The Psychology of Play-to-Pay: Analyzing Behavioral Factors Affecting Gamified Reward Adoption in M-Commerce Apps

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Abstract

Gamification has emerged as a powerful strategy in mobile commerce (M-commerce) applications, enhancing user engagement and encouraging repeat usage. This study explores the behavioral factors that influence the adoption of gamified reward systems among users in Pune city. The research focuses on four key constructs: perceived enjoyment, perceived usefulness, reward sensitivity, and habitual usage. Data was collected through a structured questionnaire and analyzed using exploratory factor analysis to identify underlying patterns in user behavior. The study confirms that gamified features in shopping apps are adopted not only for entertainment but also for their practical benefits and motivational appeal.

Keywords: Gamification, M-Commerce, User Behavior, Reward Systems, Mobile Shopping Apps, Behavioral Factors, Consumer Engagement, Play-to-Pay Model

Introduction:

With the rise of today's digital economy, mobile commerce (M-commerce) has emerged as an overwhelming trend and has greatly impacted how consumers engage with business. The ease of making purchases through shopping apps on mobile and the innovation in mobile technologies have created exponential growth in online business activities. With the digital marketplace getting more congested, companies are constantly looking for new means to acquire, engage, and retain customers. One of these methods is gamification, the use of elements of game design like points, badges, leaderboards, and challenges in non-game situations (Deterding et al., 2011). In M-commerce, gamification has been used extensively to increase user engagement, encourage participation, and build customer loyalty.

Mobile shopping app gamified reward systems are intended not just to entertain but also to drive behaviour. These systems encourage users through

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rewarding them for the accomplishment of certain actions, including purchases, referrals, or milestones. Through making the routine tasks of shopping fun and engaging experiences, gamification uses psychological drivers like competition, achievement, and instant feedback (Zichermann & Cunningham, 2011). This, in turn, encourages the users to come back to the app again, use its features, and finally make repeat purchases.

The psychological appeal of gamification lies in its ability to satisfy both intrinsic and extrinsic motivations. Intrinsically, users may experience enjoyment and a sense of achievement from

completing challenges or earning badges. Extrinsically, they may be driven by tangible rewards such as discounts, cashback, or loyalty points (Hamari et al., 2014). These motivational drivers play a crucial role in influencing user behavior within mobile apps. But notwithstanding the pervasiveness of gamified systems in M-commerce, we know rather little about what specific behavioral factors drive users to adopt and continually partake in these features

Among these studies, perhaps the most important oversight is an empirical research focus on behavioral psychology and user behavior in localized contexts like India. For example, what we do know is that there are young, tech-friendly urban environments - like Pune city - that represent an opportunity to evaluate how gamification can be used to manipulate consumer behavior. Cultural and demographic variances may significantly change a user's perception of enjoyment, usefulness and value when it comes to gamified features, so understanding these within a localized framework can lead to valuable insights for more effective gamification practices.

This research seeks to fill this void by exploring the most important behavioral constructs responsible for driving gamified reward system adoption in M-commerce apps. These constructs have been clearly identified through prior research as essential user engagement dimensions in online settings (Hamari et al., 2014; Seaborn & Fels, 2015). Through the examination of the variables from empirical data on users in Pune, the research aims to determine the psychological motivations underlying the "play-to-pay" behavior of gamified commerce platforms.

The conclusions from this study will provide useful implications for e-commerce strategists, mobile app developers, and marketers. Knowing the drivers of users' usage of gamified reward systems will be useful in planning more efficient features that are congruent with users' expectations and

behaviors. It also adds to the expanding body of research on gamification in digital business, particularly in the context of developing markets. As the M-commerce platform continues to grow, user-centric design based on behavioral research will be responsible for driving growth and innovation in the industry.

Review of Literature

The increasing convergence of mobile technology and e-commerce has really changed the way consumers move from brand attraction to purchase decision. M-commerce happens when commercial transactions take place via mobile devices. From mobile devices and apps becoming more user friendly and widely available, the growth of m-commerce has exploded. Today, businesses are creating unique propositions to differentiate themselves as businesses compete for the same share of attention from consumers in a digitally crowded way. One such proposition is gamification. Gamification means embedding some of the characteristics of gaming into a non-gaming platform so that the gamification elements help to change user behavior ultimately emphasizing and enhancing user engagement both with the brand and the purchase process (Deterding et al., 2011).

Gamification is widely recognized in e-commerce industries to create improved customer interaction. Gamified systems are helpful in creating an enhanced user experience that leverage game elements such as points, rewards, challenges and systems of virtual progression (Zichermann & Cunningham, 2011). These elements replicate engagement pieces of gaming; consumers are more engaged and less likely to abandon usage. Gamification can help retain users and significantly increase time on apps and more repeat visits. Gamification in mobile commerce can attract users but also, since user journeys naturally vary, assist brands in directing users towards desired future

behaviours. These customer engagement behaviours might include ending the m-commerce journey with a decision to purchase or refer m-commerce to others.

The literature also indicates that users are influenced by gamification in terms of psychological stimulation. Higher levels of emotional involvement are achieved by playful interfaces, and achievement systems, which can be applied to the digital platforms users are likely to engage with (Huotari & Hamari, 2012). Gamification offers users value outside of the transactional model of shopping by offering experiences that feel personal, rewarding, and make a difference in their lives. The experiential aspects of gamification are fundamentally about affecting preferences and relationships with brands in the long run.

There have been a number of empirical investigations into how the use of gamified features in apps has led to behavioural change and increased engagement. For instance, integrating game elements into retail and household apps has lead to higher interaction rates on even the most functional of apps (a bank app as an example) (Hamari, Koivisto, & Sarsa, 2014). This shows that gamification elements can have a transformative role in how users regard and experience mobile services, rather than merely being a fun layer of engagement.

Although gamification is increasingly being applied across sectors, much of the current literature focuses on Western markets. The socio-cultural environment of gamification uptake is under-explored, especially in emerging economies such as India. Regional user preferences, digital literacy, as well as cultural values, could influence how gamified systems are adopted. As Sharma and Singh (2020) have pointed out, Indian urban consumers' behaviour is frequently dictated by the perceived practicality and applicability of digital

functions, which emphasizes the importance of localized research.

Research Gap:

Although prior studies have examined gamification and user engagement in digital platforms, there remains a limited understanding of the specific psychological and behavioral constructs that drive user engagement with gamified features in mobile shopping applications. Existing research has largely focused on general engagement outcomes, with insufficient attention to how factors such as motivation, habit, and perceived enjoyment interact within mobile commerce contexts. Furthermore, the role of demographic characteristics in shaping users' attitudes toward gamified rewards remains underexplored, particularly in M-commerce environments, where user diversity and usage patterns vary significantly. This gap highlights the need for targeted empirical research that integrates psychological constructs with demographic insights to better explain user engagement with gamified features in mobile shopping apps.

Objectives of the study

• Identify the key psychological and behavioral constructs that affect users' engagement with gamified features in mobile shopping apps.

• Explore the demographic profile of users and its relevance in shaping attitudes toward gamified rewards in M-commerce environments.

Research Methodology

The present study employed a quantitative research design to analyze the behavioral factors influencing the adoption of gamified reward systems in M-commerce applications. The research was conducted using a structured questionnaire, which included items related to perceived enjoyment,

perceived usefulness, reward sensitivity, and habitual usage. The questionnaire was developed on 5-points Likert scale based on relevant literature and validated through a pilot study to ensure clarity and reliability.

The sampling method used was non-probability convenience sampling, targeting individuals who actively use mobile shopping applications. The study was conducted in Pune city, a major urban and commercial hub in India, which offers a diverse population of tech-savvy consumers. A total of 133 valid responses were collected and used for the final analysis. For data reduction and identification of underlying constructs, Exploratory Factor Analysis (EFA) was performed using Principal Component Analysis (PCA) as the extraction method, followed by Varimax rotation with Kaiser normalization.

Data Analysis and Interpretation
Table 1

Demographic Profile of Respondents			
Demographic Variables		Frequency	%
Gender	Female	45	33.83
	Male	88	66.17
Age	18-25	64	48.12
	26-35	46	34.59
	36-45	23	17.29
Education	UG	76	57.14
	PG	45	33.83
	PhD	12	9.02
Occupation	Professional	26	19.55
	Service	29	21.80
	Student	78	58.65
Income	Dependent	23	17.29
	1-3 lacs	29	21.80
	3-6 lacs	44	33.08
	6-9 lacs	33	24.81
	Above 9 lacs	4	3.01

Interpretation: The demographic data as shown in Table 1 reveals that the majority of respondents were male (66.17%), with females making up 33.83% of the sample. In terms of age, most participants were aged 18–25 years (48.12%), followed by 26–35 years (34.59%), indicating a predominantly young respondent base. Regarding educational background, 57.14% were undergraduates (UG), while 33.83% held postgraduate (PG) degrees and 9.02% had PhDs.

The occupation data shows that a significant portion were students (58.65%), followed by those in service (21.80%), dependent individuals (17.29%), and professionals (19.55%). In terms of income, the largest group earned between 3–6 lacs annually (33.08%), followed by 6–9 lacs (24.81%), 1–3 lacs (21.80%), and only 3.01% earning above 9 lacs. Overall, the sample is dominated by young, educated students with moderate income levels.

Table 2

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.801	0.801	17

Interpretation: The reliability analysis (Table 2) shows that Cronbach's Alpha value is 0.801 for the 17 items used in the study. This indicates a high level of internal consistency among the items, meaning the questionnaire is reliable for measuring the intended constructs. Since values above 0.7 are generally considered acceptable and values above 0.8 indicate good reliability, the result confirms that the scale used in the study is both consistent and dependable.

Table 3

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.704
Bartlett's Test of Sphericity	Approx. Chi-Square	144.380
	df	105
	Sig.	.007

Interpretation: As shown in Table 3, The Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy is 0.704, which falls within the acceptable range and indicates a good level of sampling adequacy for conducting factor analysis. A KMO value above 0.7 suggests that the data are suitable for structure detection. Furthermore, Bartlett's Test of Sphericity is significant (Approx. Chi-Square = 144.380, df = 105, p = 0.007), confirming that there are significant correlations among the variables. Together, these results support the appropriateness of using factor analysis for the dataset.

Table 4

Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.578	17.186	17.186	2.578	17.186	17.186	2.290	15.267	15.267
2	2.209	14.724	31.910	2.209	14.724	31.910	2.224	14.828	30.096
3	2.005	13.367	45.277	2.005	13.367	45.277	2.037	13.577	43.673
4	1.792	11.944	57.221	1.792	11.944	57.221	2.032	13.548	57.221
5	1.496	9.974	67.195						
6	1.275	8.497	75.692						
7	1.209	8.060	83.752						
8	.666	4.442	88.194						
9	.510	3.401	91.595						
10	.386	2.571	94.166						
11	.322	2.143	96.310						
12	.245	1.632	97.942						
13	.169	1.125	99.067						
14	.094	.628	99.695						
15	.046	.305	100.000						

Extraction Method: Principal Component Analysis.

Interpretation: The table 4 shows the results of a factor extraction using Principal Component Analysis, where a total of four components were retained based on their eigenvalues (greater than 1). These four components together explain approximately 57.221% of the total variance, as indicated in the "Cumulative %" under the Rotation Sums of Squared Loadings column. Specifically, the first component explains 15.267%, the second 14.808%, the third 13.577%, and the fourth 13.548% of the variance. This suggests that these four components capture the most significant underlying patterns in the data and are sufficient for further analysis, while the remaining components contribute relatively little to explaining the variability. The rotation method improves interpretability by distributing the variance more evenly across the retained components.

Table 5

S.no.	Factors	Statements	1	2	3	4
1	Perceived Enjoyment (Loading Value = 2.603)	I enjoy using mobile shopping apps that include games or interactive reward features.	0.694			
		Gamified rewards make the shopping experience more entertaining for me.	0.694			
		I feel excited when I unlock new levels or achievements in shopping apps.	0.629			
		The fun elements in M-commerce apps motivate me to use them more frequently.	0.586			
2	Perceived Usefulness (Loading Value = 2.177)	I find gamified rewards helpful in saving money while shopping on mobile apps.		0.843		
		Reward features help me make faster purchasing decisions.		0.669		
		Gamified systems improve the overall value I get from a shopping app.		0.665		
3	Reward Sensitivity (Loading Value = 2.044)	I am more likely to shop on apps that offer points, badges, or cashback.			0.786	
		Earning rewards motivates me to spend more time on a mobile shopping app.			0.712	
		I often check for available rewards before making a purchase			0.546	
4	Habitual Usage (Loading Value = 2.218)	I use mobile shopping apps with gamified rewards out of habit.				0.787
		Receiving rewards regularly has made app usage part of my routine.				0.732
		I often return to the app just to check for new reward opportunities.				0.699

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 8 iterations.

