

“Gamification in Customer Engagement: Behavioral and Purchase Outcomes in Digital Platforms”

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ABSTRACT

In recent years, gamification has become a popular approach in digital marketing, where companies use elements like points, rewards, badges, and challenges to keep users engaged. While a lot of studies have looked at how gamification improves short-term engagement, there is still not enough clarity on whether it actually leads to meaningful outcomes like repeat purchases and long-term loyalty. This study tries to address that gap by examining how gamification influences customer engagement and how that, in turn, affects purchase behavior and loyalty on digital platforms. The study is based on primary data collected through a structured questionnaire from users of various digital platforms. The data is analyzed using statistical techniques, including structural equation modeling, to understand the relationships among key variables. The results suggest that gamification does play a significant role in increasing customer engagement, and this engagement further leads to higher purchase intention and stronger loyalty over time. It also shows that engagement acts as a key link between gamification and customer behavior. Overall, the study adds to existing research by connecting gamification with both behavioral and purchase outcomes, and it provides useful insights for marketers looking to build long-term customer relationships through digital strategies.

Keywords: Gamification, Customer Engagement, Loyalty, Purchase Behavior, Digital Platforms, Behavioral Outcomes, Marketing Analytics

INTRODUCTION:

Using game elements in digital marketing is key to deliver engaging experiences to users. Gamification has become a common feature in digital environments and there is an abundant offer of tools and platforms that allow implementing them easily. The most common elements used in apps, e-commerce, fintech or online learning are rewards and feedback, leader boards and competition, points, badges and level up mechanics. These mechanics can be found in applications and services such as retail web sites where reward points or progress bars encourage users to make repeat purchases or in fintech where streaks and achievement badges motivate users to save money and make smart financial decisions over time. Increasingly, customers are being drawn into a company's marketing activities. Traditionally, the model of marketing communications was seen as a one-way process (1-way) emanating from the firm to its customers. Today, many organisations are exploring ways to incorporate customers into their marketing activities. Digital marketing can facilitate engagement-loops whereby the firm strives to continually and proactively engage the customer. Furthermore, Gamification enables a marketer to utilise a customer's intrinsic and extrinsic drivers to encourage repeat engagement. Online gamification is just one of the tools that organisations are using to foster customer engagement online. As more research is conducted into this powerful tool, more remains to be known about the mechanics that drive long-term engagement. While there are countless studies demonstrating the immediate effects of gamification on gamers, such as increased clicks, site traffic, time on site and engagement, few exist which demonstrate tangible organisational effects such as sales and loyal customers in the long-term. Do fun activities actually lead to meaningful organisational outcomes?

4. Literature Review

4.1 Concept of Gamification

Gamification refers to the application of game design elements in non-game contexts to enhance user engagement and motivation. The concept was formally defined by **Deterring et al. (2011)**, who described it as the use of game elements such as points, badges, and leader boards in non-gaming systems. Later, **Werbach and Hunter (2012)** emphasized that gamification is not just about adding game elements but about creating meaningful user experiences that drive behavioral change.

Several studies have identified the key components of gamification. **Hamari et al. (2014)** highlighted that elements such as **points, badges, and leader boards (PBL)** are widely used to influence user participation. Points provide instant feedback, badges symbolize achievements, and leader boards introduce social comparison and competition. In addition, **Zichermann and Cunningham (2011)** noted the importance of rewards and challenges in maintaining long-term user interest by offering both extrinsic and intrinsic motivation. These elements collectively contribute to creating engaging and interactive digital environments.

4.2 Theoretical Foundations

The effectiveness of gamification can be explained by several theories and models that describe human behavior and psychology. The Self-Determination Theory by Deci & Ryan (2000) for example states that gamification can increase intrinsic motivation when psychological needs for autonomy, competence and relatedness are satisfied. Outcomes such as achieving and perceived control can enhance intrinsic motivation.

Flow Theory (Csikszentmihalyi 1990) describes a highly engaging mental state that individuals experience when they are trying to find a balance between the challenge of a task and the level of their skill in performing that task. Many gamified systems utilise this concept in order to keep users engaged.

User satisfaction and repeated use stem from met expectations, which is the core tenet of the Expectation-Confirmation Theory by Oliver (1980). Therefore, Gamification experiences can heighten user engagement, raise users' expectations, evoke satisfaction and spark repeated use by providing a fun experience laced with challenges and meaningful interactions.

