

Analysing the Impact of Digital Literacy on Mobile Banking Adoption among Households

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ABSTRACT

The rapid advancement of digital technologies has significantly transformed the banking industry, making mobile banking one of the most accessible and convenient financial services. The increasing penetration of smartphones, internet connectivity, and digital payment platforms has accelerated the transition toward digital banking, enabling customers to perform financial transactions anytime and anywhere. However, the successful adoption of mobile banking largely depends on individuals' digital literacy, which determines their ability to understand, access, and effectively use digital technologies. Despite extensive efforts by governments and financial institutions to promote digital financial services, disparities in digital literacy continue to hinder the widespread adoption of mobile banking, particularly among households with limited technological knowledge and digital skills.

This study examines the impact of digital literacy on mobile banking adoption among households. Specifically, the research investigates the level of digital literacy among households, analyses the relationship between digital literacy and mobile banking adoption, identifies the major factors influencing the adoption of mobile banking services, compares adoption behaviour between digitally literate and less digitally literate users, and explores the challenges faced while using mobile banking applications.

The study adopts a deductive research approach using a descriptive and explanatory quantitative research design. Primary data will be collected from 100 household respondents through a structured questionnaire using convenience sampling. The collected data will be analysed using Microsoft Excel and SPSS through descriptive statistics, reliability analysis, correlation analysis, regression analysis, and Chi-square tests to examine the relationship between digital literacy and mobile banking adoption.

The expected findings indicate that digital literacy has a significant positive influence on mobile banking adoption. Households possessing higher levels of digital knowledge, internet awareness, smartphone usage skills, and confidence in digital technologies are expected to demonstrate greater willingness to adopt mobile banking services. The study further anticipates that perceived ease of use, trust, security, awareness, and internet accessibility positively influence adoption behaviour, whereas fear of fraud, lack of digital skills, cybersecurity concerns, and poor technological infrastructure remain major barriers to adoption.

The findings will contribute to the existing literature on digital financial inclusion and provide valuable insights for banks, policymakers, and financial institutions in designing effective digital literacy programmes, improving customer awareness, strengthening digital security, and enhancing the accessibility of mobile banking services. The study ultimately aims to support inclusive digital transformation by encouraging wider adoption of secure and user-friendly mobile banking services among households.

Keywords: Digital Literacy, Mobile Banking Adoption, Households, Digital Financial Inclusion, Mobile Banking, Banking Technology, Financial Services.

I. INTRODUCTION

The rapid advancement of digital technologies has fundamentally transformed the global banking industry by changing the way financial services are delivered and accessed. The increasing availability of smartphones, affordable internet connectivity, cloud computing, and digital payment platforms has enabled financial institutions to introduce innovative banking solutions that offer greater convenience, accessibility, and operational efficiency. Among these technological innovations, mobile banking has emerged as one of the most significant digital financial services, allowing

customers to perform transactions such as fund transfers, bill payments, balance enquiries, account management, loan repayments, and online purchases without visiting a physical bank branch. As digital banking continues to expand worldwide, mobile banking has become an essential component of modern financial systems and a key driver of financial inclusion.

In India, the digital banking ecosystem has witnessed unprecedented growth during the last decade owing to initiatives such as Digital India, Unified Payments Interface (UPI), Aadhaar-enabled payment systems, Jan Dhan Yojana, and increasing smartphone penetration. These initiatives have significantly improved access to banking services across urban and rural regions while encouraging households to shift from traditional banking methods toward digital financial platforms. Commercial banks and financial technology companies have simultaneously invested in secure mobile applications, artificial intelligence-based customer support, biometric authentication, and digital payment infrastructure to improve customer experience and expand digital banking adoption. Consequently, mobile banking has become one of the most widely used digital financial services in India.

Despite these technological advancements, the adoption of mobile banking remains uneven among households. While many individuals actively use mobile banking for everyday financial activities, a considerable proportion of households continue to rely on conventional banking channels. Differences in educational background, age, income, technological exposure, internet accessibility, and awareness significantly influence customers' willingness to adopt digital banking services. Among these factors, digital literacy has emerged as one of the most important determinants influencing the successful adoption and continued use of mobile banking applications.

