



E-ISSN: 2706-8927
P-ISSN: 2706-8919
www.allstudyjournal.com
IJAAS 2024; 6(4): 09-17
Received: 10-01-2024
Accepted: 13-02-2024

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Factors affecting digital financial inclusion of women leading to their empowerment: A study from a suburban area near Kolkata

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DOI: <https://doi.org/10.33545/27068919.2024.v6.i4a.1138>

Abstract

In the rapidly evolving digital landscape of contemporary society, understanding the intricate interplay of factors influencing women's digital Behaviour and its consequential impact on their empowerment has gained paramount importance. This study delves into the nuanced realm of women's digital engagement and empowerment within a suburban area near Kolkata, India. Leveraging a mixed-methods research approach, we comprehensively investigate the multifaceted factors-both internal and external-that shape women's digital Behaviour and catalyze their journey towards empowerment.

Drawing on empirical data collected from the suburban area of Barasat, located in the vicinity of Kolkata, we employ a rigorous analytical framework to unveil the complex dynamics at play. By elucidating the intricate connections between socio-cultural, economic, technological, and personal determinants, this study provides a holistic perspective on the factors that facilitate or hinder women's empowerment through digital avenues.

The findings of this research hold significant implications for policy formulation, shedding light on novel avenues for informed decision-making and strategic interventions. As a beacon of insight, this study paves the way for tailored and effective policies that resonate with the unique challenges and opportunities present in suburban areas. By addressing these factors, policymakers can steer the course towards a more equitable and empowered digital future for women, thereby fostering socio-economic growth and inclusivity.

In conclusion, this study contributes to the expanding discourse on women's empowerment in the digital age by unravelling the intricate fabric of factors influencing their digital Behaviour. It underscores the imperative for contextually relevant policy interventions and lays the groundwork for future research endeavours aimed at fostering women's empowerment within the rapidly evolving digital ecosystem.

Keywords: Digital behaviour, digital finance, factor analysis, financial inclusion, woman empowerment

Introduction

India is the world's seventh biggest country and the second most populous. With a population of nearly 1.39 billion people, India is not just a densely populated country, but also a worldwide hotspot for digital financial inclusion. This massive demographic variety raises both obstacles and possibilities in India's digital financial sector. The country's most recent advances in digital technology appear to be a remedy to previous challenges. Financial inclusion in the country may be achieved at a cheaper cost thanks to new digital service providers. Financial services have been reengineered, and the path for digitalization has been paved. India's demographic tapestry is beautifully woven with variety, and individuals have a crucial part in shaping the narrative of digital financial inclusion, which has a major influence on women in semi-rural regions. These communities, which are frequently characterized by a combination of traditional traditions and emerging technology, have experienced a transformational shift in women's workforce empowerment as a result of digital financial inclusion.

The rise of smartphones and affordable internet access has ushered in a digital revolution that is rewriting the script of economic empowerment for women in semi-rural India. Through digital financial services, women are breaking free from traditional financial constraints.

They can now save, invest, and access credit with newfound ease, reducing their dependence on informal and often exploitative financial systems.

This digital empowerment extends beyond just financial transactions. Women now are accessing financial literacy resources online, enabling them to make informed decisions about their finances. The ability to manage their money digitally enhances their economic independence, contributing towards a substantial distribution of resources within households.

However, unfortunately, the journey to digital financial inclusion has its flip side as well, which is complicated and challenging. The digital gender divide persists, with women often facing barriers related to digital literacy and cultural norms. Bridging this divide requires not only access to technology but also targeted educational initiatives and awareness campaigns that empower women with the skills and confidence to navigate the digital financial landscape.

Nonetheless, the fusion of India's vast population, digital innovation, and the pursuit of gender equality is reshaping the destiny of women in suburban areas near Kolkata. It's a transformation that holds the promise of a more inclusive, financially resilient, and empowered future where the women's workforce plays a central role in terms of contributions to their families, communities, and the overall nation's progress.

Digital financial inclusion

As per UN data released in April 2023, the nation's population is over 1.428 billion. As a result, it ranks among the 2nd largest markets in the world. However, a sizable portion of the populace is impoverished and unable to access financial services. The nation's government has leveraged significant efforts to ensure effective financial inclusion. The country's most recent advancements in digital technology appear to be a solution to the problems encountered in the past. Financial inclusion in the nation can be achieved at lower prices with the aid of new digital service providers. They have redesigned financial services and paved the way for inclusivity in digital finance. By creating an effective, affordable, and easily accessible digital payment system, digital technology will help to shape the modern economy.