4.3 Gamification and Customer Engagement

Gamification has been widely recognized as a key driver of customer engagement. **Brodie et al. (2011)** conceptualized engagement as a multidimensional construct consisting of cognitive, emotional, and behavioral components.

Cognitive engagement refers to the level of mental involvement in an activity. **Huotari and Hamari (2017)** argued that gamification enhances cognitive engagement by encouraging users to actively participate in tasks and challenges.

Emotional engagement is associated with feelings of enjoyment and excitement. **Hollebeek (2011)** suggested that interactive and rewarding experiences strengthen emotional connections with brands.

Behavioral engagement, which includes actions such as frequency of use and participation, is also positively influenced by gamification. **Hamari (2013)** found that gamified systems significantly increase user activity and participation levels, especially in online platforms.

4.4 Gamification and Purchase Behavior

Gamification not only enhances engagement but also influences purchase-related outcomes. **Hofacker et al. (2016)** observed that gamification can increase consumer motivation, leading to higher purchase intentions.

In terms of **impulse buying**, **Xu et al. (2017)** found that time-bound rewards and game-like incentives can trigger spontaneous purchasing behavior. Similarly, **Dorotic et al. (2012)** highlighted that reward-based systems encourage **repeat purchases** by creating ongoing incentives for customers.

Gamification also impacts **conversion rates** by making the purchasing journey more interactive. **Blohm and Leimeister (2013)** argued that gamified experiences reduce decision friction and enhance user satisfaction, thereby increasing the likelihood of transaction completion.

4.5 Gamification and Loyalty

Customer loyalty is one of the most critical long-term outcomes of gamification. **Dick and Basu (1994)** defined loyalty as the relationship between relative attitude and repeat patronage behavior, which can be strengthened through engaging experiences.

Gamification contributes to **brand loyalty** by creating positive emotional connections. **Hollebeek et al. (2014)** suggested that higher engagement leads to stronger brand relationships.

It also enhances **platform stickiness**, a concept discussed by **Lin and Lu (2011)**, where users continue to spend more time on a platform due to engaging features. Over time, this leads to improved **customer retention**, as highlighted by **Reichheld and Schefter (2000)**, who emphasized the importance of retaining customers in digital environments for long-term profitability.

5. Conceptual Framework and Hypotheses Development

This study presents an integrative model that examines the effects of gamification on customer behavior in digital settings. The model describes how gamification increases customer engagement and purchase intentions and, accordingly, strengthens customer loyalty. The model provides insights that go beyond the individual relationships and highlights customer value.

Our system utilises elements of gamification such as points, badges, leaderboards and challenges to motivate users to interact with the system, enhancing their experience. Users are more likely to repeatedly visit the system, search for products and make purchases, resulting in repeat positive experiences and increased customer loyalty.

Thus, the proposed conceptual model is presented in Figure 7.

The effect of Gamification Elements on Customer Engagement, purchasing behavior and customer loyalty.

The model accounts for indirect effects of engagement and purchases. Potential additional moderators include age, digital literacy, and type of application (e-commerce, fintech, gaming, etc.).

HYPOTHESES DEVELOPMENT

Gamification and Customer Engagement

This paper reviews the implementation of several key elements of gamification in the redesigned and reimagined interactive component of the Media Education Lab website. The elements of rewards, competition and measurement of progress were incorporated to make user interactions more meaningful and interactive. Such approaches to interactive websites and computer applications have been shown to generate robust levels of cognitive, emotional and behavioral user engagement. This paper documents and discusses the re-designed component in hopes of demonstrating increased user interaction and engagement.

H1: Gamification elements positively influence customer engagement.

Customer Engagement and Purchase Behavior

We also track Customer Engagement to measure how deeply customers are interacting with the site. Our customers who are Active, are Repeat Visitors, View content and/or Share content are more likely to spend time on site and actually go on to make a purchase, including purchases of products on sale in our Dr. Martens Discount Ranges. In fact, customers who have viewed our Dr. Martens Discount Ranges are more likely to make a purchase of Dr. Martens Shoes than those who haven't.

H2: Customer engagement positively affects purchase behavior.