Digital literacy refers to the knowledge, skills, and confidence required to access, understand, evaluate, and effectively use digital technologies in everyday life. Within the banking context, digital literacy enables individuals to operate smartphones, navigate banking applications, perform secure financial transactions, identify online security threats, and protect personal financial information. Households possessing higher levels of digital literacy generally demonstrate greater confidence in using mobile banking applications and are more likely to adopt digital financial services. Conversely, households with limited digital skills frequently encounter difficulties in understanding

mobile applications, remembering authentication procedures, identifying fraudulent activities, and resolving technical issues, thereby reducing their willingness to adopt mobile banking.

Apart from digital literacy, several behavioural and technological factors also influence mobile banking adoption. Perceived ease of use, perceived usefulness, trust, privacy, security, facilitating conditions, internet accessibility, social influence, and customer awareness significantly determine customers' intention to use digital banking services. Security concerns relating to cyber fraud, phishing attacks, identity theft, and financial scams continue to discourage many households from actively using mobile banking despite improvements in digital banking infrastructure. Likewise, inadequate digital education, limited technological exposure, and poor internet connectivity remain major barriers, particularly among rural and economically disadvantaged households.

Mobile banking plays a crucial role in promoting financial inclusion by enabling households to access formal banking services irrespective of geographical location. Regular use of mobile banking enhances financial management, reduces transaction costs, improves accessibility to banking services, facilitates government benefit transfers, and encourages greater participation in the formal financial system. Therefore, understanding the relationship between digital literacy and mobile banking adoption has become increasingly important for policymakers, financial institutions, and banking professionals seeking to develop inclusive digital financial ecosystems.

Although previous research has independently examined digital literacy, technology adoption, financial inclusion, and mobile banking behaviour, relatively limited research has comprehensively investigated the influence of digital literacy on mobile banking adoption among households while simultaneously comparing adoption behaviour between digitally literate and less digitally literate users. Furthermore, limited evidence exists regarding the practical challenges faced by households in adopting mobile banking services within the Indian context.

Therefore, the present study examines the impact of digital literacy on mobile banking adoption among households by analysing the level of digital literacy, identifying the factors influencing mobile banking adoption, comparing adoption behaviour among different categories of users, and investigating the major challenges preventing effective utilisation of mobile

banking applications. The findings are expected to contribute to digital banking and financial inclusion literature while providing practical recommendations for banks, financial institutions, technology providers, and policymakers to strengthen digital literacy initiatives, improve customer awareness, enhance cybersecurity measures, and encourage the wider adoption of secure, accessible, and inclusive mobile banking services among households.

II. REVIEW OF LITERATURE

Digital literacy and mobile banking adoption have become important research areas due to the rapid digital transformation of financial services. Previous studies have examined the influence of digital literacy, technological awareness, perceived usefulness, trust, security, financial inclusion, and behavioural factors on the adoption of mobile banking services among households. The following review summarises major empirical studies relevant to the present research.

Annamalai and Rajarathinam (2025) examined the impact of digital finance literacy on the adoption behaviour of rural households in India. The study reported that digital financial literacy significantly improves the willingness of households to adopt mobile banking and other digital financial services. The findings indicated that awareness, technological knowledge, ease of use, and trust positively influence adoption behaviour, while inadequate digital skills and security concerns remain major barriers.

Yang, Wu, and Huang (2023) investigated the relationship between financial literacy and digital finance adoption among Chinese households. The researchers found that financially literate individuals were significantly more likely to use mobile payments, digital banking, and online financial products. The study concluded that strengthening digital and financial literacy enhances household participation in formal digital financial systems.

Liu, Chen, Chen, and Chen (2024) analysed the effect of digital financial inclusion on household financial vulnerability in China. The findings revealed that digital financial inclusion improves household financial resilience through better liquidity management and emergency savings. The study also highlighted that financial literacy acts as a key mechanism through which digital financial services improve household welfare.

Jiang, Hu, and Cao (2024) examined whether digital financial inclusion increases household consumption.

The study concluded that improved access to digital financial services enhances household consumption by reducing transaction barriers and improving financial accessibility. Rural and low-income households benefited the most from digital financial inclusion initiatives.

Kumar et al. (2020) developed a comprehensive framework for mobile banking adoption in India by extending the Technology Acceptance Model (TAM). Using Structural Equation Modelling, the researchers found that perceived usefulness, perceived ease of use, trust, self-efficacy, and personal innovativeness significantly influence customers' intention to adopt mobile banking services. The study recommended improving digital literacy and customer awareness to increase adoption.

Mohapatra, Moirangthem, and Vishwakarma (2020) investigated mobile banking adoption among rural consumers using the Unified Theory of Acceptance and Use of Technology (UTAUT). The findings revealed that facilitating conditions, performance expectancy, effort expectancy, and social influence positively affect mobile banking adoption, whereas perceived risk negatively influences users' intention to adopt digital banking services.

Parakh, Ukhalkar, and Sanu (2020) studied digital wallet and mobile banking adoption among rural banking customers in Maharashtra. The research identified security, privacy, trust, convenience, and familiarity with digital technologies as the primary determinants of adoption. The authors recommended strengthening digital awareness programmes and improving cybersecurity to encourage wider adoption.

Kala et al. (2018) explored the relationship between digital financial literacy and financial inclusion. The study concluded that individuals possessing stronger digital competencies are more likely to utilise mobile banking, internet banking, and digital payment systems. Education, awareness, and internet accessibility were identified as significant contributors to digital financial behaviour.

Jünger and Mietzner (2020) examined FinTech adoption among German households. The findings demonstrated that technological readiness, financial literacy, trust, and transparency significantly influence consumers' willingness to adopt digital financial services. The study emphasised that customer trust is essential for promoting digital banking adoption.

Koomson, Bukari, and Villano (2022) investigated the influence of mobile money adoption on financial inclusion among rural households in Ghana. The study reported that mobile financial services improve household financial participation through secure savings, convenient money transfers, and improved financial management. Digital literacy and trust were found to positively influence continued usage.

Tinmaz, Lee, Fanea-Ivanovici, and Baber (2022) conducted a systematic review of digital literacy research. The review concluded that digital literacy extends beyond technical skills and includes communication, critical thinking, information evaluation, and digital problem-solving capabilities. The authors recommended integrating digital literacy into educational and financial inclusion policies.

Kishore and Sequeira (2016) conducted an empirical investigation into mobile banking adoption in rural Karnataka. Applying the UTAUT framework, the study found that attitude, perceived usefulness, effort expectancy, and social influence positively affect adoption, whereas perceived risk negatively influences customers' behavioural intention.

Riquelme and Rios (2010) investigated the determinants of mobile banking adoption among internet banking users in Singapore. The findings showed that perceived usefulness, social influence, and perceived risk significantly affect customers' adoption intention. The study further demonstrated that gender moderates the influence of behavioural factors on mobile banking adoption.

Sha'ban, Girardone, and Sarkisyan (2019) examined cross-country determinants of financial inclusion. Their findings revealed that internet accessibility, digital infrastructure, institutional quality, and education significantly improve access to formal financial services and support digital banking adoption.

Overall, previous studies consistently indicate that digital literacy, trust, perceived usefulness, technological awareness, facilitating conditions, and financial literacy positively influence mobile banking adoption and digital financial inclusion. However, relatively few studies have comprehensively examined the influence of digital literacy on mobile banking adoption among households while simultaneously comparing adoption behaviour between digitally literate and less digitally literate users in the Indian context. This research gap provides the basis for the present study, which investigates the relationship between

digital literacy and mobile banking adoption and identifies the major factors and challenges influencing household adoption behaviour.

III. METHODOLOGY

The present study adopts a deductive research approach to examine the impact of digital literacy on mobile banking adoption among households. A descriptive and explanatory quantitative research design has been employed because it enables the systematic measurement of digital literacy and its influence on the adoption of mobile banking services using statistical techniques. The descriptive component helps explain the current level of digital literacy and mobile banking usage among households, while the explanatory component investigates the relationship between digital literacy and mobile banking adoption.

The study is based entirely on primary data collected through a structured questionnaire. The questionnaire consists of two sections. The first section includes demographic questions related to respondents' age, gender, educational qualification, occupation, monthly household income, and experience with mobile banking. The second section contains statements measuring digital literacy, mobile banking adoption, perceived usefulness, perceived ease of use, trust and security, awareness, and challenges associated with mobile banking usage.

A convenience sampling technique is adopted for selecting respondents because it enables efficient collection of data from households that have access to smartphones and banking services. The study proposes a sample size of 100 household respondents, representing individuals from different age groups, educational backgrounds, occupations, and income categories. Both users and non-users of mobile banking services are included to obtain a comprehensive understanding of the factors influencing adoption behaviour and the challenges faced by different categories of households.

The study measures Digital Literacy as the independent variable and Mobile Banking Adoption as the dependent variable. Digital literacy is assessed through dimensions such as smartphone usage skills, internet knowledge, online security awareness, digital confidence, and the ability to use digital financial services. Mobile banking adoption is measured through indicators including frequency of usage, intention to use, transaction convenience, ease of performing banking activities, and overall acceptance of mobile banking applications.

Additional factors such as perceived usefulness, perceived ease of use, trust, internet accessibility, and security awareness are considered to better understand their influence on adoption behaviour.

The collected data will be coded, classified, and analysed using Microsoft Excel. Descriptive statistics, including frequencies, percentages, mean, and standard deviation, will be used to summarise respondents' demographic characteristics and digital literacy levels. Cronbach's Alpha will be employed to assess the reliability and internal consistency of the questionnaire. Correlation analysis will be used to examine the relationship between digital literacy and mobile banking adoption, regression analysis will determine the extent to which digital literacy predicts mobile banking adoption, and Analysis of Variance (ANOVA) will be applied to compare differences in mobile banking adoption across demographic groups such as age, education level, occupation, and income.

The study follows established ethical research practices throughout the data collection process. Participation is entirely voluntary, and respondents will be informed about the purpose of the research before completing the questionnaire. Confidentiality and anonymity of respondents' personal information will be maintained, and the collected data will be used exclusively for academic research purposes. Respondents will also have the right to withdraw from the survey at any stage without any obligation.

Based on the objectives of the study, the following hypotheses are proposed:

H₁: Digital literacy has a significant positive impact on mobile banking adoption among households.

H₂: Perceived usefulness significantly influences mobile banking adoption among households.

H₃: Perceived ease of use has a significant positive relationship with mobile banking adoption.

H₄: Trust and security significantly influence households' intention to adopt mobile banking services.

H₅: Digital literacy significantly reduces the challenges faced by households while using mobile banking applications.

The selected methodology is expected to provide reliable empirical evidence regarding the relationship between digital literacy and mobile banking adoption while identifying the major factors that encourage or

hinder the effective use of mobile banking services among households.

IV. RESULTS AND DISCUSSION

The study is expected to examine how digital literacy influences mobile banking adoption among households by analysing respondents' digital knowledge, awareness, technological skills, and banking behaviour. Based on previous empirical studies and the proposed research framework, the anticipated findings are discussed under the following themes.

A. Digital Literacy

The study is expected to reveal that digital literacy has a significant positive influence on mobile banking adoption among households. Respondents possessing higher levels of digital knowledge, smartphone usage skills, internet awareness, and confidence in using digital technologies are anticipated to demonstrate greater willingness to adopt mobile banking services. Households with better digital competencies are also expected to perform financial transactions more efficiently while experiencing fewer operational difficulties. In contrast, respondents with limited digital literacy may face challenges in navigating mobile banking applications, understanding security features, and completing online transactions, thereby reducing their likelihood of adopting digital banking services.

B. Mobile Banking Adoption

The findings are expected to indicate that mobile banking adoption is positively influenced by customers' perception of convenience, accessibility, and usefulness. Households that recognise mobile banking as an efficient method for conducting financial transactions are likely to use these services more frequently. Features such as instant fund transfers, account accessibility, bill payments, and round-the-clock banking services are anticipated to encourage continuous usage. The study also expects that individuals with greater digital confidence will demonstrate stronger intention to adopt and regularly use mobile banking applications compared with less digitally literate users.

C. Factors Influencing Mobile Banking Adoption

The study is expected to identify several factors that significantly influence mobile banking adoption among households. Perceived usefulness, perceived ease of use, trust, security, internet accessibility, and awareness are anticipated to positively affect customers' intention

to adopt mobile banking services. Trust in banking institutions, secure authentication systems, reliable internet connectivity, and user-friendly application interfaces are expected to increase customers' confidence in digital banking. Furthermore, awareness regarding digital financial services and previous experience with digital technologies are likely to strengthen adoption behaviour among household users.

D. Challenges Faced by Households

The anticipated findings suggest that several barriers continue to affect mobile banking adoption despite the increasing availability of digital financial services. Security concerns, fear of cyber fraud, inadequate digital knowledge, poor internet connectivity, lack of awareness, and limited technological skills are expected to remain the major obstacles. Older adults and households with lower educational backgrounds may experience greater difficulty in understanding mobile banking applications and completing digital transactions independently. These challenges highlight the importance of strengthening digital literacy programmes and improving customer education to encourage wider adoption.

E. Overall Findings

Overall, the study is expected to demonstrate that digital literacy plays a vital role in promoting mobile banking adoption among households. Respondents with higher levels of digital literacy are anticipated to exhibit greater confidence, higher adoption rates, and more frequent utilisation of mobile banking services than those with lower digital literacy levels. The findings are also expected to confirm that perceived usefulness, ease of use, trust, security, and awareness positively influence adoption behaviour, while inadequate digital skills and cybersecurity concerns negatively affect customers' willingness to use mobile banking applications.

The results are expected to provide practical implications for banks, financial institutions, and policymakers by emphasising the importance of digital literacy initiatives, customer awareness programmes, secure digital banking infrastructure, and user-friendly mobile banking applications. Strengthening these areas can significantly improve financial inclusion, enhance customer confidence, and promote the widespread adoption of digital banking services among households.

V. CONCLUSION

The present study examines the impact of digital literacy on mobile banking adoption among households by analysing the role of digital knowledge, technological skills, awareness, and confidence in the use of mobile banking services. As digital banking continues to transform the financial sector, understanding the factors that encourage or hinder mobile banking adoption has become increasingly important for promoting financial inclusion and improving access to digital financial services.

The expected findings suggest that digital literacy is one of the most significant determinants of mobile banking adoption among households. Individuals with higher levels of digital literacy are anticipated to demonstrate greater confidence in using mobile banking applications and are more likely to adopt digital financial services for their day-to-day banking activities. The study also expects that factors such as perceived usefulness, perceived ease of use, trust, security, and internet accessibility positively influence adoption behaviour, whereas limited digital skills, lack of awareness, cybersecurity concerns, and fear of online fraud continue to restrict the effective utilisation of mobile banking services.

The study highlights the importance of strengthening digital literacy initiatives through collaboration among banks, financial institutions, government agencies, and educational organisations. Improving customer awareness, enhancing digital security measures, and developing user-friendly mobile banking applications can encourage greater acceptance of digital banking services among households. Such initiatives will contribute to increasing financial inclusion, reducing dependence on traditional banking channels, and promoting equitable access to modern financial services.

Overall, this study contributes to the growing body of literature on digital banking, digital literacy, and financial inclusion by providing empirical insights into the relationship between digital literacy and mobile banking adoption among households. The findings are expected to assist banks, policymakers, researchers, and financial service providers in formulating effective strategies that enhance digital competencies, improve customer experience, and support the widespread adoption of secure, accessible, and inclusive mobile banking services.

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