“Determinants of customer loyalty in mobile shopping apps: Extending expectation-confirmation theory in the Indian context”

AUTHORS	S. Saibaba
ARTICLE INFO	S. Saibaba (2025). Determinants of customer loyalty in mobile shopping apps: Extending expectation-confirmation theory in the Indian context. *Innovative Marketing* , *21*(4), 318-336. doi:10.21511/im.21(4).2025.23
DOI	http://dx.doi.org/10.21511/im.21(4).2025.23
RELEASED ON	Tuesday, 23 December 2025
RECEIVED ON	Wednesday, 23 July 2025
ACCEPTED ON	Wednesday, 03 December 2025
LICENSE	This work is licensed under a Creative Commons Attribution 4.0 International License
JOURNAL	"Innovative Marketing "
ISSN PRINT	1814-2427
ISSN ONLINE	1816-6326
PUBLISHER	LLC “Consulting Publishing Company “Business Perspectives”
FOUNDER	LLC “Consulting Publishing Company “Business Perspectives”

NUMBER OF REFERENCES	NUMBER OF FIGURES	NUMBER OF TABLES
50	3	7

BUSINESS PERSPECTIVES

LLC "CPC "Business Perspectives"
Hryhorii Skovoroda lane, 10,
Sumy, 40022, Ukraine

www.businessperspectives.org

S. Saibaba (India)

DETERMINANTS OF CUSTOMER LOYALTY IN MOBILE SHOPPING APPS: EXTENDING EXPECTATION-CONFIRMATION THEORY IN THE INDIAN CONTEXT

Abstract

The study explores the evolving role of customer loyalty within mobile shopping applications in the context of the Indian market, where the rapid growing penetration of smart phones and mobile commerce adoption poses more challenges and opportunities to mobile commerce companies. Therefore, this study aimed to investigate the effect of confirmation, hedonic motivation, and price saving orientation on perceived usefulness, customer satisfaction, and eventually loyalty by integrating Expectation-Confirmation Theory (ECT) and Technology Acceptance Model (TAM). Data were collected through an online survey of 535 Indian smartphone users who had prior mobile shopping experience. Utilizing partial least squares structural equation modelling, this study examines the relationships among confirmation, perceived usefulness, customer satisfaction, and loyalty. The results show that perceived usefulness and satisfaction are important mediators in the confirmation of ($\beta = 0.188$, $p < 0.001$), hedonic motivation ($\beta = 0.134$, $p < 0.001$), and price-saving orientation $\beta = 0.291$, $p < 0.001$) towards customer loyalty. Customer satisfaction ($\beta = 0.457$, $p < 0.001$) was the most crucial determinant of loyalty among the predictors tested. Price-saving orientation showed significant impact on both satisfaction ($\beta = 0.390$, $p < 0.001$) and the perceived usefulness ($\beta = 0.271$, $p < 0.001$), reflecting Indian consumer's economic nature. In contrast, hedonic motivation ($\beta = 0.012$, $p = 0.389$) was not significant as a predictor of satisfaction, but it had an indirect impact on loyalty via perceived usefulness, indicating the conjoined effect of emotional and utilitarian motives. These findings enhance the theoretical understanding by extending Expectation-Confirmation Theory within the context of mobile commerce and provide actionable insights for developers and marketers striving for user retention by aligning customer expectations and offering both value and enjoyment through the app.

Keywords customer loyalty, mobile shopping apps, Expectation-Confirmation Theory, hedonic motivation, price-saving orientation, India

JEL Classification M31, D12, L81

Type of the article: Research Article

Received on: 23rd of July, 2025
Accepted on: 3rd of December, 2025
Published on: 23rd of December, 2025

S. Saibaba, Ph.D., Associate Professor, SDM Institute for Management Development, India.

Conflict of interest statement:
Author(s) reported no conflict of interest

INTRODUCTION

The proliferation of affordable smartphones and data plans has transformed the retail landscape in India. In 2024, India's e-commerce sector reached an estimated US$ 182 billion, of which retail e-commerce alone contributed US$ 83 billion, sustaining a compound annual growth rate (CAGR) of over 18% (PCMI, 2024). Mobile devices now account for most online purchases, and the global m-commerce sales climbed to US$ 5.3 trillion in 2024 – 57% of total e-commerce – up from US$ 4.2 trillion in the prior year (Jain, 2022). In India, mobile commerce is projected to expand from US$ 17.9 billion in 2025 to over US$ 37.7 billion by 2030, driven by rising smartphone penetration in tier-II and tier-III cities (Vinayak Bali, 2025). This rapid growth indicates the need to understand the drivers of post-purchase loyalty within mobile shopping apps.

http://dx.doi.org/10.21511/im.21(4).2025.23

Expectation Confirmation Theory (ECT), initially proposed by Oliver (1980), posits that satisfaction and continuance intention are influenced by confirmation of expectations and perceived usefulness. Bhattacherjee (2001) subsequently extended this theory to the continuation of technology use, arguing that users' ongoing involvement with technology is predicated on the same fundamental processes – a notion he credits to the pioneering work of Oliver (1980). In the area of mobile shopping, two particular motivational elements have been recognized for their potency. Price-saving orientation, representing consumers' tendency to seek for discounts and deals, works as a utilitarian motivator by bringing financial benefit and meeting consumers' prior expectations, thus leading to a higher level of perceived usefulness (Bhattacherjee, (2001) referring to Oliver (1980)). Hedonic motivation, an indicator for an enjoyable, pleasurable, and experiential nature of shopping, has a direct effect on satisfaction despite its influence in perceived usefulness being weaker; this separation is provided the results of the empirical study of Venkatesh et al. (2003).

Although there is a growing body of research that incorporates drivers such as confirmation, price-saving orientation, and hedonic motivation into technology acceptance models, many existing studies are fragmented and focused on contexts other than India. No published research has yet examined the combined effects of these three drivers within a single, end-to-end ECT model that extends to customer loyalty in the context of mobile commerce. This gap is even more acute in India, where unique cultural and economic conditions have a profound impact on consumer motivations and patterns of technology use, making such an integrated investigation both timely and necessary. The present study addresses this gap by developing and empirically testing an extended ECT framework for mobile shopping apps in India.

1. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Retail has been transformed by mobile shopping apps by providing consumers with a new combination of convenience, personalization and instant product availability creating an array of consumer experiences based on both emotional and cognitive aspects. The cognitive motivations for using the mobile shopping app such as perceived usefulness and price savings orientation create rational evaluations of the app's functionality and its potential to provide financial value, whereas the emotional motivations for using the mobile shopping app, such as hedonic motivation, are designed to increase the user's pleasure and engagement with the application. Both cognitive and emotional motivators combine to produce overall satisfaction of the customer – a key factor that determines long-term loyalty to the application and the continued use of it. Understanding how these cognitive and affective factors interact is important for developing holistic models of customer loyalty for mobile shopping applications (Bhattacherjee, 2001; Kang et al., 2010; San-Martin & López-Catalán, 2013).

Traditionally, the focus of mobile commerce research has been initial user adoption, grounded in well-established information systems adoption models such as Davis's (1989) Technology Acceptance Model (TAM) and Venkatesh et al.'s (2003) Unified Theory of Acceptance and Use of Technology (UTAUT). While TAM focuses on the perceived usefulness and perceived ease of use as the two central determinants, UTAUT incorporates additional dimensions such as social influence and facilitating conditions for the prediction of behavioral intentions (Aldás-Manzano et al., 2009; Jain et al., 2021). These models are quite useful in explaining users' initial intentions to use mobile shopping apps by highlighting cognitive assessments made before or during early stages of interaction. A recent systematic review finds that although Technology Acceptance Model (TAM) and UTAUT2 dominate the literature on mobile shopping app (MSA) adoption, a true universal model remains elusive, while key emotional and experiential factors are commonly neglected Chadha et al. (2024).

Post-adoption behaviour is continuing to be an area of increasing research focus. More specifically, researchers have increasingly focused their studies on continuance intention, customer satisfac-

tion and loyalty. A foundational conceptual model to date as it relates to this topic is the Expectation Confirmation Model (ECM) developed by Bhattacherjee (2001), with the model stating that user's expectation confirmation, along with perceived usefulness will contribute positively to user satisfaction and continue to influence continued use (Kang et al., 2010; Lin & Wang, 2006; San-Martin & Lopez-Catalan, 2013). In addition to the mentioned earlier, some recent criticisms of research models focusing only on the first-time downloads have stated that these models do not address the important factors of customer retention and advocacy in order to provide for long-term sustainable success within mobile commerce environments (Schramm-Klein & Wagner, 2014).

In contrast to the abovementioned research, trends show a contradiction between two different forms of motivation of customers' behaviours towards mobile commerce services; namely, the first one emphasizes the cognitive motives (price-saving, convenience) related to the utility value perceived by users while the second one focuses on hedonic motives related to the pleasure experienced during the consumption experience (affective factors). Even though it is now widely recognized in the literature that a balance between these two dimensions is required to provide an adequate explanation of loyalty and continuous use of a service, scholars, such as Maduku and Thusi (2023) and Shang and Wu (2017), are insisting on the development of integrated models that combine the cognitive evaluation of a product/service (e.g. confirmation, perceived usefulness) with its affective response (e.g. satisfaction, enjoyment) without sacrificing predictive validity.

Satisfaction for customers develops into a major intermediate construct that connects the cognitive and affective constructs that are antecedent to customer loyalty. Once customers have established an expectation about a mobile shopping application they find useful, and confirmed their expectations, customers develop a satisfaction with the product/service that will encourage them to continue using it, to purchase from it repeatedly, and to recommend it positively (Anderson et al., 1994; Bhattacherjee, 2001; Fornell, 1992; Kang et al., 2010). Customer loyalty is also impacted by hedonic motivation to build an emotional connection to the mobile shopping application in order to use the product consistently for the pleasure of using the product and beyond its usefulness (Maduku & Thusi, 2023; San-Martin & López-Catalán, 2013).

The degree to which an app's actual usability meets or exceeds a user's initial expectations for how easy it will be to shop through the app represents confirmation (Bhattacherjee, 2001). Confirmation acts as a point at which users evaluate the performance of a shopping app, and it provides a cognitive checkpoint. When an app meets or exceeds a user's expectations for how useful the app is, in terms of the services provided, and the ease of use of the app, the user experiences positive confirmation, which increases the user's belief in the app's utility and increases the app's practical utility. Besides, positive confirmation reduces the level of cognitive dissonance experienced by the user, which is the uncomfortable feeling that occurs when there is a discrepancy between what was expected and what was actually experienced. Cognitive dissonance is resolved when a user experiences positive confirmation and is consistent with the user's expectations. Positive confirmation also elicits positive emotional feelings, which can lead to satisfaction of both the user's hedonic and utilitarian needs. Hedonic needs include enjoyment and emotional gratification, while utilitarian needs include convenience and economic benefit (Oliver, 1980; Chong, 2013; Sarkar & Khare, 2019). The combination of rational evaluation and emotional reward creates an environment that fosters increased user engagement and encourages continued use and loyalty to the app. Research has shown that confirmation positively affects user satisfaction, perceived usefulness and the likelihood of continued use of the app (Kang et al., 2010; Shang & Wu, 2017; Maduku & Thusi, 2023; Sarkar & Khare, 2019). Confirmation plays an important role in the development of a long-term relationship with the app because confirmation does not simply meet the user's expectations but shapes the user's perceptions, decreases uncertainty, and promotes cognitive and affective commitment which are both necessary for continued mobile shopping engagement.

Hedonic motivation refers to the enjoyment and pleasure derived intrinsically by people in using any technology. This idea was first proposed as central to the adoption of a system by Venkatesh

http://dx.doi.org/10.21511/im.21(4).2025.23

(2000) and has since been repeatedly validated in mobile commerce research for its direct and indirect influences on user behavior. Research shows that when consumers view mobile shopping apps as entertaining, playful, and emotionally captivating, such experiences not only foster initial adoption (Lu & Su, 2009; Chopdar & Sivakumar, 2019), but also longer-term engagement even after the utilitarian benefits have lost their allure. The design of the mobile shopping environment, with its atmosphere, interactivity, and personalized experiences, induces users to strive for enjoyment, together with convenience, to form supportive judgments of an app's usefulness (Madan & Yadav, 2018; Chong, 2013; Schramm-Klein & Wagner, 2014). Enjoyment in playful and enjoyable interaction would lead to positive affect, allowing users to merge their emotional reward with the utility and value of the platform; therefore, this is considered a precursor to increased satisfaction and deeper loyalty (Bilgihan et al., 2016; Keong, 2016; Bhattacherjee, 2001). The interplay of hedonic experience and task-oriented benefits suggests that hedonic motivation can not only enhance perceived usefulness and satisfaction directly but also mediate users' continued preference for mobile shopping apps within a competitive milieu, supporting longstanding engagement and advocacy across users in diverse contexts (Sarkar et al., 2019; Lee & Kim, 2019; Maduku & Thusi, 2023).

Price-saving orientation refers to a consumer's tendency to look for financial savings and to derive maximum value from a purchase based on cost efficiencies. In this regard, it positions financial benefit as a key driver in retail platform assessment (Escobar-Rodríguez & Carvajal-Trujillo, 2014). In the mobile shopping environment, where open price competition, changing discounts, and promotions are common, price-oriented customers compare different offerings and utilize applications promising the best prices; such pricing advantages tend to be more powerful predictors of user satisfaction and continued use (Gupta & Arora, 2017; Shang & Wu, 2017). The fact that consumers experience enhanced utility or usefulness of the mobile shopping application when they perceive that their value expectations-either from direct savings or in general cost-effectiveness-are satisfied further reinforces the practical utility of the platform and shopper satisfaction in repeated transactions. This focus does not just encourage downloads or first sales; it maintains ongoing consumption because shoppers feel confident that their economic interests will always be attended to, leading to loyalty and positive word-of-mouth as the feeling that value will be served becomes fulfilled across experiences (Keong, 2016; Natarajan et al., 2018; Bhattacherjee, 2001). The price-saving orientation, therefore, acts synergistically with other drivers-cognitive, hedonic, and experiential-in influencing the adoption and post-adoption behaviors in m-commerce, its influence being particularly high in highly competitive and price-sensitive markets.

The notion of perceived usefulness provides a central relationship between an application's attributes and user behaviors/attitudes within influential theoretical frameworks such as TAM and ECM (Bhattacherjee, 2001; Davis, 1989). Within a mobile shopping context, the degree to which an application is viewed as useful reflects the degree to which an application meets its users' daily needs efficiently, quickly and/or offers benefits such as saving time, improving transactional efficiency, increasing the availability of products, and/or making the shopping experience easier to navigate. Users who perceive clear and obvious benefits associated with using a particular application (e.g. fast navigation, safe payment, large selection, etc.) tend to have higher levels of perceived usefulness, which in turn will enhance their satisfaction and loyalty toward the application (Jain et al., 2021; Kang et al., 2010). Research has consistently demonstrated that applications that satisfy users' need for perceived usefulness tend to retain users over time, promote referrals and create emotional attachments toward the application – all of which provide a basis for the development of mobile shopping experiences based on real usability/convenience to foster long-term engagement/advocacy from customers.

Consumer satisfaction associated with use of a mobile shopping application is a total affective assessment of cumulative experiences with the platform through multiple and continuous encounters; which is a consumer's emotional reaction to whether their expectations were met or exceeded in each encounter (Liu et al., 2011). In contrast to much of the literature privileging cognitive fac-

tors, Molinillo et al. (2022) found the affective and sensorial dimensions have greater impacts on user satisfaction, suggesting that enjoyable, visually appealing, and emotionally positive experiences are essential for fostering loyalty among app users. The expectation-confirmation model was used to develop the idea that satisfaction is a relationship between a consumer's cognitive assessments of the app, such as perceived usefulness and confirmation, and ultimately their loyalty behaviors; the way a consumer thinks about and feels about an app is likely to result in active loyalty behaviors (Bhattacherjee, 2001). Studies conducted by Schramm-Klein and Wagner (2014) and Maduku and Thusi (2023), among many others, have demonstrated that customer satisfaction has been shown to lead to repeat purchasing behavior and positive word-of-mouth regarding the app; and often leads to a consumer becoming a proactive advocate for the brand and/or platform resulting in greater awareness and usage of the platform. Loyalty is generally considered to be the willingness to continue using the app and promote it via social networks, which encompasses both behavioral continuity and advocacy (Reichheld & Sasser, 1990). As demonstrated in recent empirical work, customer satisfaction mediates the relationship between mobile shopping service quality and loyal behaviors, reinforcing its pivotal role in expectation-confirmation based models (Hassan, 2024). Therefore, loyalty is viewed in this study as a primary outcome which is formed based upon a consumer's perception of the usefulness of the app and the level of satisfaction they obtain during their continued interaction with the app (Molinillo et al., 2022), thus making it a central component of understanding how mobile shopping applications create lasting relationships with their customers. This review highlights that most research emphasizes cognitive factors, such as perceived ease of use and utilitarian benefits, while the impact of hedonic, experiential, and social influence varies substantially by context, reinforcing the need to jointly capture cognitive and affective determinants in unified post-adoption frameworks (Chadha et al., 2024).

This study investigates the determinants of customer loyalty toward mobile shopping apps post-adoption. Moving beyond initial usage, the research examines the factors that drive long-term user retention. Accordingly, the extended expectation-confirmation framework proposed blends the classic concept of expectation confirmation with two essential post-purchase drivers: price-saving orientation-representing customers' utilitarian drive to maximize economic value-and hedonic motivation, which reflects the experiential pleasure and enjoyment users derive from using the app. Overall, the antecedents are assumed

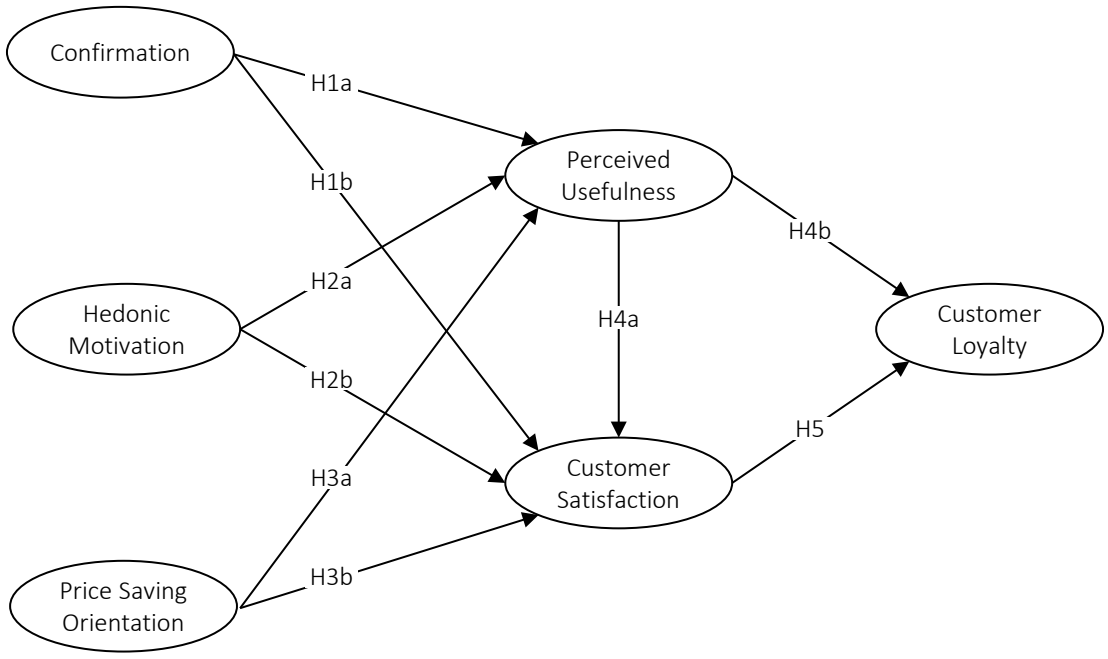


Figure 1. Conceptual model

http://dx.doi.org/10.21511/im.21(4).2025.23

to jointly determine perceived usefulness and general satisfaction, and consequently, user loyalty to a mobile shopping platform. This research answers calls for streamlined models integrating cognitive and affective elements; recent studies also advocate for a multifaceted explanation of mobile shopping loyalty (Hassan, 2024). The empirical model (Figure 1) tested on Indian smartphone shoppers is thus designed to fill a clear gap in current literature: the lack of integrated yet succinct theoretical models that explain post-adoption loyalty by taking into account both cognitive appraisals of value and emotional gratification associated with the enjoyment of mobile shopping. By integrating these cognitive and affective dimensions, the paper provides a more complete explanation for the long-term success of mobile shopping apps in dynamic and diverse retail markets, with its core hypotheses stated further.

Based on the objective and literature review, the hypotheses are as follows:

H1a: Confirmation positively influences the perceived usefulness of mobile shopping applications.

H1b: Confirmation positively influences satisfaction with mobile shopping applications.

H2a: Hedonic motivation positively influences perceived usefulness of mobile shopping applications.

H2b: Hedonic motivation positively influences satisfaction with mobile shopping applications.

H3a: Price saving orientation positively influences perceived usefulness of mobile shopping applications.

H3b: Price saving orientation positively influences satisfaction with mobile shopping applications.

H4a: Perceived usefulness positively influences satisfaction with mobile shopping applications.

H4b: Perceived usefulness positively influences loyalty toward mobile shopping applications.

H5: Satisfaction positively influences loyalty toward mobile shopping applications.

Extending the multi-dimensional framework of Molinillo et al. (2022), this research adopts a holistic perspective on the post-adoption experience. It uniquely synthesizes cognitive value, hedonic enjoyment, and price-saving orientation to provide a nuanced understanding of user loyalty within the rapidly evolving Indian mobile commerce landscape.

2. METHODOLOGY

A cross-sectional research design was used to test the proposed associations in the conceptual structural model. The measurement instrument was divided into three parts: the first part captured all latent constructs, namely perceived usefulness and confirmation (adapted from Davis, 1989; Wu, 2013), hedonic motivation (Venkatesh et al., 2012; Lin & Lu, 2015), price-saving orientation (Escobar-Rodríguez & Carvajal-Trujillo, 2014), as well as satisfaction and loyalty (Bhattacherjee, 2001; Lin & Wang, 2006). Each construct was measured with three to four items adapted from rigorously validated scales. All items employed a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree), a format that has been found to be effective in enhancing the reliability of respondents while minimizing fatigue. The second part of the questionnaire solicited demographic and background information, including respondents' gender, age, education, and income. The third and final section elicited profile information about the respondents' technology use - namely length of time that they had owned a smartphone, frequency of shopping through mobile applications, and the name of their favorite app used for shopping. For the purposes of content validity and readability, six experts from academia and the mobile commerce industry reviewed a draft of the survey. Based on the feedback received, adjustments were made. Next, a pilot study conducted with sixty postgraduate management students found that all the constructs showed acceptable internal consistency, with Cronbach's Alpha greater than the 0.70 threshold.

A purposive sampling method was adopted to gather data for the study, in which Indian smartphone

users who have purchased anything through any mobile shopping application were targeted. The invitations to survey were forwarded through email lists, social media groups, and messaging apps. The survey link was live for twelve weeks. To ensure the quality of data, duplicate submissions were detected and blocked by tracking IP addresses and email identifiers, while questionnaires with unusually high missing values were removed from the final analysis. Overall, 535 usable questionnaires were collected, well over the threshold recommended for PLS-SEM analysis and well above the generally accepted "ten-times" rule for sample adequacy. At the beginning of the survey, the respondents were informed that participation was voluntary and would be anonymous, and that they could withdraw at any stage without any penalty; it was considered that informed consent was implied when the survey was completed. No personally identifiable information was sought or stored, and all procedures were conducted strictly in accordance with the ethical guidelines outlined by the Committee on Publication Ethics (COPE), with particular attention to principles of transparency, confidentiality, and consent from respondents.

Table 1. Profile of respondents

Characteristics	Category	Frequency	(%)
Gender	Male	341	63.7
	Female	194	36.3
Age	18-24	117	21.9
	25-34	234	43.7
	35-44	143	26.7
	45-55	28	5.2
	Above 55	13	2.4
Education	Graduation	215	40.2
	Post-graduation	189	35.3
	Professional and others	131	24.5
Occupation	Student	67	12.5
	Employee	356	66.5
	Self-employed	76	14.2
	Unemployed	22	4.1
	Others	14	2.6
Average family monthly income (INR)	Less than 40,000	126	23.6
	40,001 to 80,000	181	33.8
	80,001 to 120,000	142	26.5
	Above 120,000	86	16.1
Type of operating system in smartphone	Android	401	75.0
	IOS	114	21.3
	Others	20	3.7
Smartphone usage experience (years)	<3	66	12.3
	3-6	169	31.6
	6-9	266	49.7
	>9	34	6.4
Average hours of smartphone usage/day	<3	165	30.8
	3-6	211	39.4
	>6	159	29.7
Smartphone activities other than shopping (multiple responses)	Social networking	517	96.6
	Entertainment	506	94.6
	Map	469	87.7
	Banking	492	92.0
	Bill payments	488	91.2
	News	415	77.6
Favourite mobile shopping apps	Amazon	252	47.1%
	Flipkart	161	30.1%
	Myntra	53	9.9%
	Others (PayTm, Meesho, Nykaa)	69	12.9%

http://dx.doi.org/10.21511/im.21(4).2025.23

Since the proposed framework is solely made up of reflective constructs, it is suitable for analysis using partial least squares structural equation modelling. The analysis was done in WarpPLS 8.0 and consisted of two main steps. The first step focused on the measurement model analysis. To establish item reliability, indicator loadings should be greater than 0.70. Composite reliability and Cronbach's alpha values above the 0.80 threshold confirmed internal consistency reliability. Average variance extracted scores greater than 0.50 indicated adequate convergent validity. Discriminant validity was confirmed with Heterotrait-Monotrait ratios less than 0.85, meaning each construct was empirically distinct. Having validated the measurement properties of the constructs of interest, the second step tested the structural model and hypotheses. Path coefficients, their standard errors, and statistical significance were estimated by bootstrapping with 5,000 resamples. Coefficient of determination values described the proportion of variance explained in endogenous variables. Blindfolding procedures generated Q^2 statistics to assess predictive relevance outside the sample. Effect sizes measured f^2 to quantify the substantive meaningfulness of each predictor. Besides, WarpPLS provided global fit indicators-average path coefficient, average R^2, average adjusted R^2, and Tenenhaus goodness-of-fit-to address the overall model adequacy. All these rigorous steps together would culminate in a transparent and robust analysis of the relationships through which confirmation, price-saving orientation, and hedonic motivation influence perceived usefulness, satisfaction, and ultimately, loyalty in the context of mobile shopping applications.

The final sample was 535 Indian smartphone users who are active in mobile shopping and the summary of them are given in Table 1. Males constituted about two-thirds of the respondents, while the average participant age fell between 25 and 34 years. There was an appreciable number of students and mid-career professionals in the sample. Education levels were high: about 40% had a bachelor's degree, while about a third had advanced degrees; the rest reported having technical or professional diplomas. Employment status indicated that about two-thirds were employed full-time, while the remainder were self-employed, students, or others. Income distribution was wide, though the highest concentration was in the middle-income bracket of 40,000 to 80,000 INR per month. Fewer participants fell at the extremes of income. As expected, given the context, there was a predominance of Android smartphones in the sample, with almost 80% using these, while slightly over 20% were iOS users. About half of the respondents had been using smartphones for six to nine years, and almost 70% used their smartphones for more than three hours daily. While the uses of smartphones were varied, the majority of the participants viewed their smartphones as mainly serving as sources of entertainment and social networking rather than shopping. These were followed by navigation, news, and mobile payments. Regarding their favourite mobile shopping apps, almost half (47%) preferred Amazon, around 30% chose Flipkart, and close to 10% chose Myntra. Almost 13% used a diversity of smaller apps such as Paytm Mall, Meesho, and Nykaa.

3. RESULTS

An important objective of the measurement evaluation was to establish that the items for each questionnaire instrument collectively functioned as reliable and coherent scales. The internal consistency of each construct was evaluated by computing Cronbach's Alpha, one of the most established measures of scale reliability (Cronbach, 1951). This coefficient represents the average inter-item correlation and thus denotes the closeness of item relationships within a construct. A value of more than 0.70 is generally accepted to demonstrate satisfactory internal reliability (Nunnally & Bernstein, 1994). In this study, Cronbach's Alpha ranged from 0.903 for customer loyalty to 0.976 for confirmation. All constructs thus had a very strong internal consistency. These findings suggest that the sets of items representing each latent variable were internally stable and conceptually homogenous and that the respondents interpreted the statements in a consistent manner. It also points to a low likelihood that random measurement error could jeopardize the validity of subsequent structural analyses.

The results in Table 2 show that all the scales in this research have excellent psychometric properties. Composite reliability for the measures ranged

Table 2. Validity, reliability, and multicollinearity

Constructs	Indicators	Factor loadings	Average Variance Extracted (AVE)	Cronbach's Alpha (a)	Composite Reliability (CR)	Full collinearity (VIFs)
Confirmation (CONF)	CONF1	0.957	0.932	0.976	0.982	1.626
	CONF2	0.955				
	CONF3	0.967				
	CONF4	0.982				
Hedonic Motivation (HM)	HM1	0.970	0.938	0.968	0.979	1.432
	HM2	0.968				
	HM3	0.968				
Price Saving Orientation (PSO)	PSO1	0.952	0.925	0.959	0.974	1.802
	PSO2	0.960				
	PSO3	0.973				
Perceived Usefulness (PU)	PU1	0.951	0.905	0.948	0.966	1.927
	PU2	0.965				
	PU3	0.939				
Customer Satisfaction (CS)	CS1	0.914	0.826	0.930	0.950	2.015
	CS2	0.938				
	CS3	0.902				
	CS4	0.880				
Customer Loyalty (CL)	CL1	0.844	0.776	0.903	0.933	2.127
	CL2	0.900				
	CL3	0.930				
	CL4	0.847				

from 0.933 for customer loyalty to 0.982 for confirmation, which is well above the commonly accepted cutoff threshold of 0.70, indicating a high level of internal consistency (Hair et al., 2019). Convergent validity was also strong; AVE for each construct ranged between 0.776 and 0.938, exceeding the threshold of 0.50 proposed by Fornell and Larcker (1981). This indicates that each latent variable explains a large part of the variance in its items. Besides, item loadings on their respective factors were consistently high with all correlations above 0.844, indicating that the measurements were focused on the intended constructs and involved minimal measurement error. Collinearity diagnostics indicated VIFs ranging from 1.43 to 2.13, which is well below the critical threshold level of 3.30 (Kock, 2015), suggesting negligible multicollinearity and a lack of redundancy among predictors. Therefore, these findings confirm that the constructs included in the framework, namely, confirmation, price-saving orientation, hedonic motivation, perceived usefulness, satisfaction, and loyalty, are both reliable and discriminative, thus forming a good basis for testing the hypothesized relationships of this study.

The discriminant validity was analyzed through two well-established means within the research on PLS-SEM. First of all, it was noted that the AVE values (on the main diagonal in Table 3) were higher than the squared correlations among constructs, following Fornell and Larcker's (1981) criterion that the AVE for each latent variable should be greater than its shared variance with any other construct.

Table 3. Discriminant validity results for the constructs

Constructs	CONF	HM	PSO	PU	CS	CL
CONF	(0.966)					
HM	0.357	(0.969)				
PSO	0.429	0.352	(0.962)			
PU	0.499	0.510	0.498	(0.951)		
CS	0.469	0.339	0.593	0.544	(0.909)	
CL	0.540	0.354	0.559	0.533	0.609	(0.881)

Note: CONF = Confirmation; HM = Hedonic Motivation; PSO = Price-Saving Orientation; PU = Perceived Usefulness; CS = Customer Satisfaction; CL = Customer Loyalty.

Secondly, the Heterotrait-Monotrait ratio of correlations (HTMT), as reported in Table 4, ranged from 0.23 to 0.64, comfortably below the conservative threshold of 0.85 recommended by Henseler et al. (2015). This, together with the other diagnostic tests, provides strong evidence that the constructs – confirmation, price-saving orientation, hedonic motivation, perceived usefulness, cus-

http://dx.doi.org/10.21511/im.21(4).2025.23

tomer satisfaction, and customer loyalty – are empirically distinct from one another and not subject to common-method bias.

Table 4. HTMT ratios

Constructs	CONF	HM	PSO	PU	CS	CL
CONF						
HM	0.367					
PSO	0.443	0.366				
PU	0.519	0.532	0.522			
CS	0.492	0.357	0.628	0.579		
CL	0.577	0.378	0.600	0.575	0.664	

Note: CONF = Confirmation; HM = Hedonic Motivation; PSO = Price-Saving Orientation; PU = Perceived Usefulness; CS = Customer Satisfaction; CL = Customer Loyalty.

The structural model was estimated using WarpPLS with a suite of global fit indices reflecting an exceptionally solid solution (see Table 5). Furthermore, the APC is a sign confirming that the hypothesized directional effects based on theoretical expectations are well supported by data, with an average path coefficient of 0.270 ($p < 0.001$). Complementing this finding, the average R-squared of 0.445 ($p < 0.001$) and its adjusted counterpart of 0.442 ($p < 0.001$) suggest that close to half the variance in the endogenous variables is well explained by this model, accomplished without undue complexity. Additionally, Tenenhaus' goodness-of-fit index, or GoF, is 0.627, which exceeds the threshold of 0.36 and indicates a strong demonstration of measurement excellence and predictive capability together. Other diagnostic indices designed to detect potential model misspecifications all yielded ideal values. Simpson's paradox ratio, R-squared contribution ratio, statistical suppression ratio, and nonlinear bivariate causality direction ratio each achieved perfect scores of 1.00 and, in effect, ruled out issues such as reversed causality, inflated explained variance, suppressor effects, or misspecified nonlinear causal directions. Overall, fit metrics also included a low SRMR at 0.038 and a low SMAR at 0.030, both below the conservative cut-off of 0.10, implying that the empirical data matched model predictions. Together, these diagnostics give us a sound empirical basis for interpreting the path coefficients and hypothesis testing presented later in this study.

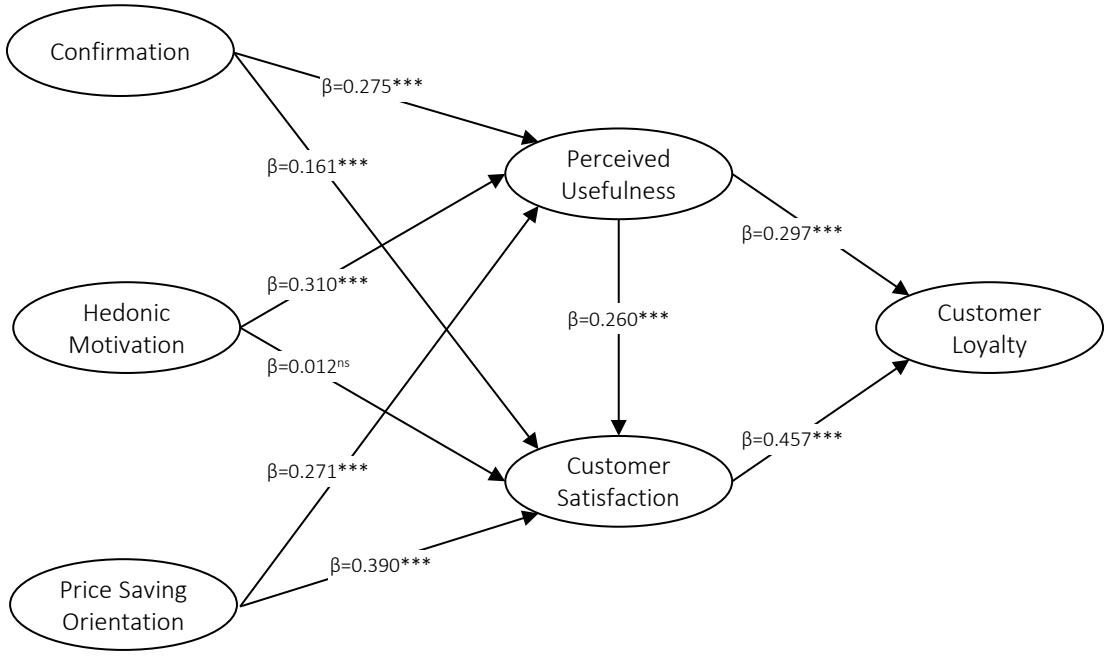
The findings from the structural model estimation in Figure 2 strongly support nine out of ten hypothesized relationships, hence reinforcing the theoretical soundness and empirical validity of the integrated Expectation-Confirmation Model (ECM) and Technology Acceptance Model (TAM) framework. Table 6 provides a comprehensive summary of hypothesis testing and results.

This research found a statistically significant relationship for hypothesis 1a showing that confirmation is positively related to perceived usefulness ($\beta = .275$, $p < .001$) in order to determine how users' actual experiences will be able to help them determine if they have met or exceeded the perceptions of usefulness from their initial expectations for the mobile shopping application. This provides support for Bhattacherjee's (2001) theories stating that confirmation increases the functional value that users perceive which leads to increased usage over time.

H2a has also been supported, since hedonic motivation indeed positively impacts perceived use-

Table 5. Model fit indices

Model fit index	Value	Recommended threshold	Interpretation
Average Path Coefficient (APC)	0.270	$p < 0.001$	Significant overall relationships
Average R-squared (ARS)	0.445	$p < 0.001$	Good explanatory strength
Average Adjusted R-squared (AARS)	0.442	$p < 0.001$	Model explains substantial variance
Average Block VIF (AVIF)	1.422	≤ 5.0 (ideal ≤ 3.3)	No multicollinearity issues
Average Full Collinearity VIF (AFVIF)	1.786	≤ 5.0 (ideal ≤ 3.3)	No evidence of collinearity
Tenenhaus GoF (GoF)	0.627	≥ 0.36 (large effect)	Strong overall model fit
Sympson's Paradox Ratio (SPR)	1.000	≥ 0.7 (ideal = 1)	No paradox effects detected
R-squared Contribution Ratio (RSCR)	1.000	≥ 0.9 (ideal = 1)	Predictors fully contribute to explained variance
Statistical Suppression Ratio (SSR)	1.000	≥ 0.7	No suppression in predictor effects
Nonlinear Bivariate Causality Direction Ratio (NLBCDR)	1.000	≥ 0.7	No problems with causality direction



Note: N = 535. *p < .05. **p < .01. ***p < .001. ns=not significant.

Figure 2. Results of structural model

fulness, with β = 0.310 and p < 0.001. This means that for the mobile shopping customers, digital shopping enjoyment is not an end but plays an important role in their judgments of the app's usefulness. This emphasizes the importance of affective experiences and experiential engagement in users' post-adoption technology evaluations.

H3a was also supported, proving that price-saving orientation significantly predicted perceived usefulness, β = 0.271, p < 0.001. Thus, the more a mobile shopping customer focuses on the economic reasons for the use of mobile apps, such as discounts and deals, the more likely the application will be perceived as utilitarian, which implies that economic considerations continue to play a significant role in how consumers make their purchase decisions in mobile commerce contexts.

H1b is supported concerning customer satisfaction, leading to a positive and significant path from confirmation to satisfaction, β = 0.161, p < 0.001. The result indicates that the degree of fulfilment of users' expectations meaningfully explains the variance in the overall emotional assessment of their mobile shopping experience. Although the effect size is more modest than the strength of confirmation on perceived usefulness, the result underscores the reinforcing role of expectation confirmation on both cognitive and affective outcomes.

H3b shows that price-saving orientation is the most potent emotional predictor of satisfaction, as expressed by a β value of 0.390 (p < 0.001). The high coefficient value indicates that economic aspects are highly relevant for increasing the levels of pleasure of customers when mobile shopping environments are concerned. This is achieved through the delivery to consumers of the emotional advantages associated with the perceived monetary savings.

On the other hand, *H2b*, which postulated that hedonic motivation has a direct, positive effect on satisfaction, is not supported, with β = 0.012 at p = 0.389. The nonsignificant relationship shows that while enjoyment positively influences perceived usefulness, it does not independently influence satisfaction. Therein lies a subtle distinction implying affective experiences first shape cognitive evaluations, which in turn contribute to satisfaction. This supports the prior research indicating that hedonic benefits often operate through cognitive mediators rather than through direct effects on emotional judgments.

http://dx.doi.org/10.21511/im.21(4).2025.23

Table 6. Path coefficients and p-values

S. No.	Path	Value	p-value	Remarks
1	Confirmation → Perceived Usefulness	0.275	<0.001	*H1a* is supported
2	Confirmation → Customer Satisfaction	0.161	<0.001	*H1b* is supported
3	Hedonic Motivation → Perceived Usefulness	0.310	<0.001	*H2a* is supported
4	Hedonic Motivation → Customer Satisfaction	0.012	0.389	*H2b* is not supported
5	Price-Saving Orientation → Perceived Usefulness	0.271	<0.001	*H3a* is supported
6	Price-Saving Orientation → Customer Satisfaction	0.390	<0.001	*H3b* is supported
7	Perceived Usefulness → Customer Satisfaction	0.260	<0.001	*H4a* is supported
8	Perceived Usefulness → Customer Satisfaction	0.297	<0.001	*H4b* is supported
9	Customer Satisfaction → Customer Loyalty	0.457	<0.001	*H5* is supported

Perceived usefulness also acts as a crucial mediator, with support for *H4a* and *H4b*: it significantly predicts both satisfaction ($\beta = 0.260$, $p < 0.001$), and loyalty ($\beta = 0.297$, $p < 0.001$), showing its double role of being a cognitive driver and motivator of behavioral intentions. These findings strongly support the Technology Acceptance Model's view that perceived usefulness stands at the core of subsequent attitude and behavior formation.

Finally, *H5*, which states that customer satisfaction directly influences loyalty, is strongly supported by a path coefficient of $\beta = 0.457$ ($p < 0.001$). This path reveals the most significant effect within the model and supports the fact that satisfaction is the cornerstone of sustained consumer commitment to and reuse of mobile shopping applications.

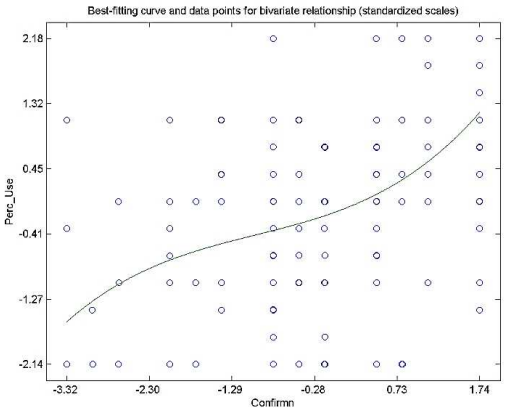
To visually complement the hypothesis testing, Figure 3 provides a series of scatterplots depicting the standardized relationships between each pair of latent variables involved in the model. Specifically, the plots illustrate how confirmation, price-saving orientation, and hedonic motivation relate to perceived usefulness and customer satisfaction (Subfigures 3a–3g), which, in turn, serve as drivers for customer loyalty (Subfigures 3h–3i). Each subfigure corresponds to an individual hypothesized path, offering a graphical representation of the strength and direction of these relationships to facilitate a clearer interpretation of the statistical findings.

The analysis of indirect effects, summarized in Table 7, confirms the important mediating roles of perceived usefulness and customer satisfaction within the model. Confirmation, price-saving orientation, and hedonic motivation each exert significant indirect influences on customer loyalty via these mediators. For instance, confirmation's indirect effect on loyalty ($\beta = 0.176$, $p < 0.001$) highlights the pathway from expectation alignment to loyalty, mediated through enhanced perceived usefulness and satisfaction. Similarly, price-saving orientation demonstrates a substantial indirect effect ($\beta = 0.299$, $p < 0.001$), emphasizing the role of economic incentives. Although hedonic motivation does not directly affect satisfaction, it has a significant indirect influence on loyalty ($\beta = 0.081$, $p < 0.01$) through perceived usefulness. These results underscore the combined importance of cognitive and affective mediators in shaping loyalty outcomes.

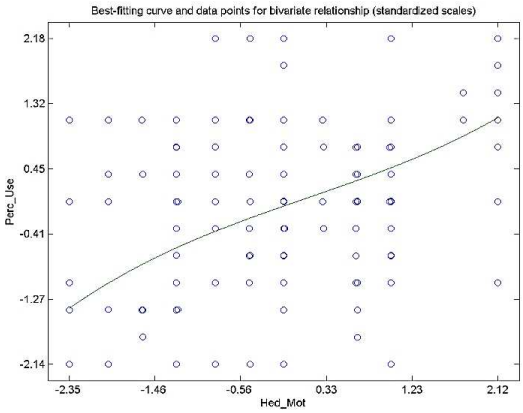
Regarding the variance explained, both perceived usefulness ($R^2 = 0.44$) and customer satisfaction ($R^2 = 0.46$) surpass the 0.26 threshold that is conventionally considered substantial in consumer behavior studies (Hair et al., 2019). The R^2 for customer loyalty equals 0.44, indicating that theoretical predictors jointly explain nearly half of the variation in repeat patronage. Strong out-of-sample predictive relevance (the Stone-Geisser Q^2 statistics were .447 for perceived usefulness, 0.456 for satisfaction, and 0.440 for loyalty) suggests that it

Table 7. Direct, indirect, and total effects related to customer loyalty

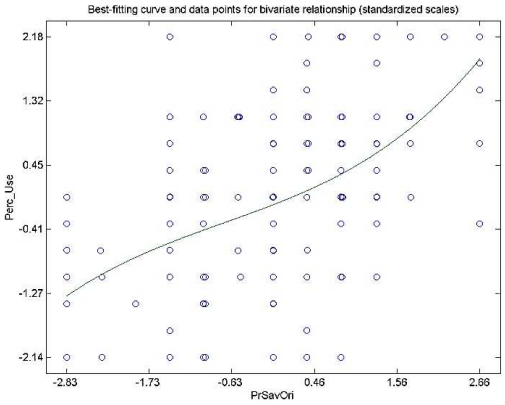
Variable	Direct effect	p-value	Indirect effect	p-value	Total effect	p-value
Confirmation	No path	–	0.188	<0.001	0.188	<0.001
Hedonic Motivation	No path	–	0.134	<0.001	0.134	<0.001
Price Saving Orientation	No path	–	0.291	<0.001	0.291	<0.001
Perceived Usefulness	0.297	<0.001	0.119	<0.001	0.416	<0.001
Customer Satisfaction	0.457	<0.001	No path	–	0.457	<0.001



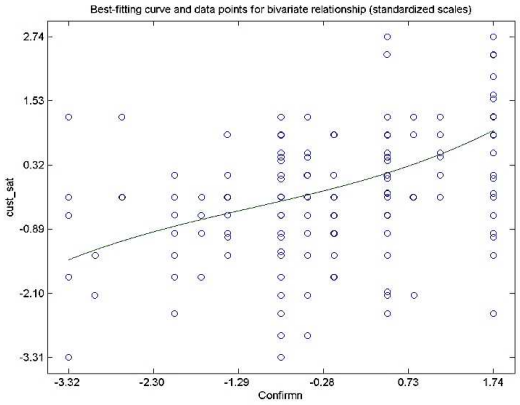
3a. Relationship between Confirmation and Perceived Usefulness



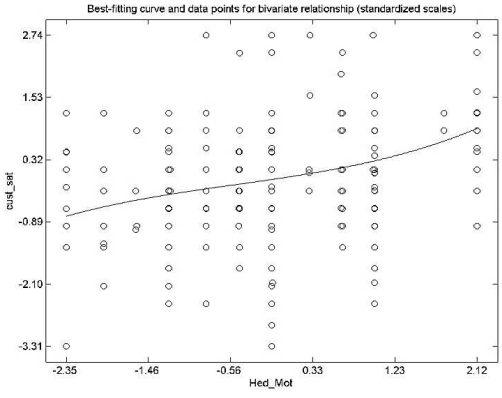
3b. Relationship between Hedonic Motivation and Perceived Usefulness



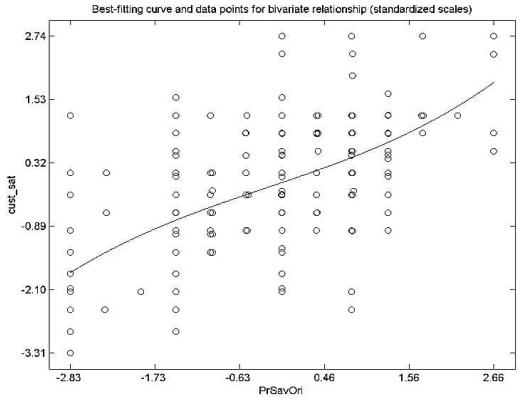
3c. Relationship between Price Saving Orientation and Perceived Usefulness



3d. Relationship between Confirmation and Customer Satisfaction



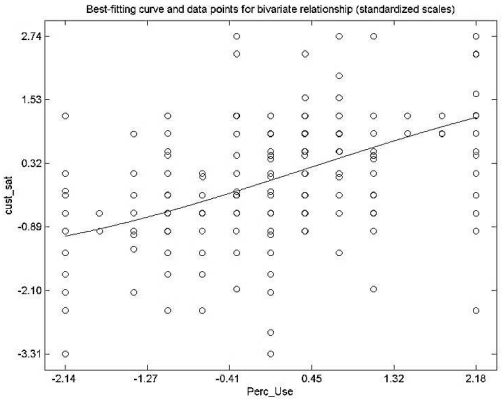
3e. Relationship between Hedonic Motivation and Customer Satisfaction



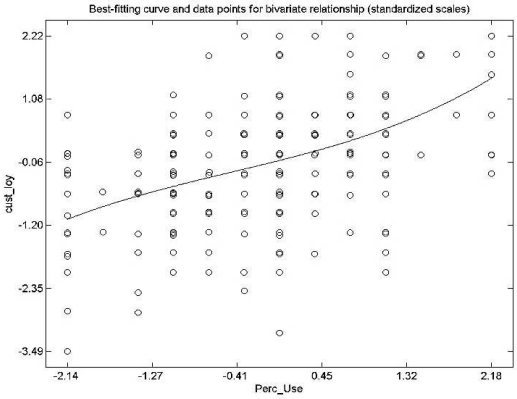
3f. Relationship between Price Saving Orientation and Customer Satisfaction

Figure 3. Visual representation of hypothesized relationships among latent variables using standardized scores. Subfigures 3a–3i provide scatterplots and best-fitting curves for each bivariate relationship, illustrating the strength and direction of hypothesized paths.

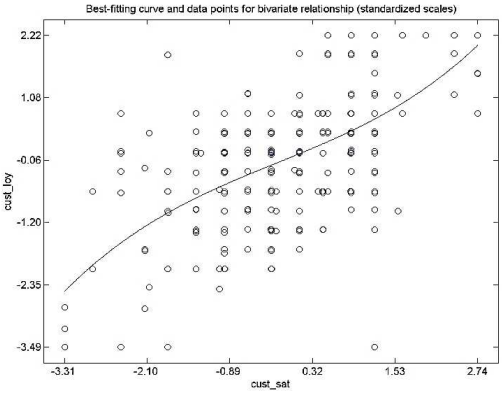
http://dx.doi.org/10.21511/im.21(4).2025.23



3g. Relationship between Perceived Usefulness and Customer Satisfaction



3h. Relationship between Perceived Usefulness and Customer Loyalty



3i. Relationship between Customer Satisfaction and Customer Loyalty

Figure 3 (cont.). Visual representation of hypothesized relationships among latent variables using standardized scores. Subfigures 3a–3i provide scatterplots and best-fitting curves for each bivariate relationship, illustrating the strength and direction of hypothesized paths

is very appropriate to generalize the model outside the sample data.

WarpPLS apportions the explained variance (R^2) for each endogenous construct to its antecedents. Confirmation, price-saving orientation, and hedonic motivation jointly explain 44% of the variance in perceived usefulness, with hedonic motivation having the greatest role (0.159), followed by confirmation (0.143) and price-saving orientation (0.138). For customer satisfaction, price-saving orientation is positioned as the most significant driver (0.233), with perceived usefulness (0.141) and confirmation (0.077) providing secondary contributions. Customer loyalty is primarily influenced by satisfaction (0.281), while perceived usefulness further affects this factor to a lesser but significant extent (0.160). This confirms the sequential mechanism of expectation-confirmation theory.

The effect size analysis of f^2 reveals the practical effect of predictors on their dependent variables. Among the antecedents of perceived usefulness, hedonic motivation, with an f^2 value of 0.159, has the largest effect, closely followed by confirmation at 0.143 and price-saving orientation at 0.138, hence contributing significantly to both the experiential and rational value perceptions. For satis-

faction, price-saving orientation shows a moderate effect size at 0.233, while confirmation and hedonic motivation are relatively small at 0.077 and 0.004, respectively. Customer satisfaction is the strongest predictor of loyalty, with an f^2 value of 0.281, followed by perceived usefulness at 0.160. These results are discussed here as a means to underscore the crucial roles of satisfaction and perceived value in establishing customer loyalty, along with the interactions between emotional and utilitarian drivers in determining the post-adoption motivations within mobile shopping contexts.

4. DISCUSSION

Mobile commerce in India has grown significantly over the last ten years, supported by widespread smartphone adoption and relatively inexpensive data plans. However, even as it posted high initial user acquisition, maintaining ongoing engagement is a major challenge for mobile commerce companies. Most prior studies have either focused on drivers of initial adoption, such as perceived usefulness and ease of use from the Technology Acceptance Model (TAM) (Davis, 1989), or on outcomes subsequent to adoption, such as confirmation and satisfaction from the Expectation Confirmation Model (ECM) (Bhattacherjee, 2001). However, these models fall short in considering unique emotional and economic motivations towards mobile shopping, such as enjoyment and deal-seeking behavior. This study thus combines TAM and ECM with hedonic motivation and price-saving orientation constructs and provides a comprehensive framework that will be useful in guiding both academics and practitioners in customer retention strategies.

This structural model involves the integration of TAM and ECM, thus presenting a theoretical breakthrough. The findings provide evidence that the cognitive, affective, and behavioral factors together lead to loyalty through routes from confirmation to perceived usefulness and satisfaction, and from hedonic motivation and price-saving orientation to the important post-adoption constructs. This integrated approach overcomes the fragmented application of either TAM or ECM alone, as seen in the works of Davis (1989) and Bhattacherjee (2001) respectively, since continued user participation is derived not just from perceived utility but also from enjoyment and tangible economic benefits.

Supporting Expectation-Confirmation Theory, confirmation was a significant predictor of both perceived usefulness and satisfaction (Bhattacherjee, 2001). These results are also consistent with the findings of Kang et al. (2010) and Sarkar and Khare (2019) who reported that meeting or exceeding expectations results in positive evaluation of mobile shopping sites. One of the important takeaways from the study is realistic marketing messages and user experiences that mobile retailers must manage and communicate for creating achievable expectations, thus avoiding a state of expectation disconfirmation that may lead to dissatisfaction and decreased repeated use.

The hedonic motivation appears to influence perceived usefulness as a precursor to satisfaction, with the experience of enjoying or being entertained while using an application further enhances one's belief that it provides useful performance. This also matches findings from Venkatesh et al. (2012) and Lu and Su (2009) who support Zhou (2011) and Chi (2018) in arguing that beliefs regarding functionality are enhanced as a result of experiencing enjoyable digital interactions. However, hedonic motivation does not affect satisfaction directly; however, its positive impact on perceived usefulness implies that hedonic motivation has an indirect effect on user satisfaction as a function of improved perceived performance as demonstrated by Nguyen et al. (2023).

The extension of the TAM-ECM framework with price-saving orientation addresses the critical but understudied driver, especially relevant in emerging markets. The positive relationship between price-saving orientation, perceived usefulness, and satisfaction is consistent with various studies, such as Gupta and Arora (2017) and Ly et al. (2022), which documented that cost advantages and promotions strongly affect both trust and utility judgments. Thus, this addition underlines the role of economic incentives in conjunction with cognitive and emotional factors.

Among the loyalty predictors, satisfaction has the largest effect size, which points to its instrumental role in retention (Bhattacherjee, 2001; Nguyen &

http://dx.doi.org/10.21511/im.21(4).2025.23

Ha, 2021). Although the present study centers on Indian smartphone users, our findings resonate with those from Egypt, highlighting the broader applicability of perceived value and satisfaction in explaining mobile loyalty across emerging markets (Hassan, 2024). The stronger positive effects of perceived usefulness on satisfaction and, subsequently, on loyalty also validate the TAM view that perceptions of an application's utility constitute major drivers of attitudinal and behavioral outcomes. The result points to a sequential mechanism proposed in the ECM and underlines the central role of perceived usefulness in driving post-adoption commitment.

The analyses of indirect effects also show that confirmation, price-saving orientation, and hedonic motivation lead to loyalty mainly through mediation by perceived usefulness and satisfaction. These factors affect loyalty not directly but through their impact on the users' cognitive judgments and affective reactions, which is in line with the core expectations of Expectation-Confirmation Theory and TAM. In particular, the indirect effect of hedonic motivation via perceived usefulness reveals that it strengthens loyalty only in the case when enjoyment leads to a higher perception of the app's value. This extends the knowledge of cognitive-affective interrelations in long-term use.

It integrates TAM and ECM with hedonic motivation and price-saving orientation to provide a richer and more multifaceted explanation of mobile shopping behaviour. By demonstrating that confirmation not only predicts satisfaction but also positively influences perceived usefulness, this study extends Expectation-Confirmation Theory to include both pre- and post-adoption dynamics (Bhattacherjee, 2001). The strong influence of hedonic motivation on perceived usefulness suggests that emotional drivers must be integrated into models that are often presented as utilitarian, such as Venkatesh et al. (2012). Yet, the strong influence of price-saving orientation supports the inclusion of economic rationales in technology adoption models, particularly for price-conscious markets, a premise advanced by Gupta and Arora (2017). In general, these findings indicate the need for future research using hybrid conceptual frameworks that model expectation alignment, experiential enjoyment, and economic rationales together.

These findings, articulated as strategic imperatives for mobile retailers, include effective management of user expectations, enriching app enjoyment, and delivering real cost savings. Marketing efforts should clearly and attainably set performance benchmarks to enable positive confirmation, while the corresponding engaging interfaces gamify and simplify tasks to maximize enjoyment and utility. At the same time, dynamic pricing, loyalty programs, and prominent displays of savings will be needed to match the economic value proposition of the app. Drawing from recent international evidence, mobile retailers are urged to enhance not just efficiency and transactional convenience, but also service responsiveness and customer support, to maximize user satisfaction and loyalty (Hassan, 2024). Taking a cue from recent literature, businesses should be encouraged to leverage gamification in designing mobile retail apps, since empirical evidence demonstrates that gamified content cultivates positive attitudes, boosts user engagement, and promotes intention to repurchase or recommend the app (Bayır & Akel, 2023). E-tailers can ensure high satisfaction levels and engender enduring customer loyalty by optimizing these elements throughout the customer journey-from onboarding and initial-use tutorials through post-purchase feedback. E-commerce managers are urged to recognize heterogeneity in consumer behavior and not rely solely on single-theory perspectives; instead, Chadha et al. (2024) recommend leveraging multitheoretic models that blend cognitive, affective, and contextual influences when designing marketing strategies for mobile shopping applications.

CONCLUSION

This study is a comprehensive approach to understand the loyalty of customers for shopping on mobile devices. The research aims to investigate how customer confirmation, hedonic motivation, and price-saving behavior influence perceived usefulness, satisfaction, and ultimately, loyalty toward mobile shopping apps. This study combines two theoretical models (Technology Acceptance Model and

Expectation-Confirmation Model) and considers both affective and economic motivations to provide a multidimensional perspective that is missing in many studies on mobile shopping. The results of this research indicate the multifaceted experiences of consumers as they interact with mobile shopping platforms over time, where they experience utility and emotional gratification.

The study's findings underline some critical strategic levers from the managerial point of view, such as setting appropriate customer expectations, designing user experiences that are not only functional but also engaging and pleasurable, and providing economic incentives in a transparent and meaningful manner to create satisfaction and repeated use. However, this study's cross-sectional design and its focus on a single national context limit causal interpretations and generalisability across diverse cultural and economic settings.

By using longitudinal or experimental approaches, future studies may investigate how confirmation, hedonic motivation, and price-saving orientation are changing over time and interact dynamically. Extensions of investigations to diverse cultural and economic environments, along with an examination of moderators such as social norms, personalization, and technological changes, would also serve to more fully develop theory and provide richer practical insights. Such efforts will contribute both to strengthening theoretical foundations and to providing actionable guidance for the ongoing development and retention strategies of mobile commerce platforms amid rapid digital transformation.

AUTHOR CONTRIBUTIONS

Conceptualization: S. Saibaba.
Data curation: S. Saibaba.
Formal analysis: S. Saibaba.
Investigation: S. Saibaba.
Methodology: S. Saibaba.
Project administration: S Saibaba.
Supervision: S. Saibaba.
Validation: S. Saibaba.
Visualization: S. Saibaba.
Writing – original draft: S. Saibaba.
Writing – review & editing: S. Saibaba.

REFERENCES

1. Aldás-Manzano, J., Ruiz-Mafé, C., & Sanz-Blas, S. (2009). Exploring individual personality factors as drivers of M-shopping acceptance. *Industrial Management & Data Systems, 109*(6), 739-757. https://doi.org/10.1108/02635570910968018
2. Anderson, E. W., Fornell, C., & Lehmann, D. R. (1994). Customer Satisfaction, Market Share, and Profitability: Findings from Sweden. *Journal of Marketing, 58*(3), 53. https://doi.org/10.2307/1252310
3. Bayır, T., & Akel, G. (2023). Gamification in mobile shopping applications: A review in terms of technology acceptance model. *Multimedia Tools and Applications, 83*(16), 47247-47268. https://doi.org/10.1007/s11042-023-16823-7
4. Bhattacherjee, A. (2001). Understanding Information Systems Continuance: An Expectation-Confirmation Model. *MIS Quarterly, 25*(3), 351. https://doi.org/10.2307/3250921
5. Bilgihan, A., Kandampully, J., & Zhang, T. (2016). Towards a unified customer experience in online shopping environments. *International Journal of Quality and Service Sciences, 8*(1), 102-119. https://doi.org/10.1108/ijqss-07-2015-0054
6. Chadha, P., Gera, R., Srivastava, A., & Srivastava, N. (2024). Mobile Shopping Apps Adoption. *International Journal of E-Business Research, 20*(1), 1-26. https://doi.org/10.4018/ijebr.349930
7. Chi, T. (2018). Understanding Chinese consumer adoption of apparel mobile commerce: An extended TAM approach. *Journal of Retailing and Consumer Services, 44,* 274-284. https://doi.org/10.1016/j.jretconser.2018.07.019

http://dx.doi.org/10.21511/im.21(4).2025.23

8. Chong, A. Y. (2013). Understanding Mobile Commerce Continuance Intentions: An Empirical analysis of Chinese consumers. *Journal of Computer Information Systems, 53*(4), 22-30. https://doi.org/10.1080/08874417.2013.11645647