Purchase Behavior and Customer Loyalty

In order to calculate customer loyalty, it is essential to examine purchase behavior, particularly in the form of repeat purchases and customer satisfaction. If a customer is consistently making repeat purchases and has enjoyed the experience, they are more than likely to be a long-term customer and continue to use the service and recommend the brand over other options. Thus, this data can give great insight into the customer's overall loyalty.

H3: Purchase behavior positively affects customer loyalty.

Mediating Role of Customer Engagement

While Gamification can bring a lot of attention and engagement to your system, it does not necessarily translate to increased purchases. Many Gamification elements can serve as an intermediary to encourage engagement, turning empty calories into meaningful customer activity. However, if you load up your system with rewards, leaderboards, badges and points without meaningful content, the system will not meet the organization's goals.

Thus, if customer engagement is the mediator between gamification elements and purchase behaviour, then **H4 holds**.

Mediating Role of Purchase Behavior

Engagement alone is not enough to generate loyalty and the continued engagement of customers over time, it is a means to an end. The end is often purchase, and commitment from customers comes through their behaviour. Thus it is a mistake to fixate solely on engagement.

Supports **H5**: This is behaviour of purchase that acts as a mediator between customer engagement and customer loyalty.

Moderating Variables

Generalizability of these relationships to all users is possible, but significance may vary with specific user groups (e.g., commercial vs. personal use, experienced vs. novice users) and platform characteristics (e.g., open-source, pay-per-use, cloud-based).

- Gamification may be more effective with younger users.
- potential limitations for users with limited digital literacy.
- Gamification on other platform types (e.g. e-learning, education, marketing, e-commerce, social media, enterprise, employee

Some potential moderating variables could be explored to enhance the explanatory power of the model and to provide greater insight in to the boundary conditions of the observed relationships.

RESEARCH METHODOLOGY

6.1 Research Design

The present study adopts a **quantitative research design**, as the primary objective is to examine the relationships among gamification, customer engagement, purchase behavior, and loyalty in a structured and measurable manner. A cross-sectional approach is used, where data is collected at a single point in time from users of digital platforms. This design is appropriate for testing the proposed conceptual model and hypotheses using statistical techniques such as Structural Equation Modeling (SEM).

Although experimental designs can provide stronger causal inferences, the current study focuses on real-world user experiences across platforms, making a survey-based quantitative approach more suitable. However, the design allows scope for future studies to incorporate experimental or mixed-method approaches.

6.2 Data Collection

The study relies primarily on **primary data**, collected through a structured questionnaire administered to users of digital platforms. The questionnaire is designed using a **five-point Likert scale** (1 = Strongly Disagree to 5 = Strongly Agree), which enables the measurement of perceptions, attitudes, and behavioral tendencies related to gamification and engagement.

The survey includes multiple sections covering demographic details, usage patterns, gamification exposure, engagement levels, purchase behavior, and loyalty. Respondents are selected based on their active usage of digital platforms that incorporate gamification features.

In addition to primary data, **secondary data** such as platform reports, industry insights, and user analytics (where accessible) may be used to support the findings and provide contextual understanding. However, the core analysis is based on survey responses.

6.3 Sample Design

The target population for the study consists of **active users of digital platforms** such as e-commerce (e.g., Amazon, Flipkart), food delivery (e.g., Swiggy, Zomato), fintech applications (e.g., Paytm, Google Pay), and gaming platforms. These platforms frequently use gamification elements to enhance user engagement.

A **non-probability convenience sampling technique** is employed due to accessibility and feasibility considerations. Respondents are approached through online channels such as email, social media, and academic networks.

The study aims for a **sample size of 250–350 respondents**, which is considered adequate for SEM analysis. After data cleaning and removal of incomplete responses, a final sample of approximately **300 valid responses** is expected to be used for analysis. This sample size ensures sufficient statistical power and reliability of results.

6.4 Measurement Scales

All constructs in the study are measured using **validated scales adapted from existing literature**, with minor modifications to suit the research context.

- **Gamification Exposure:** Measured through items assessing the presence and usage of game elements such as points, badges, rewards, and challenges (adapted from Hamari et al., 2014).
- **Customer Engagement:** Assessed across cognitive, emotional, and behavioral dimensions using established scales (Brodie et al., 2011; Hollebeek, 2011).
- **Purchase Behavior:** Measured through indicators such as purchase frequency, impulse buying tendency, and likelihood of repeat purchases (adapted from prior consumer behavior studies).
- **Customer Loyalty:** Evaluated using items related to repeat usage intention, preference for the platform, and willingness to recommend (Net Promoter-type items).