Financial inclusion is the basis of digital financial inclusion. The United Nations had claimed that people had a lacuna for accessing formal financial services and thus inclusive financial sectors might raise people's standard of living in the early 2000s, which led to the term's rise in use. However, microfinance already existed and assisted people in obtaining a living. According to Philip Mader (2016) [18], the initial theory of microcredit was turned into the concept of financial inclusion, which has since evolved into Digital Financial Inclusion. Therefore, microfinance is where the first signs of digital financial inclusion could be found. To make new products and financial services available to the target markets, financial inclusion was a step after microcredit.

According to Suxena & Thakur (2022) [35], there are some key elements of Digital Financial Inclusion - a) Digital transaction platform b) Financial services and service provider c) Digital data service provider d) Device e) Retail agents f) Digital financial literacy. Platforms for digital transactions make it easier for customers to receive and send payments online exploring the virtual channels. They

operate as a mediator in a transaction to ensure both customers and service providers have a satisfying and ease of usage (Hendriks S, 2019) [15]. Because they link the customer/user and the receiver/merchant on both sides of a transaction, they can be seen as two-sided platforms. Bourreau and Valletti (2015) [6]. They provide communication with several financial institutions that are authorized to retain digital currency. Financial activities that aid in managing finances, credit, investments, and insurance can be referred to as financial services.

Literature Review

Post performing their research on e-CRM among the National Banks, Mittal and Rajeev (2001) [39] hypothesized that for high-valued items, customers prefer not only e-banking but prefer visiting brick-and-mortar branches primarily for social connections. They thought that a strong and flexible infrastructure reinforces the success of e-CRM. The researchers also stated that operations related to administration should be mechanized, e-commerce services need to be strengthened and functional complexity to be reduced considering the cost savings proposition due to increased productivity.

During their research, Srivastava (2007) [40] analyzed the attitudes and motivations of Indian consumers toward Internet banking, he conducted qualitative exploratory research and discovered that demographic dimensions & and factors like gender, income, and education have a definite impact on the adoption of online banking. The survey also made clear that certain elements, such as awareness campaigns, an easy-to-use interface, cheaper prices, and increased security, were required to change customers' attitudes for the better.

In their study, Shukla and Shukla (2011) [32] concentrated on the difficulties that e-banking presents. To explore the potential of electronic banking, they attempted to identify its benefits and risks. They concluded that e-banking had caused users to experience inconvenience. They also emphasized how vulnerable online banking is a threat for an individual, to ensure financial security and privacy.

The apex body of Asian Financial Institutions is more aware of the potential for digitalization to enhance or diminish a firm's value, according to a 2014 McKinsey & Company report. Although both service providers and consumers take a largely conservative stance, there will be a larger push for adoption as the digital generation gets older, wealthier, and smarter. With their advances, businesses would soon meet client expectations.

Kaur (2015) [17] studied the effects of the digital India program on financial inclusion and concluded that it helps to bridge the gaps between various societal groups. Through digital banking, the initiative may contribute to financial inclusion.

Meshram and Randad (2015) [23] studied that over 3/4th of the families in the sample were reported to have at least one person who could read and write. Financial inclusion awareness was found to be quite low. According to the experts, simply having a bank account won't help in reaching the goal of financial inclusion; rather, it must be ensured that the average person feels confident using the financial services placed at their door. The volume of all digital transactions increased by 58.8% during the years of 2018 and 2019. The value of digital transactions increased

by 19.5% in 2018–19, while RTGS transactions made up 82.8% of those transactions.

Aaluri, Narayanan, and Kumar (2016) [1] studied the technological, regulatory, and financial inclusion trends in the Indian banking industry. They considered the circumstance in which all Indians have their bank accounts using information technology-enabled services and backed the steps done by the Indian government to promote financial inclusion.

Ansari and Khan (2017) [41] compared the growth rates of credit cards, debit cards, NEFT and RTGS transactions, and ATMs in terms of their value as well as volume to analyze the impact of technical improvements and the IT revolution on the functioning of Indian banks. Mobile banking has topped the list of the most popular online and electronic payment methods over the survey period, which runs from 2011 to 2016.

