

Ethical and Security Concerns in Mobile Marketing Adoption

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Abstract

The growing use of mobile phones and internet access offers marketers a valuable opportunity to engage with consumers through mobile channels. This study examines consumer behavior and adoption of mobile marketing, highlighting its relevance in the current digital landscape. This study is done on the youth of the Rural North India. Mobile marketing involves collecting and using personal data, such as location information, browsing behavior, or contact details. Ethical concerns arise when businesses do not adequately protect users' privacy or obtain proper consent for data collection and usage. Mobile devices can be vulnerable to various security threats, including malware, phishing attempts, or data breaches. So the study is aimed to know about the security and ethical concerns of the mobile users while adopting the mobile marketing practices. Mobile marketing efforts that involve collecting sensitive user information should have robust security measures in place to protect user data. It is crucial for businesses to adhere to applicable privacy regulations and ensure transparent data practices.

Keywords

Mobile Marketing, Ethical Concerns, Security Concerns, Intention to adopt.

INTRODUCTION

The number of internet users worldwide has been steadily increasing. According to a report by the International Telecommunication Union (ITU) in 2020, about 4.66 billion people (59.5% of the global population) were using the

internet. Mobile devices have become increasingly prevalent globally. As per data from Statista, the number of unique mobile subscribers worldwide reached around 5.27 billion in 2021. This indicates that a significant portion of the global population uses mobile phones. India has experienced significant growth in internet usage in recent years. As of 2020, according to the Telecom Regulatory Authority of India (TRAI), India had over 624 million internet users. However, this number is expected to have grown further since then. Mobile devices are extremely popular in India due to their affordability and accessibility. As of 2020, India had over 1.17 billion mobile phone users, making it one of the largest mobile markets in the world. With the widespread availability of smartphones and affordable data plans, mobile internet usage has witnessed significant growth. Mobile devices offer convenience, portability and accessibility, allowing users to access the internet on the go. Mobile internet usage includes activities such as browsing websites, using mobile apps, accessing social media platforms, and consuming digital content. The extent of mobile internet usage compared to computer internet usage can vary across regions. Developing countries, such as India, have seen a rapid adoption of mobile internet due to the affordability of smartphones and data plans. In contrast, developed countries may still have a larger proportion of computer internet usage due to higher computer penetration rates. The increasing popularity of smartphones and tablets has led to a shift in internet usage patterns. Many people prefer using mobile devices for daily internet activities due to their convenience and always-on connectivity. Mobile marketing refers to the practice of promoting products, services, or brands through mobile devices such as smartphones and tablets. It involves various marketing strategies and tactics that are specifically tailored for mobile platforms. Mobile marketing leverages the unique capabilities of mobile devices, including their portability, connectivity and personalized user experiences. It is important to note that effective mobile marketing strategies depend on understanding the target audience, their mobile usage behavior and preferences. Additionally, adhering to privacy regulations and obtaining user consent is crucial to maintain trust and compliance in mobile marketing activities. Thus, in context to this, the present study discusses the ethical and security concerns while using the mobile marketing services.

REVIEW OF LITERATURE

In order to ensure that consumer data cannot be acquired or used without the user's consent, Leontiadis *et al.* (2012) highlighted that firms

must follow local laws and code of conduct while collecting and processing location-based data. Milligan and Hutcherson (2007) highlighted several dangers, threats, and defenses for smartphones. Future risks associated with smartphones include : unintentional data disclosure, attacks on inactive devices, phishing attacks, spyware attacks network spoofing attacks, surveillance attacks, dialerware attacks, financial malware attacks and network congestion. Felt *et al.*, (2012) had talked about "permitting third-party applications to operate within a device holding private information about their owner can lead to unforeseen privacy and security risks". Thakur and Srivastava (2013) perceived reliability risk characterised by security risk and privacy risk as highly correlated with behavioural intention in a negative direction, suggesting that security and privacy concerns play a significant role in discouraging customers from utilising mobile commerce. Rodríguez-Priego *et al.* (2022) examined a study to find out the factors impacting the user's privacy protection behavior while using location based mobile applications. They found in their study that intentions of the privacy protection of the smartphone users positively influenced by the perceived severity, self-efficacy and perceived vulnerability which in turn impacted the users' behavior of privacy protection. Wan *et al.* (2022) aimed to explore the factors influencing the adoption of Mobile Tourism Shopping (MTS) through an integrated model, privacy concern was negatively related to the intention to use MTS (Mobile Tourism Shopping), highlighting the need for addressing privacy issues to enhance user acceptance. Kizza (2017) discussed the use of LTS by merchants, law enforcement agencies and others raises ethical and privacy concerns, as users may not be fully aware of the implications. The collection, aggregation and centralization of personal information without user consent and the absence of applicable laws further exacerbate these concerns. Security issues within the mobile ecosystem are also highlighted. Thus, the use of mobile marketing also poses such types of security and ethical concerns regarding the usage of their information when they are using their mobile devices for information search or using any offer or services by the marketers.

OBJECTIVE OF THE SYUDY

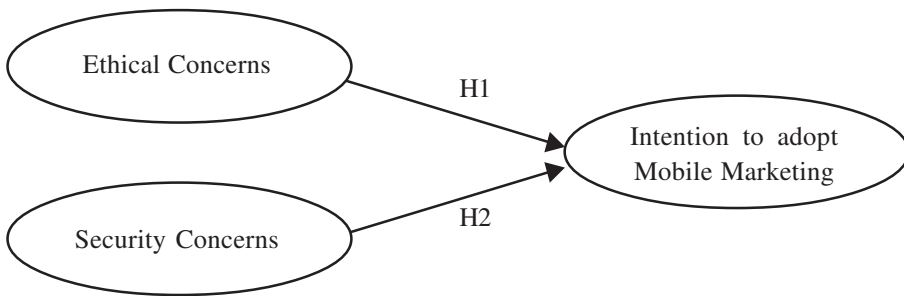
Mobile marketing includes collecting and using personal data, such as location information, browsing behavior, or contact details. Ethical concerns arise when businesses do not adequately protect users' privacy or obtain proper

consent for data collection and usage. It is crucial for businesses to adhere to applicable privacy regulations and ensure transparent data practices.

- Objective of the study is to study the Consumers' Ethical and Security concerns towards the Mobile Marketing.

RESEARCH MODEL AND HYPOTHESIS

Figure 1
Conceptual Model



- H₀₁ : Consumers' ethical concerns towards mobile marketing has negative effect on intention to adopt mobile marketing
- H₀₂ : Consumers' security concerns towards mobile marketing has negative effect on intention to adopt mobile marketing.

RESEARCH METHODOLOGY

A descriptive research design was employed, conducting a cross-sectional study that focused on a specific point in time and employed quantitative methods. The study was conducted in North India, where internet penetration rates are higher compared to other regions, as reported by IAMIA and Nielsen (2019). The sample population consisted of rural mobile users, given the higher growth rate of internet penetration in rural areas, particularly among young individuals, as indicated by the GSMA study (2021). The target population for this study was smartphone users aged 16-29 years residing in rural areas, with at least six months of mobile phone and internet usage. The sample size of 600 was determined using the formula provided by Godden (2004) for an infinite population. Snowball sampling technique was employed and a structured questionnaire was adapted from the scales of Smith *et al.* (1996) for ethical and security concerns and for intention, Sultan *et al.* (2009). In addition, secondary data from various sources such as journals, newspapers, reports, books and magazines were utilized.

RESULTS AND FINDINGS

In the Table 1, it can be clearly seen that the CR values of all the constructs are above 0.70 and the values of AVE of all the constructs are above the acceptable limit of 0.50 (Fornell and Larcker, 1981) and the CR values of all the constructs are greater than the AVE value of the respective Construct i.e. $CR > AVE$ (Hair et al. (2010); Sadeghi and Hanzae (2010); thus the convergent validity is achieved in the current model.

Table 1
Discriminant Validity

	CR	AVE	MSV	Security	Ethics	Intension
Security	0.936	0.788	0.247	0.840		
Ethics	0.922	0.706	0.346	0.491	0.888	
Intention	0.921	0.796	0.346	0.497	0.588	0.892

To check discriminant validity certain parameters to be checked which are; $CR > AVE$; $CR > 0.70$ and $AVE > 0.50$ (Hair et al., 2010) (Fornell and Larcker, 1981). Table 1, shows that the given conditions are fulfilled CR values of the factors are above 0.70, AVE is above the acceptable limit of 0.50 and CR value is greater than the AVE value of the corresponding factor. The square root of each construct's AVE was greater than the correlation of that construct with others, indicating discriminant validity as shown in Table 1, highlighting that each construct is distinct from others (Fornell and Larcker 1981). This type of validity can be seen in the diagonal matrix that shows the correlations between factors and square root of the AVE in the diagonal.

STRUCTURAL MODEL

It describes how latent variables directly or indirectly affect other latent variables in the model. The procedure of validation is repeated along with the structural model. All the items of the model are checked for the factor loading values, which were above 0.5. Overall suitability of the model is analyzed with the absolute, incremental and parsimonious fit of the model. The model was found to be significant with $p\text{-value} > 0.05$. The Goodness of Fit (GFI) value is also found to be above the limit defined by Hair et al. (2010) of 0.90, which comes 0.941. Similarly, the Root Mean Square Error of Approximation (RMSEA) is calculated at 0.078, which is also within the specified range. Thus an absolute fit index of the measurement model is within specified limits.

Among the incremental fit indices, the Comparative Fit Index (CFI) value was found to be 0.963, which is above the threshold limit of 0.95 and the Normed Fit Index (NFI) and Tucker Lewis Index (TLI) values for the measurement model were found to be above the acceptable limit of 0.90. Parsimonious fit index; PNFI and PCFI is 0.746 and 0.739 respectively which is above the prescribed limit of 0.6. The assessment of the absolute, incremental and parsimonious fit indices with the recommended values, suggests an acceptable model fit. The standardized regression weights (b Coefficients) of factors of Intention are – Ethics (ETHI) (0.45, $p < 0.001$) and Security (SECU) (0.27, $p < 0.001$).

Table 2
Model Fit Indices of Structural Model

Name of Category	Model Fit Indices	Recommended Criterion (Hair et al., 2010)	Structural Model
Absolute Fit	Chi-Square		236.248
	Probability	p-value>0.05	0.000
	Chi-Square/Degree of Freedom CMIN/DF	< 5.0	4.326
	Goodness of Fit (GFI)	>0.9	.941
	Root Mean Square Error of Approximation (RMSEA)	0.03-0.08	.078
Incremental Fit	Comparative Fit Index (CFI)	>0.95	.963
	Tucker Lewis Index (TLI)	>0.90	.958
	Normed Fit Index (NFI)	>0.90	.947
Parsimonious Fit	PNFI	>0.6	.746
	PCFI	>0.6	.739

