

Ascertaining the Mediating effect of Financial Literacy for Accessing mobile Banking Services to achieve Financial Inclusion

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Abstract: Objectives: The Reserve Bank of India (RBI) has narrated the financial inclusion is defined as an activity of facilitating financial services for the people residing in the unreached segments in the society. This research study has done an examination on the usage of mobile banking services by the rural people belongs to the district of Tirupur with the mediating effect of Financial Literacy. This research study has analyzed the impact of mobile banking services to understand the achievement of financial inclusion through banking technologies. Methodology: This research study has taken Technological Acceptance Model 2(TAM2) for constructing the theoretical framework. The primary data for the research study has been gathered from the villages of Tirupur District. Data analysis has been done by using SPSS 21 and the theoretical model that has been proposed is tested through AMOS 21 by using Structural Equation Modeling (SEM). Findings: The study has found that all the rural respondents are utilizing mobile phones. The variable called Financial Literacy was found to be mediating partially between the attitude of rural respondents and Behavioral intention to use mobile banking services. From the SEM model it is found that there is a relationship that exist between the study variables[3]. Novelty: Many studies has focused on technological acceptance by the bank customers only at urban and semi urban areas. There exist only limited studies has was founded on the banking technology that was utilized by the rural customers. This is considered to be an extensive contribution to the research study that has already done in the field of financial inclusion.

Index terms: Mobile Banking Services, Rural Population, Financial Inclusion, Financial Literacy, Behavioral Intention

I. INTRODUCTION

Has defined the term Financial Inclusion as the “process of approving access for the banking services to the people with low income level by satisfying their basic requirements through timely credit facilities”. To approve the discussion of becoming a financial advisor for the people and to make a pleasant business for the banks there is no alternative other than the adoption of technologies.

Technology gives the people the opportunity to build a platform for establishing the products or services

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that are strongly associated with the requirements of customers. In today's scenario the usage of mobile phones in India is vastly increasing. The Figure 1 represents comparative analyses between rural and urban population in accessing Mobile Phones with Internet facilities. Therefore it becomes a primary need to develop an ecosystem that welcomes and creates innovation by examining the best platform of technology for using banking services through mobile phone to the people with very low income level. Our government has taken many steps as initiatives for framing the banking technologies based on the need and requirements of rural population for making money transaction in a transparent manner. Therefore this research study has done an examination among the rural bank customers from Tirupur district towards the behavioral intention to use mobile banking services.

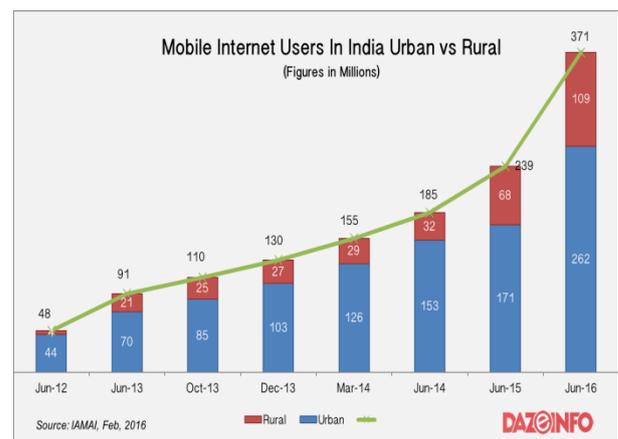


Figure 1: Usage of Mobile Phones in Rural Areas of India 2016

Source: IAMAI 2016

II. OBJECTIVES

1. To analyse the antecedents that measures the behavioral intention of rural people for accessing mobile banking services[12].
2. To measure the relationship between the study variables using Structural Equation Modeling (SEM)
3. To examine the mediating effect of financial literacy between the attitude of rural people and their behavioral intention to use mobile banking services[39].

A. Antecedents of Mobile Banking Usage:

Perceived Usefulness:

Perceived usefulness is defined as the perception of consumers regarding the results or the outcomes of their experience[13][14][15][16]. Has done an examination on institutional trust with adoption of internet banking services[10][11]. The major objective of the study is to understand the usage pattern of retail customers of South African Bank for using internet banking services. TAM model has been adopted in the study. The study has found that there exists 61% of variance that has occurred with the intention of Internet Banking Usage among the customers. Have done an examination on the factors that has an intention towards the usage of E-recruitment services for the job seekers[1]. The researchers had fixed nearly 356 job seekers as the target respondents who use E-recruitment services. The study has highlighted that the variable perceived usefulness is found to be significant with the variable attitude of respondents with the r value of 0. Has done a research study on the dimensions that have an impact on purchase intention towards online airline tickets[35]. The study has targeted nearly 300 respondents for gathering the primary data. The researchers have highlighted that security issues are the primary reason for the Indonesian bank customers for making online transactions. