

# Game on: Exploring the impact of gamified features on travel app continuance intention



Navjit Kaur<sup>a</sup> | Mohit Jamwal<sup>b</sup>   | Pritpal Singh<sup>c</sup> | Avinash Rana<sup>d</sup> 

<sup>a</sup>Department of Commerce, Mittal School of Business, Lovely Professional University, Phagwara, India.

<sup>b</sup>Chitkara Business School, Chitkara University, Rajpura, India.

<sup>c</sup>Mittal School of Business, Lovely Professional University, Phagwara, India.

<sup>d</sup>CMS Business School, Jain Deemed to be University, Bengaluru, Karnataka, India.

**Abstract** Despite an increase in the inclusion of gamified features backed by new age technologies in travel mobile applications by firms, there is a scarcity of literature examining their role in elucidating the user's intention to continue using the application. In order to answer this research query, a survey of travel app users is conducted wherein the effect of gamified features on user app engagement and continuance intention is assessed. The data from 287 users of a gamified mobile booking app were collected and analyzed by Structural equation modeling using SPSS AMOS 24. Results found gamified features like rewards, interactivity, aesthetics, and novelty in mobile travel applications have a direct impact on user engagement. Additionally, the relationship between user's app engagement and continuation intention is partially mediated by travel app satisfaction. In addition, both theoretical and practical implications are offered.

**Keywords:** customer satisfaction, continuance intention, gamification, mobile app engagement, travel app, technology

## 1. Introduction

Recent decades have witnessed an enhanced influence of mobile informational services in tourism sector by offering seamless internet services to tourists (Kwon et al., 2013). Linked to this transformation, is the emergence of gamified platforms, through which firms aims to engage more customers (Pasca et al., 2021; Parapanos & Michopoulou, 2023). In travel industry, Gamification, in itself, is the designing the non-game contexts through game features. Travel apps such as TripAdvisor, MakemyTrip, Hotels.com, and Expedia.com (among others), have started to leverage its benefits. Leclercq et al. (2020) report an increase in the use of gamification components or processes in service delivery, website design, and information system administration. Combining technology and gamification is a more captivating method for increasing utility and engagement (Bugeja and Grech, 2020). Therefore, it is argued that gamification is a potential approach to enhance user engagement and encourage user retention. Even, more mobile app developers are integrating gamification, artificial intelligence, machine learning, and virtual reality into their applications to improve the user experience (Hofacker et al., 2016; Bugeja and Grech, 2020).

Digital tourism employs various technologies to either enliven the user with the subject matter or improve the site itself (Wang, 2011). To obtain a return on investment, app developers and marketers must not only initially convince travellers to use their applications, but also retain users over time. Therefore, it is essential to evaluate customers' post-adoption decision-making processes when using travel apps (Hill & Alexander, 2006). Despite the importance of understanding why users approve or reject mobile applications and what factors may influence this, empirical research on how gamification enhances user engagement with mobile apps in tourism context is limited (Cechetti et al., 2019, Kamboj et al., 2020; Koivisto and Hamari, 2019). Moreover, the underlying mechanisms of why a user continue using a mobile app remains debatable as of now (Aydinliyurt et al., 2021). Consequently, this study covers the void by evaluating the effects of gamification components on user brand engagement, customer satisfaction, and intent to continue using the travel app. Specifically, this empirical investigation seeks answers to the following research questions:

- Does gamified elements influence user engagement on travel apps?
- How does user engagement impact their intention to continuously use travel app and what role user satisfaction play in influencing that relationship?

To answer these questions, the research utilized SOR (Stimulus-Organism-Response) as a underlying model to explain the continuance intention of travel apps among existing users. Through this way, the study aims to uncover the research gaps and provide implications to marketers. The rest of the paper deals with reviewing the literature, methodology used, data analysis followed by discussion and implication of results and conclusion.



## 2. Literature Review and Hypotheses

### 2.1. Theoretical Background

Environmental Psychologists developed the SOR Model (Stimulus, Organism, and Response) to examine how stimuli affect consumer behavior, resulting in changes in attitudes and behaviors (Mehrabian and Russell, 1974). This model has been instrumental in evaluating brand engagement and continuation intent (Supotthamjare and Srinaruewan, 2018; Guo et al., 2016). The theory posits that stimuli trigger internal processes (emotional and cognitive), which then elicit specific responses. This internal processing can be conscious or unconscious, evoking emotional reactions as well.

Existing research underscores the relevance of the SOR model in understanding consumer behavior in various contexts, including gamification (Hwang and Choi, 2020). For instance, in gamified environments, elements like rewards, interactivity, aesthetics, and novelty act as stimuli that influence emotional and cognitive responses (Xi and Hamari, 2019). The organism component represents internal states such as cognitive and emotional experiences (Zheng et al., 2019), and in this study, it includes brand engagement and consumer satisfaction. The response component in this study is users' continuance intention towards travel apps, aligning with research on impulse purchasing and online repurchase intentions (Le et al., 2022; Zhu et al., 2019).

Despite its broad application, critical analysis reveals some limitations and opportunities for further exploration. For example, while the model effectively captures the dynamic interaction between stimuli and responses, it may oversimplify complex consumer behaviors influenced by external factors. Thus, we believe that this theoretical background sets a firm base to the present study's context to test the hypotheses, as further proposed in the upcoming sections.

### 2.2. Gamification in Travel and Tourism

"Gamification" is a term that has its origins in the digital market industry almost as far back as 2008, although it did not achieve widespread usage until the second half of 2010. Prior to 2010, researchers used terms such as "productivity games," "funware," and "playful design" instead of "gamification" (Deterding et al., 2011). The first individual to use this term was Gabe Zichermann, who defined it as "the art and science of transforming the day-to-day interactions of users into games by applying gamification features for business purposes" (Zichermann and Linder, 2010). The spatial nature of this gamification's psychologically engaging people is its genesis. People may misunderstand the term 'gamification' as the introduction of a real game or a simulation of the real world, but it simply refers to the incorporation of gaming elements such as fun, exhilaration, challenges, and rewards into the targeted area. Gamification is widely recognised as the incorporation of game elements into non-game contexts. As a result, "Gamified" applications required only the incorporation of a few game elements to distinguish them from basic applications (Sigala, 2015). Similarly, "gamification" is a rule-based and goal-oriented situation applied to a non-game context that produces more entertaining, interactive, and productive outcomes.

Gamification is a prevalent trend in the tourism industry (WTM, 2011). Reward programmes, virtual activities at tourist destinations, and the availability of customized photos to frequent flyers after a visit to a theme park are the most frequent features introduced in gamified mobile applications within the hospitality industry (Yilmaz and Coskun, 2016). In travel app context, gamification revolutionizes the user experience, integrating playful elements to elevate engagement (Hung, 2017). Reward systems incentivize exploration, offering perks like discounts or points for bookings and interactions (Pasca, 2021). On the other hand, novelty keeps users captivated with personalized recommendations and curated experiences, ensuring every trip feels fresh and exciting. Another intriguing way to gamify travel apps is its interactivity, that fosters a sense of community, enabling travelers to share tips, photos, and reviews, enriching the collective journey (Dicheva, 2015). Also, challenges add a layer of excitement, encouraging users to push boundaries, unlock achievements, and embark on unforgettable adventures. Together, these gamification features transform tour planing into an immersive, synergetic, and endlessly rewarding experience.

### 2.3. Rewards

Rewards in gamified applications may play a crucial role in motivating users to engage with the app. These rewards can take various forms, including badges, levels, avatars, cashback, discounts, and gifts, each serving to recognize and incentivize user achievements (Werbach et al., 2012). Such rewards not only provide a sense of accomplishment but also enhance user satisfaction and loyalty by fostering a positive emotional connection with the app. The accomplishment of specific tasks and milestones, marked by these rewards, reinforces the user's commitment to the app and encourages continued use (Salen and Zimmerman, 2004). In view of the arguments above, we propose:

H1: Rewards obtained from gamified travel app will positively affect customers' app engagement.

### 2.4. Perceived Interactivity

Interactivity is a vital component of gamification that, we believe, enhances user engagement by allowing users to actively participate and interact within the app environment. While the definition of interactivity can vary, it generally includes elements such as user-generated content, reviews, sharing, comments, and the ability to customize user profiles and content preferences (Zhao and Lu, 2012; Magrath and McCormick, 2013). Features like messaging, following/unfollowing, and avatars facilitate social interaction and community building within the app. These interactive elements provide users with a sense of customization and personalization, which can significantly boost their engagement and satisfaction. The ability to interact and personalize their experience makes users more likely to remain engaged with the app. Therefore, we propose:

H2: Perceived Interactivity of a gamified travel app will positively affect customers’ app engagement.

2.5. Aesthetics

Aesthetics in gamified applications refer to the visual elements and design principles that enhance the user experience. These elements include balance, regularity, harmony, focus, proportion, unity, and rhythm, all of which contribute to the visual appeal and usability of the app interface (Li and Yeh, 2010; Eshet and Bouwman, 2015). Aesthetics are critical as they motivate users intrinsically by allowing them to manipulate the application's visual aspects to suit their preferences, thereby creating a more engaging and personalized experience. The effectiveness of an app's aesthetics can significantly impact its usability and the overall user experience, encouraging greater commitment and continued use. Therefore, we hypothesize:

H3: Aesthetics of gamified travel app will positively impact customers’ app engagement.

2.6. Novelty

Novelty stimulates an individual's cognitive engagement within an app environment, resulting in a higher level of user response. Novelty in an app refers to a fresh, intriguing, or uncommon environment that captures users' attention and interest (Huang, 2003). The innate human response to novel stimuli encourages users to explore and share new experiences, leading to increased engagement. Unlike familiar circumstances, which may not evoke strong reactions, novel stimuli arouse curiosity and drive individuals to utilize and promote the new technology (Yim et al., 2017). In light of the above arguments, the following is hypothesized:

H4: Novelty derived from gamified travel app will positively affect customers’ app engagement.

2.7. Customers’ app Engagement

Various factors influence a consumer's intention to repurchase products or services, with engagement being a key determinant. Engagement with a brand relates to the user's loyalty, commitment, and overall positive experience with the brand (Osei-Frimpong and McLean, 2017; Hsieh et al., 2022). In the context of gamified travel apps, consumer engagement can strengthen this relationship, leading to a greater propensity to continue using the app (Hollebeek et al., 2014; Algesheimer et al., 2010). Interaction with novel content in the app can enhance customer satisfaction, further solidifying their intention to use the app. Based on these insights, we hypothesize:

H5: Customers’ engagement with travel app will positively affect their satisfaction towards them.

H6: Customers’ engagement with travel app will positively affect their app continuance intention.

H7: Customer satisfaction with the gamified travel app will positively affect their continuance intention.

The conceptual framework and proposed hypotheses are represented in figure 1.

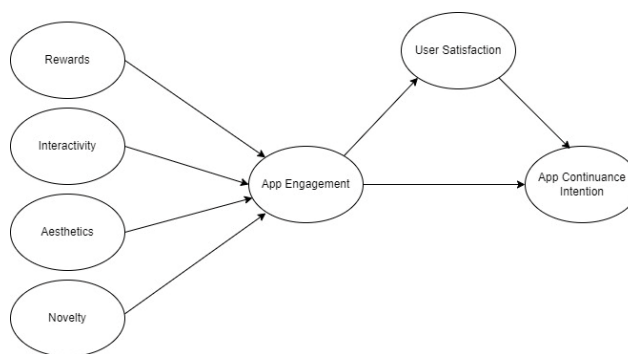


Figure 1 Conceptual framework for the study.



### 3. Methodology

#### 3.1. Measurement Instrument

Three items adapted from Jang et al. (2008) were used to measure rewards. Three items from Arcand et al. (2017) were used to evaluate aesthetics, while five items from Huang (2003) were utilised to evaluate novelty. Five items were adapted from Qian et al. (2022) to measure interactivity. A five-item scale devised by Hollebeek et al. (2014) was used to evaluate the app engagement of customers. We assessed customer satisfaction and app continuance intention items adapted from Choi et al. (2018) and McLean and Wilson (2019). The adapted questionnaire items were further vetted by three professors from different universities who helped to modify certain items in the questionnaire. Thereafter, pilot testing was performed on 48 respondents that highlighted appropriate Cronbach's alpha values to all constructs used in the study, thereby hinting no reliability concerns in the preliminary analysis.

#### 3.2. Data Collection

The population of the study represents the individuals who were already utilizing the travel app. Considering this, the users of gamified mobile travel apps provided the only source of data for this study. The survey was conducted online using the purposive and snowball sampling methods because the target population was unknown. These methods have been successfully employed in previous studies investigating niche and specialized user groups, thus validating their applicability in this research context (Atkinson and Flint, 2001). In the absence of sampling frame, the respondents were selected via distributing the questionnaire in social media platforms and travel brand communities. To minimize the potential sample bias, we focussed on distributing the questionnaire link on diverse social media platforms via different profiles. Moreover, we relied on screening questions to identify that the selected respondents were actual users of gamified travel apps. A total of 338 responses were received, out of which 32 respondents were disqualified, due to non eligibility of their travel app to be categorized as 'gamified'. Also, 19 responses were discarded for their similar response to each question. Finally, a total of 287 responses were found suitable for the data analysis.

The reason been that similar studies in the field of gamified applications and consumer engagement often use sample sizes ranging from 200 to 400 participants (see Eisingerich et al., 2019; Bitrián et al., 2021), which provides sufficient statistical power for hypothesis testing and generalizability (Hair et al., 2010). Second, the sample size exceeds the minimum requirement for conducting robust statistical analyses, such as Structural Equation Modeling (SEM), which typically requires a sample size of at least 200 (Kline, 2015). As far as sample descriptives are concerned, out of 287 respondents, a total of 181 (63.06%) were males while the rest (36.94%) were females. A majority of 226 (78.74%) were either graduates or having a higher degree. The mean age of the respondents was 39.2 years.

Before final model testing, the data was tested for common method bias. To ensure this, the respondents were told that their responses would be anonymous. Also, the independent and dependent variables scales items were asked in separate pages in online questionnaire. Besides, variation inflation factor (VIF) values for all scale items were found to be in the range between 0.1004 to 0.2866, thus lower than the threshold value of 3.3 (Kock, 2015). Thus, CMB was not an issue in this study.

### 4. Results

The data were analysed using SPSS AMOS and structural equation modeling (SEM). SEM is a statistical technique that involves the assessment of measurement and structural model.

#### 4.1. Measurement Model

The measurement model was assessed for its reliability and validity. All items values of standardized loadings, Cronbach's alpha, Average variance extracted were considerably higher than 0.6, suggesting convergent validity of the scale. Moreover, the square root of the AVE values for all constructs were found to be more than all inter-construct correlations in the model, confirming no discriminate validity issues. The measurement model also shows a good fit (CMIN/DF= 1.892, GFI= .921, AGFI= .902, CFI= .934, RMSEA= .056). The details of reliability and validity indicators are available in the table 1 and table 2.

#### 4.2. Structural Model

After establishing the measurement model fit, the structural model was assessed and it showed a good fit (CMIN/DF= 2.905, GFI= .905, AGFI= .892, CFI= .924, RMSEA= .078). All the hypotheses were supported in the study. The results showed that rewards exerts a significant influence on inducing app engagement ( $\beta = 0.549$ ), thus confirming H1. Similarly, interactivity also highlighted a significant effect on app engagement ( $\beta = 0.104$ ). Thus, H2 is accepted. Also, aesthetics ( $\beta = 0.2$ ) and novelty ( $\beta = 0.351$ ) confirmed a significant impact on app engagement, hinting acceptance of H3 and H4. Further, app

engagement displayed a significant impact on app satisfaction ( $\beta = 0.215$ ) and continuance intention ( $\beta = 0.173$ ), accepting H5 and H6. Finally, the influence of app satisfaction on continuance intention was also found positive and significant ( $\beta = 0.682$ ). The results of hypotheses testing are presented in the table 3.

**Table 1** Psychometric properties of scale.

Variables	Items	Standardized loading
Rewards (Cronbach alpha= .838, CR = .840, AVE = .636)	I like monetary rewards offered by the gamified travel app	0.782
	I like psychological rewards offered by the gamified travel app	0.773
	Upgrade (downgrade) of member privileges is available in the gamified travel app according to degree of activity	0.836
Interactivity (Cronbach alpha= .963, CR =.962, AVE = .865)	Interacting with customization options are available in the gamified travel app	0.949
	Interacting with a narrative or story is available in the gamified travel app	0.959
	Interacting with competition is possible in the gamified travel app	0.884
	Interacting with leaderboards/rankings/high score lists is available in the gamified travel app	0.926
Aesthetics (Cronbach alpha= .836, CR =.839, AVE = .635)	The design (e.g. colors, font size, graphics, animations, etc.) of the gamified mobile booking app is professional	0.776
	The design of the gamified mobile booking app is creative	0.831
	Overall, the design of the gamified mobile booking app is visually appealing	0.782
Novelty (Cronbach alpha= .877, CR =.879, AVE = .593)	The gamified mobile app I often use is: imaginative	0.708
	The gamified mobile app I often use is: surprising	0.731
	The gamified mobile app I often use is: innovative	0.799
	The gamified mobile app I often use is: new	0.772
	The gamified mobile app I often use is: fresh	0.834
App engagement (Cronbach alpha= .905, CR =.910, AVE = .671)	Using the brand’s app gets me thinking about the brand	0.861
	Using the brand’s app stimulates my interest in the brand	0.870
	I feel positive when I use the brand’s app	0.720
	I feel good when I use the brand’s app	0.696
	I spend a lot of time using the brand’s app compared to other brands	0.923
Satisfaction with the app (Cronbach alpha= .860, CR =.890, AVE = .732)	I am satisfied with my experience	0.734
	The experience is exactly what I needed	0.936
	The experience has worked out as well as I thought it would	0.884
Continuance intention (Cronbach alpha= .842, CR =.851, AVE = .657)	I think that I would use this mobile booking app in the future	0.810
	I intend to continue using mobile booking app than use any alternative means	0.745
	If I could, I would like to discontinue using this mobile booking app	0.872

**Table 2** Discriminant Validity.

	AES	AE	INT	NOV	SAT	REW	CI
AES	0.797						
AE	0.444	0.819					
INT	0.160	0.259	0.930				
NOV	0.513	0.476	0.191	0.770			
SAT	0.459	0.307	0.139	0.501	0.856		
REW	0.462	0.548	0.247	0.425	0.416	0.797	
CI	0.524	0.402	0.119	0.534	0.634	0.509	0.811

Note. REW- Rewards, AES- Aesthetics, INT- Interactivity, NOV-Novelty, AE-App engagement, SAT-Satisfaction, CI- App Continuance intention. Diagonal values represents square root of the AVE values.



**Table 3** Hypotheses testing results.

Relationships	Estimate	Standard Error	Critical Ratio	P value	Results
AE<---REW	0.549	0.075	7.321	***	Yes
AE<---INT	0.104	0.049	2.108	0.035**	Yes
AE<---AES	0.2	0.088	2.29	0.022**	Yes
AE<---NOV	0.351	0.085	4.142	***	Yes
SAT<---AE	0.215	0.037	5.803	***	Yes
CI<---AE	0.173	0.031	5.503	***	Yes
CI<---SAT	0.682	0.048	14.339	***	Yes

Note:\*\*and \*\*\*represents significance at .01 and .05 level. REW- Rewards, AES- Aesthetics, INT- Interactivity, NOV-Novelty, AE-App engagement, SAT-Satisfaction, CI- App Continuance intention

## 5. Discussion and Implication

The findings of this study highlight the significant role of various gamified features in enhancing consumer engagement with travel apps. Among all the gamified features examined, rewards had the most substantial impact on consumer app engagement. This finding aligns with previous research (Nicholson, 2015; Yuniasri et al., 2021), which emphasizes the motivational power of rewards in gamified systems. Rewards, such as badges, levels, avatars, cashback, discounts, and gifts, provide immediate and tangible incentives for users, which not only encourage initial engagement but also foster continued use of the app. This indicates that well-designed reward mechanisms are crucial for maintaining user interest and driving sustained interaction with gamified travel apps. Thus, app developers should prioritise rewards to boost user engagement. For this reason, app designers should include challenges so users can gain points for their achievements and proceed to higher levels with harder tasks, giving them the feeling that their skills are growing.

In addition to rewards, perceived interactivity was also found to significantly enhance app engagement. This is consistent with earlier studies that have demonstrated the importance of interactive elements in mobile applications (Sangroya et al., 2021; Eisingerich, 2019). Thus, app developers may integrate interactivity to let users connect with other users and the app. Create a user community on the app to encourage a sense of belonging. Many fitness applications feature user communities where users may share workouts, walking tours, and healthy recipes (Bitrián et al., 2021). Additionally, app developers may integrate visual features that allow users to personalise and connect with other avatars (Mittal et al., 2020).

Aesthetics, another critical component of gamification, also showed a positive impact on app engagement. This result is also consistent with the earlier research (Lu & Ho, 2020). The visual appeal of the app, including its design principles of balance, regularity, harmony, focus, proportion, unity, and rhythm, contributes to a positive user experience (Li and Yeh, 2010; Eshet and Bouwman, 2015). This finding underscores the importance of investing in high-quality design and user interface to attract and retain users.

Novelty emerged as a significant factor influencing app engagement as well. Therefore, we infer that app design and unique aspects can attract curious users, thus improving usage flow (Huang, 2003), which is also consistent with recent studies (Aghdaie et al. 2022; Matthew et al. 2021; Mominzada et al. 2021). By continuously introducing new and innovative features, gamified travel apps can keep users intrigued and motivated to explore the app further.

The study also found that customer engagement with the travel app positively influenced customer satisfaction and app continuance intention. This finding is consistent with earlier studies, such as Bölen and Özen (2020) and Choi et al. (2018), which indicate that satisfied customers are more likely to continue using an app. When users are actively engaged with the app, they are more likely to develop loyalty and advocate for the brand, which can enhance the app's market presence and attract new users. Our findings are in line with previous research (Suzianti et al., 2019; Tarute et al., 2017; Bitrian, 2021), which shows that engaged users have a greater intent to use gamified mobile apps. This reinforces the idea that engagement is a critical factor in user retention and long-term app success.

The study also found that customer engagement with the travel app positively influenced customer satisfaction and app continuance intention. According to earlier studies (Bölen and Özen 2020; Choi et al. 2018), satisfied customers keep using the app. This study also shows that user engagement with the mobile app's brand improves marketing outcomes and is therefore very pertinent for marketers. Our study results also conform to previous studies (Suzianti et al., 2019; Tarute et al., 2017; Bitrian, 2021) in a way that engaged users have a greater intent to use the gamified mobile app. One really interesting finding reveals that satisfaction with the travel app exerts the stronger influence on user continuance intention with the app. Therefore, marketers must devise noble strategies to identify and satisfy the customers' need apart from incorporating noble features in the travel app.

## 6. Conclusion

This study's objective was to examine the effect of gamified features on customers' engagement on travel apps and subsequently its effect on continuance intentions via brand satisfaction. In the context of gamified travel applications, our

research indicates a strong correlation between consumers' app engagement, customer satisfaction, and app brand continuance intention. The impact of rewards derived from gamified travel apps on customer app engagement was the greatest, followed by novelty, aesthetics, and interactivity elements of the travel apps. In addition, the study demonstrates that consumer app engagement has a direct bearing on their satisfaction and continued use. Despite the major findings, the current study has some limitations. For instance, The use of purposive and snowball sampling methods may have introduced sampling bias, potentially limiting the generalizability of the findings to the broader population of gamified travel app users. Also, the cross-sectional nature of the study does not allow for the examination of changes in user engagement and satisfaction over time, limiting insights into the long-term effects of gamified features. Thus, future studies may try to incorporate longitudinal studies involving probability sampling methods with a comparatively larger sample size.

### Ethical considerations

The study correctly followed the ethical policies for a study that includes human subjects, in addition to confirming the consent of all the respondents/interviewers involved.

### Conflict of Interest

The authors declare no conflicts of interest.

### Funding

This research did not receive any financial support.

### References

- Aghdaie, S. F. A., Talaei, H., & Soltanpour, P. (2022). Evaluating the Effect of Psychological Dimensions of Gamification Strategy on Creation of Unplanned Purchases. *International Journal of Procurement Management*, 15(1), 20-39. <https://doi.org/10.1504/IJPM.2022.119843>
- Algesheimer, R., Borle, S., Dholakia, U. M., & Singh, S. S. (2010). The impact of customer community participation on customer behaviors: An empirical investigation. *Marketing science*, 29(4), 756-769. <https://doi.org/10.1287/mksc.1090.0555>
- Arcand, M., PromTep, S., Brun, I., & Rajaobelina, L. (2017). Mobile banking service quality and customer relationships. *International Journal of Bank Marketing*, 35(7), 1068-1089. <https://doi.org/10.1108/IJBM-10-2015-0150>
- Atkinson, R., & Flint, J. (2001). Accessing hidden and hard-to-reach populations: Snowball research strategies. *Social research update*, 33(1), 1-4.
- Aydinliyurt, E. T., Taşkın, N., Scahill, S., & Toker, A. (2021). Continuance intention in gamified mobile applications: A study of behavioral inhibition and activation systems. *International Journal of Information Management*, 61. <https://doi.org/10.1016/j.ijinfomgt.2021.102414>
- Bitrián, P., Buil, I., & Catalán, S. (2021). Enhancing user engagement: The role of gamification in mobile apps. *Journal of Business Research*, 132, 170-185. <https://doi.org/10.1016/j.jbusres.2021.04.028>
- Bölen, M. C., & Özen, Ü. (2020). Understanding the factors affecting consumers' continuance intention in mobile shopping: the case of private shopping clubs. *International Journal of Mobile Communications*, 18(1), 101-129. <https://doi.org/10.1504/IJMC.2020.104423>
- Bugeja, M., & Grech, E. M. (2020). Using technology and gamification as a means of enhancing users' experience at cultural heritage sites. In Seychell, D., Dingli, A. (eds). *Rediscovering Heritage Through Technology. Studies in Computational Intelligence*, 859, 69-89. [https://doi.org/10.1007/978-3-030-36107-5\\_4](https://doi.org/10.1007/978-3-030-36107-5_4)
- Cechetti, N. P., Bellei, E. A., Biduski, D., Rodriguez, J. P. M., Roman, M. K., & De Marchi, A. C. B. (2019). Developing and implementing a gamification method to improve user engagement: A case study with an m-Health application for hypertension monitoring. *Telematics and Informatics*, 41, 126-138. <https://doi.org/10.1016/j.tele.2019.04.007>
- Choi, K., Wang, Y., & Sparks, B. (2018). Travel app users' continued use intentions: it's a matter of value and trust. *Journal of Travel & Tourism Marketing*, 1-13. <https://doi.org/10.1080/10548408.2018.1505580>
- Deterding, S., Dixon, D., Khaled, R., & Nacke, L. (2011). From game design elements to gamefulness: defining "gamification". In *Proceedings of the 15th international academic MindTrek conference: Envisioning future media environments* (pp. 9-15). <https://doi.org/10.1145/2181037.2181040>
- Dicheva, D., Dichev, C., Agre, G., & Angelova, G. (2015). Gamification in education: A systematic mapping study. *Journal of educational technology & society*, 18(3), 75-88.
- Eisingerich, A. B., Marchand, A., Fritze, M. P., & Dong, L. (2019). Hook vs. hope: How to enhance customer engagement through gamification. *International Journal of Research in Marketing*, 36(2), 200-215. <https://doi.org/10.1016/j.ijresmar.2019.02.003>
- Eshet, E., & Bouwman, H. (2015). Addressing the Context of Use in Mobile Computing: a Survey on the State of the Practice. *Interacting with Computers*, 27(4), 392-412. <https://doi.org/10.1093/iwc/iwu002>
- Guo, J., Liu, Z., & Liu, Y. (2016). Key success factors for the launch of government social media platform: Identifying the formation mechanism of continuance intention. *Computers in Human Behavior*, 55, 750-763. <https://doi.org/10.1016/j.chb.2015.10.004>
- Hill, N., & Alexander, J. (2017). *The handbook of customer satisfaction and loyalty measurement*. Routledge.
- Hofacker, C. F., De Ruyter, K., Lurie, N. H., Manchanda, P., & Donaldson, J. (2016). Gamification and mobile marketing effectiveness. *Journal of Interactive Marketing*, 34(1), 25-36. <https://doi.org/10.1016/j.intmar.2016.03.001>
- Hollebeek, L. D., Glynn, M. S., & Brodie, R. J. (2014). Consumer brand engagement in social media: Conceptualization, scale development and validation. *Journal of interactive marketing*, 28(2), 149-165. <https://doi.org/10.1016/j.intmar.2013.12>
- Hsieh, S. H., Tseng, T. H., & Lee, C. T. (2023). Feeling psychologically close: examining the determinants of branded app engagement. *Journal of Product & Brand Management*, 32(4), 566-581. <https://doi.org/10.1108/JPBM-07-2021-3565>
- Huang, M. H. (2003). Designing website attributes to induce experiential encounters. *computers in Human Behavior*, 19(4), 425-442.

- [https://doi.org/10.1016/S0747-5632\(02\)00080-8](https://doi.org/10.1016/S0747-5632(02)00080-8)
- Hung, A. C. Y. (2017). A critique and defense of gamification. *Journal of Interactive Online Learning*, 15(1).
- Hwang, J., & Choi, L. (2020). Having fun while receiving rewards?: Exploration of gamification in loyalty programs for consumer loyalty. *Journal of Business Research*, 106, 365-376. <https://doi.org/10.1016/j.jbusres.2019.01.031>
- Jang, S., Kitchen, P., & Kim, J. (2018). The effects of gamified customer benefits and characteristics on behavioral engagement and purchase: Evidence from mobile exercise application uses. *Journal of Business Research*, 92, 250–259. <https://doi.org/10.1016/j.jbusres.2018.07.056>
- Kamboj, S., Rana, S., & Drave, V. A. (2020). Factors driving consumer engagement and intentions with gamification of mobile apps. *Journal of Electronic Commerce in Organizations*, 18(2), 17-35. <https://doi.org/10.4018/JECO.2020040102>
- Kock, N. (2015). Common method bias in PLS-SEM: A full collinearity assessment approach. *International Journal of e-Collaboration (ijec)*, 11(4), 1-10. <https://doi.org/10.4018/ijec.2015100101>
- Koivisto, J., & Hamari, J. (2019). The rise of motivational information systems: A review of gamification research. *International journal of information management*, 45, 191-210. <https://doi.org/10.1016/j.ijinfomgt.2018.10.013>
- Kwon, J. M., Bae, J., & Blum, S. C. (2013). Mobile applications in the hospitality industry. *Journal of Hospitality and Tourism Technology*, 4(1), 81–92. <https://doi.org/10.1108/17579881311302365>
- Le, T. Q., Wu, W. Y., Liao, Y. K., & Phung, T. T. T. (2022). The Extended SOR Model Investigating Consumer Impulse Buying Behavior in Online Shopping: A Meta-Analysis. *Journal of Distribution Science*, 20(2), 1-9. <https://doi.org/10.15722/jds.20.02.202202.1>
- Leclercq, T., Poncin, I. and Hammedi, W. (2020). Opening the black box of gameful experience: implications for gamification process design. *Journal of Retailing and Consumer Services*, 52, 101882. <https://doi.org/10.1016/j.jretconser.2019.07.007>
- Li, Y. M., & Yeh, Y. S. (2010). Increasing trust in mobile commerce through design aesthetics. *Computers in Human Behavior*, 26(4), 673-684. <https://doi.org/10.1016/j.chb.2010.01.004>
- Lu, H. P., & Ho, H. C. (2020). Exploring the impact of gamification on users' engagement for sustainable development: A case study in brand applications. *Sustainability*, 12(10), 4169. <https://doi.org/10.3390/su12104169>
- Magrath, V., & McCormick, H. (2013). Marketing design elements of mobile fashion retail apps. *Journal of Fashion Marketing and Management: An International Journal*, 17(1), 115-134. <https://doi.org/10.1108/13612021311305173>
- Matthew, D., Hellianto, G. R., Putra, N. S., & Sundjaja, A. M. (2021). The Effect of Monthly Promotion, Gamification, User Interface Usability & Attractiveness on the Marketplace Repurchase Intention. In *2021 International Conference on Informatics, Multimedia, Cyber and Information System*, pp. 193-199. IEEE. <https://doi.org/10.1109/ICIMCIS53775.2021.9699114>
- McLean, G., & Wilson, A. (2019). Shopping in the digital world: Examining customer engagement through augmented reality mobile applications. *Computers in Human Behavior*, 101, 210-224. <https://doi.org/10.1016/j.chb.2019.07.002>
- Mehrabian, A., & Russell, J. A. (1974). *An approach to environmental psychology*. The MIT Press.
- Mittal, A., Aggarwal, A., & Mittal, R. (2020). Predicting university students' adoption of mobile news applications: the role of perceived hedonic value and news motivation. *International Journal of E-Services and Mobile Applications (IJESMA)*, 12(4), 42-59. <https://doi.org/10.4018/IJESMA.2020100103>
- Mominzada, T., Abd Rozan, M. Z. B., & Aziz, N. A. (2022). Consequences of user experience in a gamified e-commerce platform. *International Journal of Electronic Commerce Studies*, 13(1), 113-136. <https://doi.org/10.7903/ijecs.2004>
- Nicholson, S. (2015). A recipe for meaningful gamification. *Gamification in education and business*, 1-20. [https://doi.org/10.1007/978-3-319-10208-5\\_1](https://doi.org/10.1007/978-3-319-10208-5_1)
- Oghuma, A. P., Libaque-Saenz, C. F., Wong, S. F., & Chang, Y. (2016). An expectation-confirmation model of continuance intention to use mobile instant messaging. *Telematics and Informatics*, 33(1), 34–47. <https://doi.org/10.1016/j.tele.2015.05.006>
- Osei-Frimpong, K., & McLean, G. (2018). Examining online social brand engagement: A social presence theory perspective. *Technological Forecasting and Social Change*, 128, 10-21. <https://doi.org/10.1016/j.techfore.2017.10.010>
- Parapanos, D., & Michopoulou, E. (2023). Innovative mobile technology in hotels and the use of gamification. *Tourism Planning & Development*, 20(2), 162-187. <https://doi.org/10.1080/21568316.2022.2107563>
- Pasca, M. G., Renzi, M. F., Di Pietro, L., & Guglielmetti Mugion, R. (2021). Gamification in tourism and hospitality research in the era of digital platforms: a systematic literature review. *Journal of Service Theory and Practice*, 31(5), 691-737. <https://doi.org/10.1108/JSTP-05-2020-0094>
- Qian, T. Y., Matz, R., Luo, L., & Xu, C. (2022). Gamification for value creation and viewer engagement in gamified livestreaming services: The moderating role of gender in esports. *Journal of Business Research*, 145, 482-494. <https://doi.org/10.1016/j.jbusres.2022.02.082>
- Salen, K., Tekinbaş, K. S., & Zimmerman, E. (2004). *Rules of play: Game design fundamentals*. MIT press.
- Sangroya, D., Yadav, R., & Joshi, Y. (2021). Does gamified interaction build a strong consumer-brand connection? A study of mobile applications. *Australasian Journal of Information Systems*, 25. <https://doi.org/10.3127/ajis.v25i0.3105>
- Sigala, M. (2015). Gamification for crowdsourcing marketing practices: Applications and benefits in tourism. *Advances in crowdsourcing*, 129-145. [https://doi.org/10.1007/978-3-319-18341-1\\_11](https://doi.org/10.1007/978-3-319-18341-1_11)
- Sigala, M. (2015). The application and impact of gamification funware on trip planning and experiences: the case of TripAdvisor's funware. *Electronic markets*, 25(3), 189-209. <https://doi.org/10.1007/s12525-014-0179-1>
- Sitthipon, T., Limna, P., Jaipong, P., Siripattanakul, S., & Auttawechasakoon, P. (2022). Gamification predicting customers' repurchase intention via e-commerce platforms through mediating effect of customer satisfaction in Thailand. *Review of Advanced Multidisciplinary Sciences, Engineering & Innovation*, 1(1), 1-14. <https://ssrn.com/abstract=4080558>
- Suzianti, A., Avianto, L. H. D., & Larasati, N. A. (2019). User engagement analysis on mobile application starbucks ID study case. In *Proceedings of the 5th international Conference on Communication and Information Processing* (pp. 54-59).
- Tandon, U., Ertz, M., & Shashi. (2023). Continued Intention of mHealth Care Applications among the Elderly: An Enabler and Inhibitor Perspective. *International Journal of Human-Computer Interaction*, 1-16. <https://doi.org/10.1080/10447318.2023.2232977>
- Tarute, A., Nikou, S., & Gatautis, R. (2017). Mobile application driven consumer engagement. *Telematics and Informatics*, 34(4), 145-156. <https://doi.org/10.1016/j.tele.2017.01.006>