TESTING OF THE HYPOTHESIS

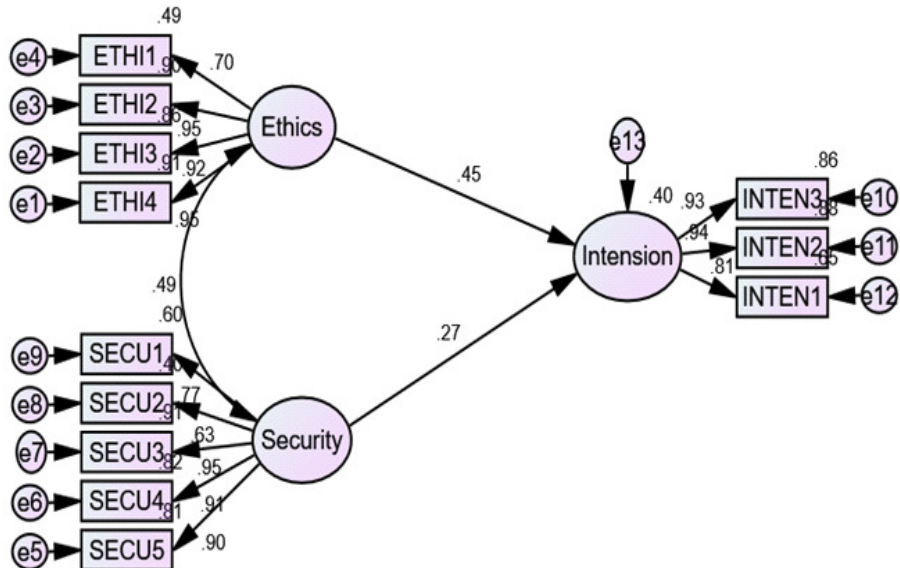
The exploratory factor analysis and confirmatory factor analysis helped in identifying the factors that were significant for developing structural model. The structural model developed using SEM analysis, gives the results which show, that, whether the particular independent construct has a significant impact on a dependent construct or not? It also helps in knowing, how much impact each factor is having on the dependent variable? Ethical concern has a negative impact on intention of consumers towards the mobile marketing. Thus, hypothesis

Six (H6) is accepted. Security concern has also negative impact on the intention of the consumers towards the mobile marketing; thus hypothesis seven (H7) is also accepted.

Table 3
Path Analysis using Structural Equation Modelling

	Hypothesis	Structural Path	Standardized Regression Weights	P value	Hypothesis (95% Confidence Level)
H ₀₆	Consumers' ethical issues towards mobile marketing has negative effect on intention to adopt mobile marketing	ETHI—>INTEN	0.454	0.000	Significant Relation (Accepted)
H ₀₇	Consumers' security issues towards mobile marketing has negative effect on intention to adopt mobile marketing	SECU—>INTEN	0.275	0.000	Significant Relation (Accepted)

Figure 2
Structural Model



DISCUSSION

The findings support the hypothesis H6, suggesting that consumers' ethical issues towards mobile marketing have a significant negative impact on their intention to adopt mobile marketing. This means, that when consumers have concerns or perceive ethical issues related to mobile marketing practices, it decreases their likelihood of adopting mobile marketing. The findings also support hypothesis H7, indicating that consumers' security issues towards mobile marketing have a significant negative impact on their intention to adopt mobile marketing. When consumers have concerns regarding the security of their personal information or transactions in mobile marketing, it decreases their intention to adopt and engage with mobile marketing. Past studies, support the ethical and security concerns of consumers in mobile marketing. Concerns over privacy and control impact consumers' willingness to disclose information, and targeted and personalized marketing messages, can trigger negative consumer responses (Acquisti *et al.*, 2012; Tucker, 2014).

THEORETICAL IMPLICATIONS

The current research, can inform and improve ethical marketing theories by providing empirical evidence and insights into the impact of ethical and unethical mobile marketing practices on consumer attitudes and behaviors. It can help refine the concept of ethical marketing and its implications for business success. The Diffusion of Innovation Theory explains how innovations spread within a social system. The research can expand this theory by exploring how ethical considerations and data security concerns influence the diffusion of mobile marketing technologies among different user segments and market segments.

MANAGERIAL IMPLICATIONS

Marketers should pay close attention to data protection and security measures to address consumer concerns. This includes, implementing robust security protocols, encryption techniques and secure data storage to safeguard sensitive user information. The study's findings can highlight the importance of investing in security measures and reassure consumers that their personal data is handled responsibly. Marketers should avoid deceptive or misleading practices and ensure that their mobile marketing

activities comply with relevant laws and regulations. Building trust with consumers, requires marketers to maintain high ethical standards in their communication and engagement strategies.

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