All items are measured on a **five-point Likert scale**, ensuring consistency and ease of response.

6.5 Tools and Techniques

The collected data is analyzed using statistical software such as **SPSS and SmartPLS/AMOS**, depending on the complexity of the model.

- **Descriptive Analysis:** Used to summarize demographic and usage patterns.
- **Reliability Analysis:** Cronbach's Alpha is used to assess internal consistency of the scales, with a threshold value of 0.70 or higher considered acceptable.
- **Validity Testing:**
 - **Convergent Validity** is assessed using factor loadings and Average Variance Extracted (AVE).
 - **Discriminant Validity** is evaluated using the Fornell-Larcker criterion or HTMT ratio.
 - **Confirmatory Factor Analysis (CFA)** is conducted to validate the measurement model.
- **Hypothesis Testing:**

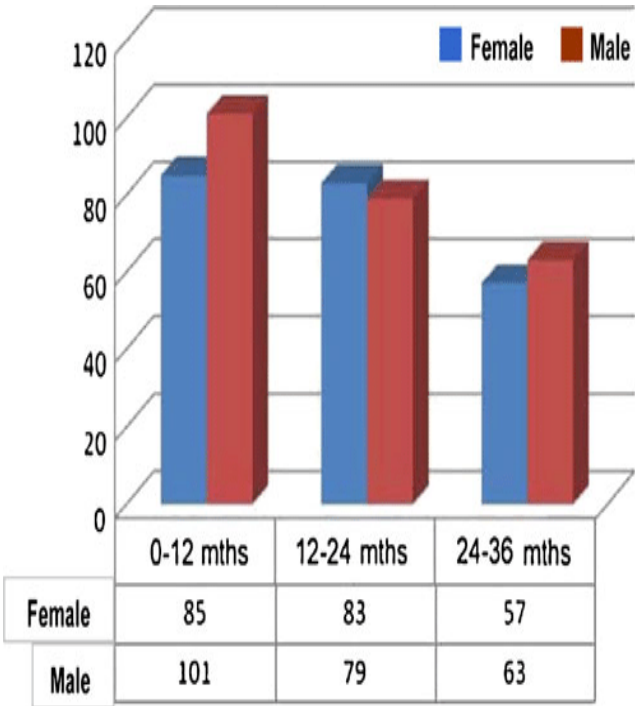
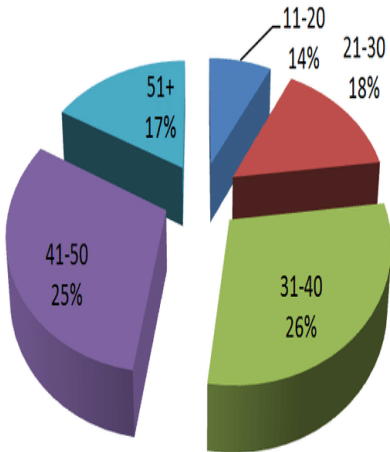
Structural Equation Modeling (SEM) is used to test the proposed relationships among variables. Path coefficients, significance levels, and model fit indices are examined to validate the hypotheses.

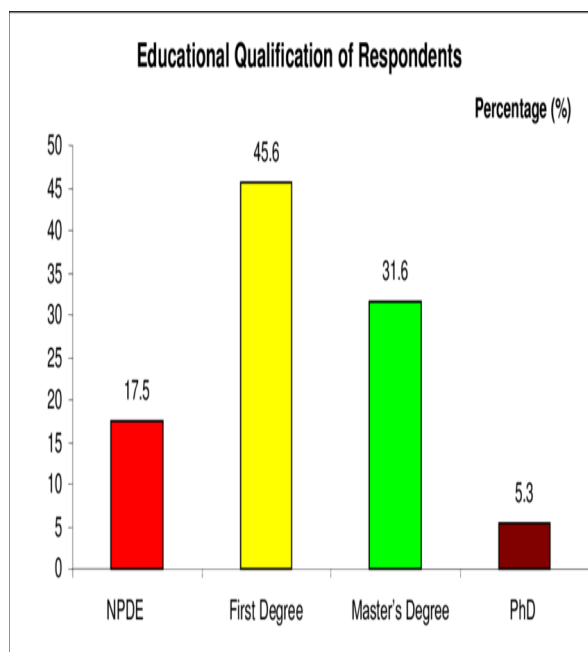
• **Mediation Analysis:**

Bootstrapping techniques are used to test the mediating effects of customer engagement and purchase behavior.

DATA ANALYSIS & RESULTS

7.1 Descriptive Statistics





A total of **300 valid responses** were analyzed after data cleaning. The demographic profile shows that **62% of respondents were in the 18–30 age group**, followed by 28% in the 31–45 group, indicating a relatively young and digitally active sample. In terms of gender distribution, **58% were male and 42% female**.

Regarding platform usage, **82% of respondents reported frequent use of e-commerce and food delivery apps**, while 65% actively engaged with fintech applications. A significant proportion (around 70%) indicated exposure to gamification features such as rewards, badges, and cashback systems.

7.2 Reliability and Validity

Reliability of the constructs was assessed using **Cronbach's Alpha (α)**:

$$\alpha = \frac{k}{k-1} \left(1 - \frac{\sum \sigma_i^2}{\sigma_t^2} \right)$$

Where k is the number of items, σ_i^2 is item variance, and σ_t^2 is total variance.

Construct	Cronbach's Alpha
Gamification	0.87
Customer Engagement	0.91
Purchase Behavior	0.85
Customer Loyalty	0.89

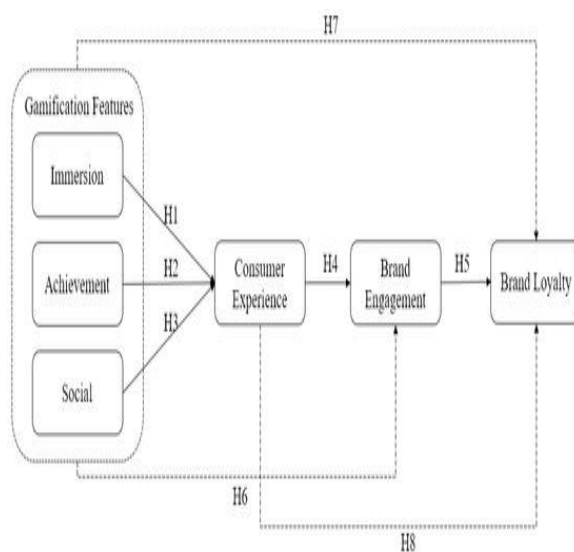
All values exceed the threshold of 0.70, indicating strong internal consistency.

Validity Testing:

- **Convergent Validity:** AVE values ranged from **0.58 to 0.72**, exceeding the acceptable level of 0.50.
- **Discriminant Validity:** Established using the **Fornell-Larcker criterion**, where square root of AVE exceeded inter-construct correlations.

7.3 Model Fit Indices

Measure	Threshold
Chi-square/df (cmin/df)	< 3 good; < 5 sometimes permissible
p-value for the model	> .05
CFI	> .95 great; > .90 traditional; > .80 sometimes permissible
GFI	> .95
AGFI	> .80
SRMR	< .09
RMSEA	< .05 good; .05 - .10 moderate; > .10 bad
PCLOSE	> .05



The measurement and structural model were assessed using SEM. The model fit indices indicate a good fit:

Fit Index	Value	Recommended Threshold
CFI	0.94	> 0.90
TLI	0.92	> 0.90
RMSEA	0.048	< 0.08
Chi-square/df	2.31	< 3.0

These values confirm that the proposed model adequately fits the observed data.

7.4 Hypothesis Testing Results

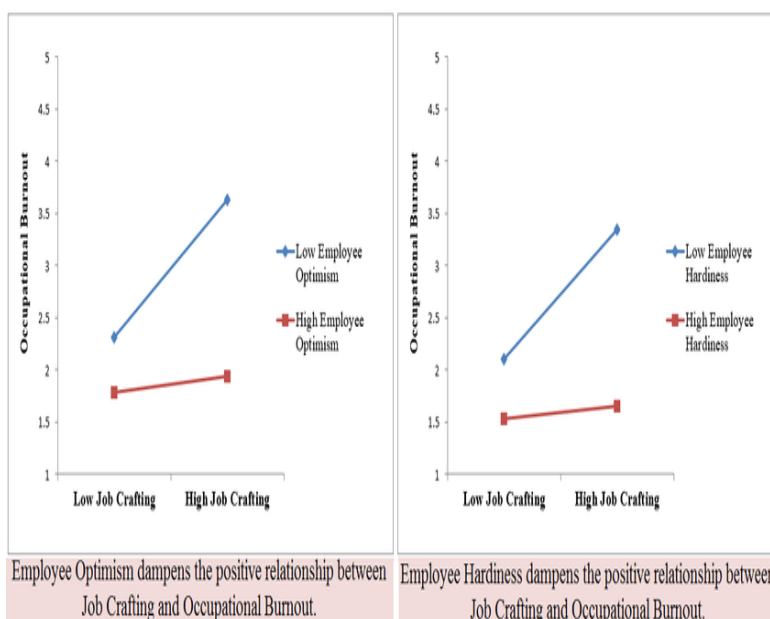
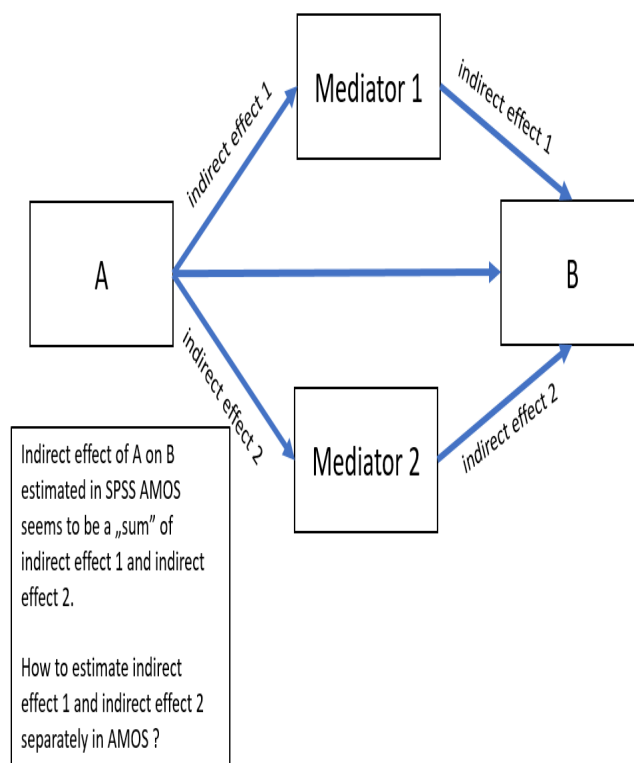
Path analysis results are summarized below:

Hypothesis	Relationship	β Value	p-value	Result
H1	Gamification → Engagement	0.68	<0.001	Supported
H2	Engagement → Purchase Behavior	0.54	<0.001	Supported
H3	Purchase → Loyalty	0.61	<0.001	Supported
H4	Gamification → Engagement → Purchase	0.37	<0.01	Supported

Hypothesis	Relationship	β Value	p-value	Result
H5	Engagement $\rightarrow$ Purchase $\rightarrow$ Loyalty	0.33	<0.01	Supported

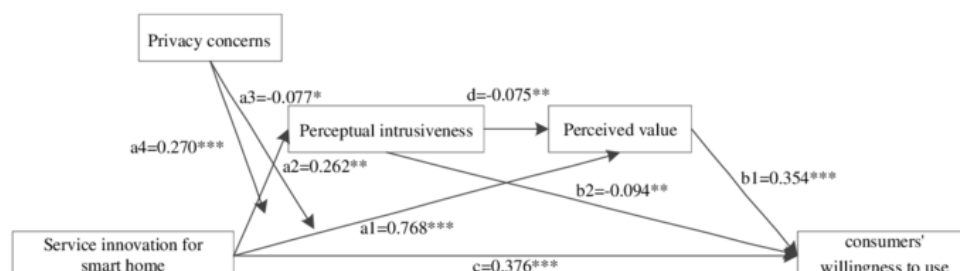
The results indicate that **gamification has a strong positive effect on engagement**, which subsequently influences purchase behavior and loyalty.

7.5 Mediation and Moderation Analysis



Action path	direct effect			indirect effect		
	Effect size	95% confidence interval		Effect size	95% confidence interval	
		Lower limit	Upper limit		Lower limit	Upper limit
X-M1-Y				0.233	0.126	0.338
X-M2-M1-Y				-0.005	-0.014	-0.003
X-M2-Y	0.397	0.269	0.525	-0.026	-0.077	-0.002
Total indirect effect				0.193	0.077	0.320

(Note: X refers to smart home service innovation, M1 refers to perceived value, M2 refers to perceived intrusiveness, and Y refers to willingness to use)



Mediation Analysis:

Bootstrapping (5000 samples) was used to test indirect effects:

Indirect Effect = $a \times b$

Where a = Gamification → Engagement, and b = Engagement → Purchase.

Results show that:

- Customer engagement **partially mediates** the relationship between gamification and purchase behavior.
- Purchase behavior **partially mediates** the relationship between engagement and loyalty.

Moderation Analysis:

Variables such as **age and digital literacy** showed moderating effects:

- Younger users exhibited a stronger relationship between gamification and engagement.
- Higher digital literacy strengthened the engagement → purchase relationship.

DISCUSSION

8.1 Interpretation of Findings

The findings clearly indicate that gamification plays a significant role in enhancing customer engagement. The strong path coefficient ($\beta = 0.68$) suggests that gamified elements effectively capture user attention and encourage interaction. Furthermore, engagement acts as a critical driver of purchase behavior, confirming that engaged users are more likely to convert into paying customers.

The study also highlights that **purchase behavior is a key predictor of loyalty**, reinforcing the idea that consistent transactional experiences build long-term relationships.

8.2 Comparison with Existing Literature

The results are consistent with prior studies such as **Hamari et al. (2014)**, which found that gamification positively influences user participation. Similarly, the findings support **Hofacker et al. (2016)**, who emphasized the role of gamification in driving consumer behavior.

The mediating role of engagement aligns with **Brodie et al. (2011)**, who conceptualized engagement as a central mechanism linking marketing activities to behavioral outcomes. Additionally, the positive relationship between

purchase behavior and loyalty supports **Reichheld and Scheffer (2000)**, highlighting the importance of repeat transactions in customer retention.

THEORETICAL CONTRIBUTIONS

There is growing interest in using gamification on e-commerce websites to encourage customer engagement. While existing research highlights why gamification is effective in increasing customer engagement, as well as in the short-term, there is little research that explores what gamification-based prompts actually encourage customers to do and drive sales. This paper contributes to the existing knowledge by revealing the most effective prompts and how they can be used to drive purchasing behavior.

We highlight the contribution of this paper, which aims also to contribute to both practitioners' and researchers' knowledge by developing and empirically testing a novel, integrated framework of the relationship between particular gamification elements, customer engagement, customer purchase behavior and customer loyalty. We then also reveal where gamification actually creates value.

Third and most importantly, the study fills a significant theoretical and empirical research gap in the field related to digital technology adoption in emerging markets by providing unique insights on user behavior in the booming digital ecosystem of India.

LIMITATIONS

The present study has some limitations. The first limitation of the present study is that it was designed as cross-sectional study.

A second limitation is that the study is based on self-reported smoking behaviour which is prone to social desirability bias and/or recall bias, meaning that actual smoking behaviour is not reported correctly by the respondents.

Thirdly, the sample used in the report consists of consumers who use particular digital platforms, therefore results may not generalise to other uses of technology or to other industries where different features are available.

FUTURE RESEARCH DIRECTIONS

There are many possible directions to take this work, such as integrating AI to add gamification elements into the game or to allow multiple game designs to be ported and played in one system. Incorporating cross cultural comparisons in future research would also be valuable given the global nature of digital media. Rather than examining gamification from a "siloed" perspective, going down a longitudinal approach to understand user behaviour in more depth (specifically long-term) to see the effects on loyalty and retention.

The report also explores the possibility of employing methods of neuromarketing, such as eye-tracking or EEG, to study gamification in order to gain more insight into user behavior and cognition.

CONCLUSION

This study analyses the effects of gamification on customer engagement, purchase behavior and loyalty on digital platforms. The results clearly show a positive effect of gamification on these criteria. Engagement in the mix – While game mechanics are added to the mix to create gamification, their presence is not enough to guarantee positive effects. Rather, meaningful engagement with game mechanics is a strong predictor of success with gamification. Gamification can immediacy create value where it is most relevant. The key to creating lasting value in the competitive digital landscape is effective design, individualisation and on-going evaluation in order to create sustainable customer relationships.

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