognitive → awareness	0.067	0.079	0.851	0.395	Rejected
H5b	Cognitive → loyalty	0.215	0.068	3.179	0.001	Accepted
H6a	Social engagement → awareness	0.494	0.091	5.416	0.000	Accepted
H6b	Social engagement → loyalty	0.370	0.059	6.311	0.000	Accepted

**Table 7.**  
Path coefficient  
(structural equation  
model results)

Source: Authors' own creation



**Figure 2.**  
Bootstrapping  
analysis with Smart  
PLS 4.0

Source: Authors own creation

product knowledge, the higher the brand's awareness. A plausible reason for this is that although cognitive brand engagement improves brand-related knowledge, it may be insufficient to increase overall visibility and brand recognition. Cognitive brand engagement pertains to internal cognitive processes instead of the external perceptual and memory-

related facets of brand awareness. The three dimensions of brand engagement significantly impact brand loyalty, supporting previous studies conducted on tourism (Yang *et al.*, 2017) and hotels (So *et al.*, 2016). These findings align with those of Hwang and Choi (2020), who found that adopting gamification positively influenced user loyalty. The empirical evidence supports the notion that gamification is a stimulus for engagement. Consequently, engagement enhances awareness and loyalty. In addition, most respondents referred to Gen-Z as a smart tech-driven generation (Hinduan *et al.*, 2020), having an intrinsic passion for digital technology to enjoy, explore and deal-hunt (Agrawal, 2022), in contrast to older generations who demand easy-to-use apps (Hua *et al.*, 2021). The disparity in technology preferences between generations emphasizes the need for OTAs to customize their gamification methods to capture consumers of various age demographics effectively, which could be a potential market segmentation for OTAs.

### Theoretical and practical implications

#### *Theoretical implication*

This study makes critical contributions to related fields. First, it responds to limited empirical gamification studies (Xu *et al.*, 2017). Several studies have investigated the potential benefits of gamification and its impact on user behavior in the tourism context (Shi *et al.*, 2022; Abou-Shouk and Soliman, 2021). However, few have analyzed specific features such as the immersion, achievement and social dimensions of popular OTAs that psychologically leverage gamification features. Using the framework of Xi and Hamari (2020), originally applied in a non-tourism context, this study uncovered the empirical relationship between technological innovation, considered a kind of entertainment (Yilmaz and Coşkun, 2016), e-commerce and consumer behavior, resulting in distinct results and comparable knowledge.

Second, the empirical evidence supports a gamified system that stimulates engagement, enhancing awareness and loyalty. The immersion correlates with emotional brand engagement, whereas a previous study found no significant association between them (Xi and Hamari, 2020). Hence, this study's findings contribute to the body of knowledge on e-commerce in tourism and hospitality. Finally, it enhances the academic knowledge of major trends in technology applications (Lee, 2023) and marketing by providing a holistic perspective on how gamification might be used for cocreation, integrating psychological and business aspects. This study investigates the potential applications, benefits and challenges of gamification. It reveals the hypothetical effectiveness of gamification on engagement, loyalty and underlying dynamism.

#### *Practical implication*

The findings revealed that gamification allows OTAs to distinguish themselves from traditional reward programs while providing users with more enjoyable and engaging experiences. Regarding gamification features, immersion and social factors do not significantly affect cognitive brand engagement. Thus, OTA gamification designers must consider educational quizzes or challenges to help users learn more about products, be explicitly exposed to their game content, socialize and engage. This can vary through content, such as cultural knowledge, sharing travel tips, discovering unique locales and buying experiences or opinions on OTA-related activities (Yang *et al.*, 2022). Integrating informative materials and creating open forums with gamified content may foster cognitive engagement. Such activities allow OTAs to establish long-term customer connections, develop attachments and enhance brand engagement (Zhang and Luo, 2016).

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Achievement features motivate users by providing challenging situations and enjoyment toward achieving objectives. This study found that achievement significantly affected all dimensions of brand engagement. Thus, OTAs must customize their gaming experiences by completing specific activities and challenging users through related product brands. Digital badges influence motivation as they provide status and indicate achievement levels. Adding game rewards, such as virtual currency, in exchange for travel benefits, including upgrades, discounts, early access to promotions and unique badges that show off achievements and status, can lead to advantages.

Consequently, social features can incorporate interactive features such as multiplayer or collaborative gameplay, emphasizing collective interpersonal experiences. By enriching virtual social interactions, OTAs may consider establishing competitive leaderboards that foster social comparisons and provide user-generated content and online forums. Hence, OTAs must embrace a forward-thinking approach focusing on users' social behaviors to ensure enduring prosperity and establish sustainable marketing strategies. One primary obstacle encountered is the identification and analysis of consumer behavior patterns, which can be tackled using gamification to develop recurring behavioral patterns by leveraging technological advancements. OTAs and destination managers can create enjoyable, engaging and effective marketing experiences that drive brand engagement and equity by incorporating immersive, achievement-driven, social and personalized gamification features.

### Limitations and future study

The result remains limited, and theorists have called for new approaches to explore the unique features of gamification on OTA platforms (Shen et al., 2020). Future studies should consider qualitative approaches to leverage a deeper understanding of the elements potentially boosting OTA's gamified features. Subsequent investigations could use alternative constructs to examine the conceptual framework and the relative influence of market segmentation. Moreover, the scope of this study was confined to a specific set of OTAs in Indonesia; therefore, the generalizability of the findings may be irrelevant. In addition, online surveys and snowball sampling have had a restricted impact on certain generations, especially baby boomers. Future studies could explore the effectiveness of gamification for older generations, such as Gen Y, as marketers view them as holy grails based on their size and purchasing power (Durvasula and Lysonski, 2008). Additionally, considering the numerous factors that can affect brand engagement and equity, including intrinsic and extrinsic motivational affordances, is essential.

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agents

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