- Wang, C. (2011, November). Application of virtual reality technology in digital tourism. In *2011 Third International Conference on Multimedia Information Networking and Security* (pp. 537-541). IEEE. 10.1109/MINES.2011.127
- Wang, Y., So, K. K. F., & Sparks, B. A. (2017). Technology readiness and customer satisfaction with travel technologies: A cross-country investigation. *Journal of Travel Research*, 56(5), 563–577. <https://doi.org/10.1177/0047287516657891>
- Werbach, K., Hunter, D., & Dixon, W. (2012). *For the win: How game thinking can revolutionize your business* (Vol. 1). Wharton digital press.
- WTM. (2011). World travel market global trends report. Retrieved from <http://www.euromonitor.com/medialibrary/PDF/WTMGlobalTrendsReport2011.pdf> on 12.01.24
- Xi, N., & Hamari, J. (2019). Does gamification satisfy needs? A study on the relationship between gamification features and intrinsic need satisfaction. *International Journal of Information Management*, 46, 210-221. <https://doi.org/10.1016/j.ijinfomgt.2018.12.002>
- Yilmaz, H., & Coşkun, İ. O. (2016). New toy of marketing communication in tourism: Gamification. *e-Consumers in the Era of New Tourism*, 53-71. [https://doi.org/10.1007/978-981-10-0087-4\\_4](https://doi.org/10.1007/978-981-10-0087-4_4)
- Yim, M. Y. C., Chu, S. C., & Sauer, P. L. (2017). Is augmented reality technology an effective tool for e-commerce? An interactivity and vividness perspective. *Journal of interactive marketing*, 39(1), 89-103. <https://doi.org/10.1016/j.intmar.2017.04>
- Yin, S., Cai, X., Wang, Z., Zhang, Y., Luo, S., & Ma, J. (2022). Impact of gamification elements on user satisfaction in health and fitness applications: A comprehensive approach based on the Kano model. *Computers in Human Behavior*, 128. <https://doi.org/10.1016/j.chb.2021.107106>
- Yuniasri, D., Zulfa, N., & Herumurti, D. (2021). The Effect of Visual Reward and Punishment in Mobile Game on Game Experience. In *2021 International Seminar on Application for Technology of Information and Communication (iSemantic)* (pp. 6-11). IEEE. <https://doi.org/10.1109/iSemantic52711.2021.9573227>
- Zhao, L., & Lu, Y. (2012). Enhancing perceived interactivity through network externalities: An empirical study on micro-blogging service satisfaction and continuance intention. *Decision support systems*, 53(4), 825-834. <https://doi.org/10.1016/j.dss.2012.05.019>
- Zheng, X., Men, J., Yang, F., & Gong, X. (2019). Understanding impulse buying in mobile commerce: An investigation into hedonic and utilitarian browsing. *International Journal of Information Management*, 48, 151–160. <https://doi.org/10.1016/j.ijinfomgt.2019.02.010>
- Zhou, T. (2011). An empirical examination of users' post-adoption behaviour of mobile services. *Behaviour & Information Technology*, 30(2), 241-250. <https://doi.org/10.1080/0144929X.2010.543702>
- Zhu, B., Kowatthanakul, S., & Satanasavapak, P. (2020). Generation Y consumer online repurchase intention in Bangkok: Based on Stimulus-Organism-Response (SOR) model. *International Journal of Retail & Distribution Management*, 48(1), 53-69. <https://doi.org/10.1108/IJRD-04-2018-0071>
- Zichermann, G., & Linder, J. (2010). *Game-based marketing: inspire customer loyalty through rewards, challenges, and contests*. John Wiley & Sons.