Chandrawati and Pandey (2017) [7] in their study, tried to pinpoint the factors that led Indian banks to convert to digital banking. Using exploratory research, the researchers concluded that branch banking will alter as a result of digitization. They also claimed that people are increasingly using their mobile phones as their main method of banking.

Sahu and Kumar (2017) [29], conducted their study in Allahabad to identify the elements responsible for the effective adoption of the digitization of financial transactions. Uncertainty, bank concern, infrastructure, mobility, consumer attitude, popularity, range of services, security risk, and limitations on time, quantity, and medium were a few of the factors mentioned. The government aims to create a cashless economy. To ensure a tremendous increase in digital transactions, a safe, secure, effective, and resilient payment system must be built. Researchers have recently found that particular retail digital transaction segments are steadily expanding while cash transactions are declining.

Kriti Priya Gupta, Rishi Manrai, and Utkarsh Goel (2019)

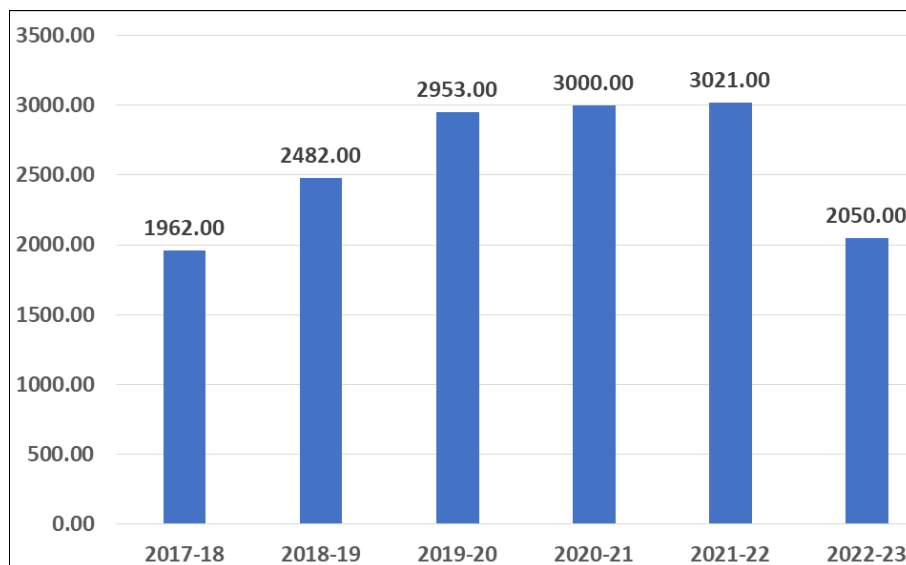
[42], The goal of this article is to look into the behavioural intentions of the underbanked and unbanked population in India to utilize banking payment services. The suggested model has taken perceived credibility and elements from the Unified Theory of Acceptance and Use of Technology (UTAUT). Performance expectations, effort expectations, enabling circumstances, and social influence are among the components of UTAUT. The study has examined the mediating and moderating impacts of several dimensions in addition to investigating the direct links between the model constructs and the behavioural intention to use payment banks.

Recent Trend of Digital Transaction as per RBI Report

The Indian government has committed itself to enhancing the quality and strength of the financial sector as well as the standard of life for its people by increasing the number of digital transactions in the Indian economy. Due to the concerted efforts of the entire government and all interested parties, the number of digital payment transactions has greatly increased, rising from 2,071 crore in FY 2017–18 to 8,840 crores in FY 2021–22 (Source: RBI, NPCI and banks).

Immediate Payment Service (IMPS), National Electronic Toll Collection (NETC), and Bharat Interface for Money- Unified Payments Interface (BHIM-UPI), among others, have experienced significant growth over the past five years and have transformed the digital payment ecosystem by increasing both person-to-person and person-to-merchant (P2M) payments. As the nation's preferred method of payment, BHIM UPI conducted 803.6 billion digital payment transactions worth 12.98 lakh crore in January 2023.

The total value of digital payments made through BHIM-UPI, IMPS, NACH, AePS, NETC, debit cards, credit cards, NEFT, RTGS, PPI and others during the last five financial years and in the current financial year are as under:



Source: RBI, NPCI and Banks

Fig 1: Value of digital transactions (In lakh crore)

The expansion of digital payments in India and the availability of a variety of simple and practical digital payment options have made life easier for citizens, encouraged financial inclusion, and fueled business and

economic growth. The availability of contactless digital payment options, such as BHIM-UPI, during the Pandemic, facilitated social isolation and the survival of enterprises, including small retailers.

Utility of TAM Model

The technology acceptance model is a frequently used approach for analysing consumers' intentions to utilize a technology. The TAM model was shaped by Ajzen and Fishbein's (1980) [3] theory of reasoned action, which claims that an individual's behaviour is determined by his intentions. The Davis (1989) [9] Technology Acceptance paradigm, a conventional adoption paradigm, illustrates how a human accepts a technology. The survey was conducted on 120 users in Michigan about their acceptance of email technology and a text editor, and the response rate was 93.3%. It was discovered that perceived usefulness had an impact on utilization. The model covers the interdependence between system design elements, perceived utility, actual usage Behaviour, perceived ease of use, and attitude towards use. It was discovered that system designs and features have a direct impact on perceived utility. Though TAM was quite effective, it did not consider social influence in the model (Malhotra & Galletta, 1999) [19], which was a disadvantage that led to the development of UTUAT (Unified Theory of Acceptance and Use of Technology). After TAM was criticized for failing to include social influence and assuming that just one

technology was available for usage, UTAUT was created. TAM is an extension of UTAUT. It examines social influence, perceived security, trust, and self-efficacy as elements influencing technology use intention. It also takes age, gender, and experience into account as moderating factors (Venkatesh *et al.*, 2003) [37].

According to Dasgupta *et al.* (2011) [8], there are a variety of behavioural factors that influence the intent to use mobile banking/payments. Perceived Usefulness, Perceived Image, Perceived Value, Self-Efficacy, Ease of Use, and Perceived Credibility are the factors that significantly link to technology use. Zhang *et al.* (2012) [38] combined models of studies to examine fifty-three publications published on mobile banking technology acceptability. As a result, a combined factor model was created. According to the study, attitude towards the service results in Behaviour intention towards the service, which is influenced by perceived cost, risk, trust, and enjoyment, resulting in actual usage of the service.

Saxena and Thakur (2022) [35] have provided a comprehensive definition of factors in digital financial inclusion.

Factors	Definition
Perceived Usefulness	A belief that using digital payment platforms will help a person to perform better
Perceived Ease of Use	Belief that digital payment platforms are convenient to use and are free of effort
Trust	Reliability on digital payment platforms that they keep customer's interest in mind
Perceived Security	Belief that digital payment platforms are risk free to use and chances of losing money is negligible
Perceived Risk	Risks involved in using digital payment platforms such as data theft and uncertainty
Perceived Cost	Cost involved in using digital payment platforms such as financial cost and time cost
Social Influence	Changing oneself to meet social norms i.e., start using digital payment platforms because people around them use it.
Attitude	Belief towards digital payment platforms, may be positive or negative
Behavioral Intention	Intention to use digital payment platforms if they are available
Facilitating Conditions	Supportive environment to use digital payment platforms
Pandemic	Outbreak of COVID -19 in 2020
Demonetization	Withdrawing existing currency's legal tender, done by the Indian Government in 2016
Digital Financial Literacy	Having the knowledge of using a digital device and availing financial services using the digital device
Perceived Self Efficacy	A belief that one can learn to use digital payment platforms if they are guided or helped

Fig 2: Definition of factors of digital financial inclusion

Research Methodology and Data Analysis

The data obtained via the questionnaire was examined using SPSS for multiple statistical measures that are expected to aid in understanding the connection among variables. Because Likert scale scores are considered interval data, measures of central tendency can be used to explain the data collected. A convenient sampling technique is used to

collect the samples. The initial number of respondents for the study was 220. The place of collecting the sample is Barasat, near Kolkata. After removing the outliers (20 cases), the new sample size was 200. The scale all over was collectively found to have a value of. 950. Several statistical tests, including ANOVA, Correlation, Regression, and Factor Analysis, were run on the dataset using SPSS (25.0).

Impact of Demographic Variables

Gender's influence on the study variables was determined using an independent sample T-test, while the effects of age, education, profession, and income were determined using a

one-way ANOVA. With the aid of the following table, the results of the demographic factors can be more easily understood:

Variables	Gender	Age	Education	Profession	Income
Perceived usefulness	No	Yes	Yes	Yes	Yes
Perceived ease of use	No	Yes	No	Yes	Yes
Trust	No	Yes	Yes	Yes	Yes
Perceived Security	Yes	Yes	Yes	Yes	Yes
Social influence	No	Yes	Yes	Yes	Yes
Facilitating conditions	Yes	Yes	Yes	Yes	No
Perceived self-efficacy	No	Yes	No	Yes	No
Perceived cost	Yes	Yes	Yes	No	Yes
Perceived risk	Yes	Yes	Yes	No	Yes
Digital financial education	No	Yes	No	Yes	No
Attitude	No	No	No	Yes	yes
Behavioral intention	No	yes	No	Yes	Yes
Actual usage	No	No	No	Yes	Yes

Fig 3: Impact of Demographic Factors on Variables of the Study

Factor analysis of the variables

The components and variables can be grouped into fewer, related categories with the aid of factor analysis. Based on Eigenvalue (Considering a value of 1 or above), it was

discovered that the study's variables could be divided into two main groups. The table below provides a summary of the variables in Group 1 and Group 2:

Group 1	Group 2
Perceived usefulness	Perceived Risk
Perceived ease of use	Perceived Cost
Trust	Perceived self-efficacy
Perceived Security	
Attitude	
Behavioral intention	
Actual usage	
Digital financial education	
Social influence	
Facilitating conditions	

Fig 4: Groups formed based on Factor analysis

The names of the groups can also correspond to the variables in each group's characters. The variables in Group 2 are those that suggest risk and anxiety, whereas the variables in Group 1 are those that positively influence behaviour. Therefore, Group 2 can be described as elements that cause risk and worry, and Group 1 can be described as

things that are useful, safe, and influential.

Correlation study of the variables

The table below shows the correlation between the different variables.

Correlations													
	PU	PEU	T	S	SI	FC	PSE	PR	PC	A	B	DFL	U
PU	1												
PEU	.666**	1											
T	.356**	.560**	1										
S	.278**	.424**	.749**	1									
SI	.387**	.490**	.628**	.634**	1								
FC	.521**	.609**	.652**	.619**	.678**	1							
PSE	.186**	.195**	.280**	.369**	.433**	.317**	1						
PR	NA	.184**	.227**	.172**	.238**	.158**	.352**	1					
PC	.128**	NA	.283**	.299**	.239**	.113**	.494**	.568**	1				
A	.558**	.548**	.500**	.558**	.601**	.643**	.297**	NA	NA	1			
B	.533**	.467**	.541**	.559**	.555**	.592**	.367**	.129**	NA	.749**	1		
DFL	.563**	.535**	.557**	.590**	.590**	.660**	.356**	.088*	NA	.691**	.711**	1	
U	.523**	.368**	.301**	.315**	.362**	.385**	.200**	.146**	NA	.505**	.609**	.512**	1

** . Correlation is significant at the 0.01 level (2-tailed), * . Correlation is significant at the 0.05 level (2-tailed).

Fig 5: Correlation Matrix among Variables of the Study

It is clear from the above table that perceived security and trust have a strong connection.716, suggesting that a high level of perceived security may increase trust in e-payment platforms. Similarly, it was discovered that digital financial literacy has a strong correlation with attitude (.691) and behavioral intention (.711), indicating a significant influence of the component.

It was discovered that perceived usefulness and facilitating conditions had a moderate association (.521), which may indicate that stronger enabling conditions might cause increased perceived usefulness. Similar to attitude, perceived usefulness has modest relationships with behavioural intention, digital financial literacy, actual usage, and attitude (.558,.563, and 523).

Perceived it was discovered that ease of use was modestly connected with facilitating conditions (.609), which may indicate that greater facilitating conditions may result in better-perceived ease of use of e-payment systems, which would then contribute to digital financial inclusion. A moderate correlation exists between perceived ease of use

and attitude as well as behavioral intention.

Trust has a 628 moderate association with social influence and a 652 moderate correlation with conducive situations. This would suggest that improved facilitating circumstances and supportive feedback from peers could increase trust in e-payment platforms. Similar relationships exist between perceived security and facilitating conditions ($r = .619$) and social influence ($r = .634$), suggesting that enhanced enabling conditions and a supportive social environment may improve perceived security on e-payment platforms. Furthermore, there is a strong positive correlation between attitude and behaviour intention and both trust and perceived security, suggesting that a high level of trust and perceived security results in a good attitude and a higher level of behaviour intention to utilize e-payment platforms.

Regression analysis of the variable

The literature review used to create the model below will be useful in identifying the independent and dependent variables.

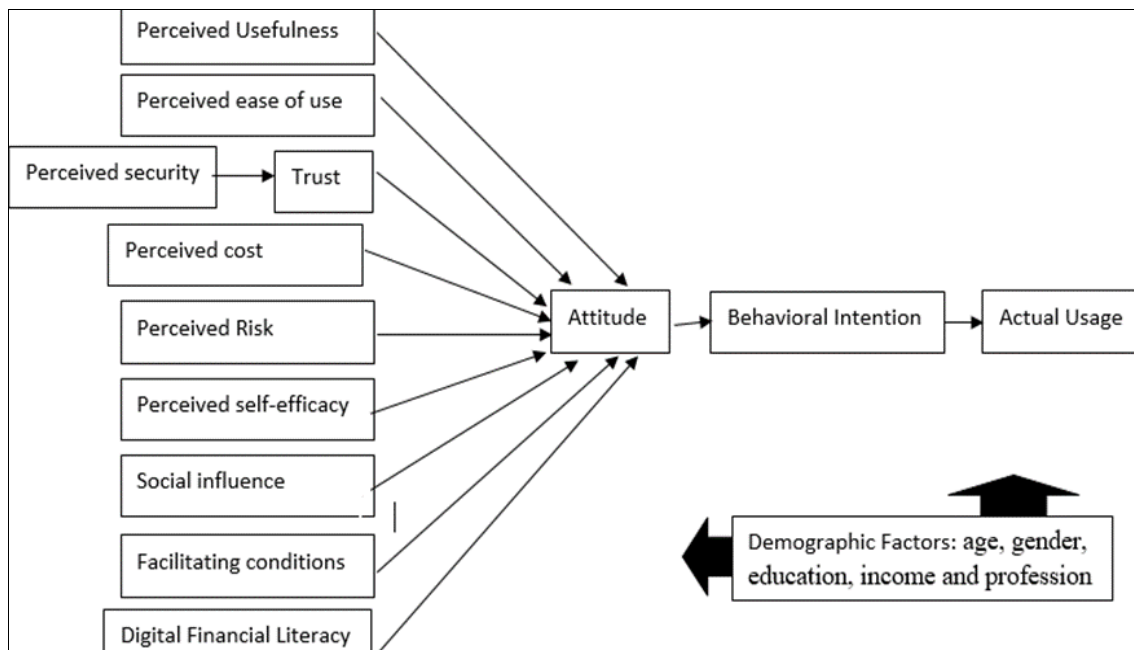


Fig 6: Model of the study

Regression analysis was performed using the dependent and independent variable concepts on the study's model. The following table shows the regression weights and R2 values:

Regression Weight	R ²
PU to A	.319
PEU to A	.270
T to A	.210
S to A	.289
S to T	.476
PSE to A	.074
FC to A	.314
PC to A	Insignificant
SI to A	.298
PR to A	Insignificant
DFL to A	.422
A to B	.565

Explanation of the Findings and Recommendations

It was discovered that perceived usefulness had a 31.9% influence on how the dependent variable's attitude was shaped. The regression was positive in character, which suggests that a person will have a better attitude about using e-payment platforms if he believes that doing so will benefit him. These days, e-payment platforms may be used for a variety of tasks, such as investing, online shopping, bill payments, and ticket purchases, which increases their usefulness. The perceived utility of e-payment systems can be increased if a user is aware of all their benefits, which can lead to the development of a favourable opinion of them.

It was discovered that perceived ease of use had a 27% influence on the attitude of the dependent variable. The regression was positive in character, which suggests that a person will have a better attitude about using e-payment platforms if he believes that doing so is not difficult for him. E-payment applications are now available in regional

languages in addition to Hindi and English, making them easier for consumers to utilize. Additional step-by-step instructions come in a variety of languages. People may easily learn how to utilize e-payment platforms because of the accessibility of the internet, tutorials available in a variety of languages, and training programs. All of these can assist in creating a perception of simplicity of use, which can help create a favorable attitude toward e-payment services.

Trust, which is a dependent variable, was found to have a 47.6% impact on perceived security, an independent variable. This suggests that a user's trust in e-payment networks is greatly influenced by perceived security. More trust influences attitude. Positive attitudes toward e-payment platforms were significantly influenced by trust and perceived security.

By raising user understanding of the security measures employed by financial institutions and the government, perceived security can be improved. Such a step consists of OTP-based authentications, Aadhar-based fingerprint verification, and transaction quantity limitations, which foster trust and a sense of security for money stored in e-wallets. People can be made aware of scams and their legal rights as consumers. All of these may aid in fostering trust, which will help to foster a favourable attitude toward online payment systems.

People may find it difficult to learn new technologies, and they may not see them favourably. However, it can be beneficial to adopt a positive attitude about that technology if individuals believe they can learn it with some assistance. There are many costs associated with learning, both monetary and time-consuming. Additionally, if the user sees the technology as risky, he might not be eager to study it. Both perceived danger and cost have an impact on perceived self-efficacy, which in turn can have an impact on attitude.

Second, the cost of utilizing the internet and a mobile device has an impact on digital financial inclusion, however, these costs have dramatically decreased in recent years. Additionally, in recent years, cyber rules have become more stringent. It has also been widely publicized that the PIN and OTP should not be shared. As a result, the influence of perceived risk and perceived cost on attitude and behavioral intention may be lessened.

Positive usage attitudes are positively impacted by favorable conditions, which increases the likelihood that people will use digital financial services. Facilitating circumstances and behavioral intention are positively related. The facilitation condition has a 31.4% influence on the dependent variable (attitude) as an independent variable, making it a significant factor. More digital financial inclusion may result from better facilitating conditions. The provision of good infrastructure and training for using digital payment platforms should be stressed. Tutorials are another way that assistance can be given.

Social influence has a 29.8% independent effect on attitude. It has a strong association (.678) with enabling conditions as well. Individuals who are not currently using electronic payment platforms will be encouraged to do so if more individuals around us begin to do so. They will have a better mindset and be readier to utilize e-payment platforms if they learn about them through their family, friends, colleagues, and peers. Additionally, individuals will experience better utilization conditions because they can always turn to others close to them for assistance.

Digital financial education has a 42.2% and 43% impact on attitude and behavioural intention as independent variables. This suggests that people will be more ready to use e-payment platforms, resulting in digital financial inclusion, if they are educated about digital and financial literacy. Additionally, perceived utility, perceived usability, and perceived security all exhibit positive correlations with digital financial literacy. This could mean that those with more advanced digital and financial literacy believe e-payment platforms to be more practical, simple to use, and less likely to pose a security issue. This serves as a supportive argument for financial inclusion through digital means. Better facilitating conditions result in better digital financial education, according to my theory on the relationship between the two.

By itself, an attitude has a 56.5% influence on behavioural intention. This explains why someone with a positive attitude about using an electronic payment platform is more likely to utilize it than someone with a negative attitude. With an R2 of 327, the actual usage has a 609 association with behavioural intention. To improve the actual use of payment platforms, a favourable attitude and higher behavioural intention must be developed. The goal of digital financial inclusion will be realized as a result of actual usage improvement.

In addition to the reasons already mentioned, poverty and unemployment also have an impact on digital financial inclusion. The government should work to create job possibilities, which will in turn aid in eliminating poverty. Additionally, it ought to encourage entrepreneurship, which would aid in creating jobs. A significant advancement in the area of digital financial inclusion will be made if new business and employment opportunities begin to use digital banking platforms.

Limitations and the way forward

Digital financial inclusion for women has a big potential because it is a crucial component of the economy and there is a sizable untapped population. The study also uses data from a particular region of the nation. It needs to be replicated for greater areas for a better understanding. Additionally, a greater sample size can be used to conduct research over a wider geographic area. Since the government is running several programs to educate citizens about money and technology, its effects on digital financial inclusion can also be evaluated, and identification of the scope of improvement is possible. Poverty, unemployment, and digital financial inclusion studies based on secondary data can also be conducted as these issues have long been obstacles to financial inclusion.

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