9. Chopdar, P. K., & Sivakumar, V. J. (2019). Understanding continuance usage of mobile shopping applications in India: the role of espoused cultural values and perceived risk. *Behaviour and Information Technology, 38*(1), 42-64. https://doi.org/10.1080/0144929x.2018.1513563

10. Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika, 16*(3), 297-334. https://doi.org/10.1007/bf02310555

11. Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly, 13*(3), 319. https://doi.org/10.2307/249008

12. Escobar-Rodríguez, T., & Carvajal-Trujillo, E. (2014). Online purchasing tickets for low-cost carriers: An application of the unified theory of acceptance and use of technology (UTAUT) model. *Tourism Management, 43,* 70-88. https://doi.org/10.1016/j.tourman.2014.01.017

13. Fornell, C. (1992). A National Customer Satisfaction Barometer: The Swedish Experience. *Journal of Marketing, 56*(1), 6. https://doi.org/10.2307/1252129

14. Fornell, C., & Larcker, D. F. (1981). Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. *Journal of Marketing Research, 18*(1), 39-50. https://doi.org/10.1177/002224378101800104

15. Gupta, A., & Arora, N. (2017). Understanding determinants and barriers of mobile shopping adoption using behavioral reasoning theory. *Journal of Retailing and Consumer Services, 36,* 1-7. https://doi.org/10.1016/j.jretconser.2016.12.012

16. Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). *Multivariate data analysis* (8th ed.). Cengage, Andover.

17. Hassan, H. E. (2024). The role of mobile shopping service quality in enhancing customers M-satisfaction, M-loyalty, and E-word of mouth. *Future Business Journal, 10*(1). https://doi.org/10.1186/s43093-024-00396-4

18. Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science, 43*(1), 115-135. https://doi.org/10.1007/s11747-014-0403-8

19. Jain, A. (2025). *Mobile Commerce: key statistics and trends to follow*. Retrieved from https://oyelabs.com/mobile-commerce-key-statistics-and-trends-to-follow/

20. Jain, N. K., Kaul, D., & Sanyal, P. (2021). What drives customers towards mobile shopping? An integrative technology continuance theory perspective. *Asia Pacific Journal of Marketing and Logistics, 34*(5), 922-943. https://doi.org/10.1108/apjml-02-2021-0133

21. Kang, C., Hung, M., Yang, S., Hsieh, T., & Tang, S. (2010). Factors affecting the continued intention of mobile shopping. In *Proceedings of IEEE International Conference on Industrial Engineering and Engineering Management* (pp. 710-713). https://doi.org/10.1109/ieem.2010.5674612

22. Keong, William Eng Yong. (2016). The determinants of mobile shopping mall apps adoption intention in Malaysia: An empirical investigation. In *2016 11th International Conference on Computer Science & Education (ICCSE)* (pp. 341-346). https://doi.org/10.1109/ICCSE.2016.7581604

23. 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

24. Lee, Y., & Kim, H. (2019). Consumer need for mobile app atmospherics and its relationships to shopper responses. *Journal of Retailing and Consumer Services, 51,* 437-442. https://doi.org/10.1016/j.jretconser.2017.10.016

25. Lin, H., & Wang, Y. (2006). An examination of the determinants of customer loyalty in mobile commerce contexts. *Information & Management, 43*(3), 271-282. https://doi.org/10.1016/j.im.2005.08.001

26. Lin, K., & Lu, H. (2015). Predicting mobile social network acceptance based on mobile value and social influence. *Internet Research, 25*(1), 107-130. https://doi.org/10.1108/intr-01-2014-0018

27. Liu, C., Guo, Y. M., & Lee, C. (2011). The effects of relationship quality and switching barriers on customer loyalty. *International Journal of Information Management, 31*(1), 71-79. https://doi.org/10.1016/j.ijinfomgt.2010.05.008

28. Lu, H., & Su, P. Y. (2009). Factors affecting purchase intention on mobile shopping web sites. *Internet Research, 19*(4), 442-458. https://doi.org/10.1108/10662240910981399

29. Ly, H. T. N., Khuong, N. V., & Son, T. H. (2022). Determinants affect mobile wallet continuous usage in Covid-19 pandemic: evidence from Vietnam. *Cogent Business & Management, 9*(1). https://doi.org/10.1080/23311975.2022.2041792

30. Madan, K., & Yadav, R. (2018). Understanding and predicting antecedents of mobile shopping adoption. *Asia Pacific Journal of Marketing and Logistics, 30*(1), 139-162. https://doi.org/10.1108/apjml-02-2017-0023

31. Maduku, D. K., & Thusi, P. (2023). Understanding consumers' mobile shopping continuance intention: New perspectives from South Africa. *Journal of Retailing and Consumer Services, 70,* 103185. https://doi.org/10.1016/j.jretconser.2022.103185

32. Molinillo, S., Aguilar-Illescas, R., Anaya-Sánchez, R., & Carvajal-Trujillo, E. (2022). The customer retail app experience: Implications for customer loyalty. *Journal of Retailing and Consumer Services, 65,* 102842. https://doi.org/10.1016/j.jretconser.2021.102842

33. Natarajan, T., Balasubramanian, S. A., & Kasilingam, D. L. (2018). The moderating role of device type and age of users on the intention to use mobile shopping applications. *Technology in Society, 53,* 79-90. https://doi.org/10.1016/j.techsoc.2018.01.003

34. Nguyen, G., & Ha, M. (2021). The role of user adaptation and trust in understanding continuance intention towards mobile shopping: An extended expectation-confirmation model. *Cogent Business & Management, 8*(1). https://doi.org/10.1080/23311975.2021.1980248

35. Nguyen, L., Dwivedi, Y. K., Tan, G. W., Aw, E. C., Lo, P., & Ooi, K. (2023). Unlocking pathways to mobile payment satisfaction and commitment. *Journal of Computer Information Systems, 63*(4), 998-1015. https://doi.org/10.1080/08874417.2022.2119444

36. Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory*. New York: McGraw-Hill.

37. Oliver, R. L. (1980). A cognitive model of the antecedents and consequences of satisfaction decisions. *Journal of Marketing Research, 17*(4), 460-469. https://doi.org/10.1177/002224378001700405

38. PCMI. (2024). *India's e-commerce market growth: Trends & key data 2024–2025*. Retrieved from https://paymentscmi.com/insights/india-ecommerce-market-growth-trends/

39. Reichheld, F. F., & Sasser, W. E. (1990). Zero defections: quality comes to services. *PubMed, 68*(5), 105-111. https://pubmed.ncbi.nlm.nih.gov/10107082

40. San-Martin, S., & López-Catalán, B. (2013). How can a mobile vendor get satisfied customers? *Industrial Management & Data Systems, 113*(2), 156-170. https://doi.org/10.1108/02635571311303514

41. Sarkar, S., & Khare, A. (2019). Influence of expectation confirmation, network externalities, and flow on use of mobile shopping apps. *International Journal of Human-Computer Interaction, 35*(16), 1449-1460. https://doi.org/10.1080/10447318.2018.1540383

42. Sarkar, S., Khare, A., & Sadachar, A. (2019). Influence of consumer decision-making styles on use of mobile shopping applications. *Benchmarking an International Journal, 27*(1), 1-20. https://doi.org/10.1108/bij-07-2018-0208

43. Schramm-Klein, H., & Wagner, G. (2014). Broadening the perspective on E-Commerce: A comparative analysis of mobile shopping and traditional online shopping. *Marketing ZFP, 36*(2), 119-130. https://doi.org/10.15358/0344-1369_2014_2_119

44. Shang, D., & Wu, W. (2017). Understanding mobile shopping consumers' continuance intention. *Industrial Management & Data Systems, 117*(1), 213-227. https://doi.org/10.1108/imds-02-2016-0052

45. Venkatesh, N., Morris, N., Davis, N., & Davis, N. (2003). User acceptance of information Technology: toward a unified view. *MIS Quarterly, 27*(3), 425. https://doi.org/10.2307/30036540

46. Venkatesh, N., Thong, N., & Xu, N. (2012). Consumer Acceptance and use of Information technology: Extending the unified theory of acceptance and use of technology. *MIS Quarterly, 36*(1), 157. https://doi.org/10.2307/41410412

47. Venkatesh, V. (2000). Determinants of Perceived Ease of Use: Integrating Control, Intrinsic Motivation, and Emotion into the Technology Acceptance Model. *Information Systems Research, 11*(4), 342-365. https://doi.org/10.1287/isre.11.4.342.11872

48. Vinayak Bali. (2025). *Mobile Commerce Market Report 2025, Market Size, share, growth, CAGR, Forecast, revenue*. Cognitive Market Research. Retrieved from https://www.cognitivemarketresearch.com/mobile-commerce-market-report

49. Wu, I. (2013). The antecedents of customer satisfaction and its link to complaint intentions in online shopping: An integration of justice, technology, and trust. *International Journal of Information Management, 33*(1), 166-176. https://doi.org/10.1016/j.ijinfomgt.2012.09.001

50. Zhou, T. (2011). An empirical examination of initial trust in mobile banking. *Internet Research, 21*(5), 527-540. https://doi.org/10.1108/10662241111176353

http://dx.doi.org/10.21511/im.21(4).2025.23