Interpretation: The table provided is a Rotated Component Matrix (table 5)resulting from a factor analysis related to the study. This table provides insights into how different behavioral statements group together (load onto) underlying psychological factors that affect the adoption of gamified rewards in mobile commerce (M-commerce) apps.

The first factor, Perceived Enjoyment (Loading Value = 2.603), reflects the emotional engagement users experience, with high component loadings such as 0.694 for both "I enjoy using mobile shopping apps that include games or interactive reward features" and "Gamified rewards make the shopping experience more entertaining for me," indicating that fun and excitement significantly drive user participation. The second factor,

Perceived Usefulness (Loading Value = 2.177), captures the practical advantages of gamified systems, demonstrated by strong loadings of 0.843 for "I find gamified rewards helpful in saving money," 0.669 for "Reward features help me make faster purchasing decisions," and 0.665 for "Gamified systems improve the overall value I get from a shopping app." The third factor, Reward Sensitivity (Loading Value = 2.044), reflects users' motivation to seek benefits, with loadings of 0.786 for "I am more likely to shop on apps that offer points, badges, or cashback," 0.712 for "Earning rewards motivates me to spend more time on a mobile shopping app," and 0.546 for "I often check for available rewards before making a purchase." Lastly, Habitual Usage (Loading Value = 2.218) highlights the behavioral pattern of repeated engagement, evidenced by loadings of 0.787 for "I use mobile shopping apps with gamified rewards out of habit," 0.732 for "Receiving rewards regularly has made app usage part of my routine," and 0.699 for "I often return to the app just to check for new reward opportunities." These results, obtained using Principal Component Analysis with Varimax rotation, demonstrate that enjoyment, perceived utility, sensitivity to rewards, and habit formation are key psychological dimensions influencing the adoption of gamified rewards in M-commerce apps.

Findings:

The factor analysis identified four key behavioral dimensions that influence the adoption of gamified rewards in M-commerce apps.

Firstly, Perceived Enjoyment emerged as a strong motivator, with a loading value of 2.603. This factor reflects the emotional engagement users experience when interacting with gamified elements. High loadings such as 0.694 for the statements "I enjoy using mobile shopping apps that include games or interactive reward features" and "Gamified rewards make the shopping experience more entertaining for me" indicate that users are significantly driven by the entertainment value and fun aspects of gamified features. This aligns with prior studies showing that gamification enhances intrinsic motivation and emotional involvement (Huotari & Hamari, 2012; Hamari, Koivisto, & Sarsa, 2014). Additional statements like "I feel excited when I unlock new levels or achievements in shopping apps" (0.629) and "The fun elements in M-commerce apps motivate me to use them more frequently" (0.586) further reinforce the importance of enjoyment in enhancing user engagement.

Secondly, the factor Perceived Usefulness, with a loading value of 2.177, captures the rational and practical benefits users associate with gamified rewards. This includes saving money and improving purchasing decisions. The highest loading under this factor (0.843) was for the statement "I find gamified rewards helpful in saving money while shopping on mobile apps." Other significant contributions came from "Reward features help me make faster purchasing decisions" (0.669) and "Gamified systems improve the overall value I get from a shopping app" (0.665), indicating that gamification is not just entertaining but also functionally beneficial to users. This is supported by previous research which shows that users are more likely to adopt technologies when they perceive them as useful for achieving goals (Venkatesh & Davis, 2000).

The third factor, Reward Sensitivity, had a loading value of 2.044, emphasizing users' motivational response to earning rewards. For instance, "I am more likely to shop on apps that offer points, badges, or cashback" had a high loading of 0.786, while "Earning rewards motivates me to spend more time on a mobile shopping app" scored 0.712, and "I often check for available rewards before making a purchase" had a moderate loading of 0.546. These values suggest that users' behaviors are highly influenced by their responsiveness to

incentives. This finding is consistent with studies indicating that extrinsic rewards, when designed appropriately, can significantly boost engagement and reinforce behavior (Deci & Ryan, 2000; Mekler et al., 2017).

Lastly, Habitual Usage and its loading of 2.218, brings into consideration the process of habit formation or developing the usage of habits through repeated exposure to rewarding outcomes. The following statements substantiate this: "I use mobile shopping apps with gamified rewards out of habit" (0.787), "Because I received rewards on a consistent basis, using the app became a part of my routine" (0.732), "I often go back to the app just to check if there is a new reward available" (0.699). All of these statements illustrate that consistent action through rewards could take the form of habitual behavior. Habitual use discussed in this instance is an important aspect of eventual long-term retention and the development of loyalties in apps driven by gamified systems. This relates back to prior studies showing that repeated use of digital methods led to habit development over time (Limayem, Hirt, & Cheung, 2007).

Scope for Further Work

Future research could investigate the role of demographic factors—such as age, gender, income, and digital literacy—in users' responses to gamified reward systems in M-commerce applications. Knowing how different user groups perceive enjoyment, usefulness, and rewards would inform gamification strategies that are more personalized.

Longitudinal studies could also be conducted to examine how user response changes over time with persistent use of gamified elements. Understanding possible changes in perceived usefulness or habitual usage after months or years could provide a deeper understanding of the viability of gamification in achieving long-term user engagement.

Finally, future work might include qualitative designs, such as interviews or focus groups, in order to identify user motivations and emotional responses that quantitative surveys do not capture. Triangulating behaviours with psychology could provide richer information about why users adopt and/or cease use of gamified features in an M-commerce context.

Limitation of the study:

· The research focuses on selected psychological and behavioral constructs influencing engagement with gamified features in mobile shopping applications; therefore, other relevant factors such as social influence, cultural context, or technological design elements may not be fully captured.

· The demographic variables considered in the study are limited in scope, which may restrict the generalizability of the findings across different user groups and geographic regions.

· The cross-sectional nature of the study constrains the ability to infer causal relationships between psychological constructs, demographic characteristics, and user engagement in M-commerce environments.

Conclusion:

The factor analysis demonstrates that the use of gamified rewards within M-commerce applications is determined by four fundamental psychological drivers: perceived enjoyment, perceived usefulness, reward sensitivity, and habitual use. These drivers not only confirm the emotional and utilitarian value consumers place on gamified elements but also confirm the influence of motivation and behavioural conditioning in

maintaining app usage. High loading values across these dimensions demonstrate that users are drawn to gamified elements not just for entertainment, but also for tangible benefits and the formation of usage habits. Understanding these behavioral drivers provides valuable insights for app developers and marketers aiming to enhance user retention and optimize reward-based engagement strategies in mobile commerce environments.

References:

i. Deci, E. L., & Ryan, R. M. (2000). The what and why of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry, 11*(4), 227–268. https://doi.org/10.1207/S15327965PLI1104_01

ii. 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

iii. Hamari, J., Koivisto, J., & Sarsa, H. (2014). Does gamification work? A literature review of empirical studies on gamification. In *Proceedings of the 47th Hawaii International Conference on System Sciences* (pp. 3025–3034). https://doi.org/10.1109/HICSS.2014.377

iv. Huotari, K., & Hamari, J. (2012). Defining gamification: A service marketing perspective. In *Proceedings of the 16th International Academic MindTrek Conference* (pp. 17–22). https://doi.org/10.1145/2393132.2393137

v. Limayem, M., Hirt, S. G., & Cheung, C. M. (2007). How habit limits the predictive power of intention: The case of information systems continuance. *MIS Quarterly, 31*(4), 705–737. https://doi.org/10.2307/25148817

vi. Mekler, E. D., Brühlmann, F., Tuch, A. N., & Opwis, K. (2017). Towards understanding the effects of individual gamification elements on intrinsic motivation and performance. *Computers in Human Behavior, 71*, 525–534. https://doi.org/10.1016/j.chb.2015.08.048

vii. Seaborn, K., & Fels, D. I. (2015). Gamification in theory and action: A survey. *International Journal of Human-Computer Studies, 74*, 14–31. https://doi.org/10.1016/j.ijhcs.2014.09.006

viii. Sharma, P., & Singh, A. (2020). Gamification in digital marketing: A study of Indian consumers. *International Journal of Marketing Studies, 12*(2), 45–55.

ix. Venkatesh, V., & Davis, F. D. (2000). A theoretical extension of the Technology Acceptance Model: Four longitudinal field studies. *Management Science, 46*(2), 186–204. https://doi.org/10.1287/mnsc.46.2.186.11926

x. Zichermann, G., & Cunningham, C. (2011). *Gamification by design: Implementing game mechanics in web and mobile apps*. O'Reilly Media.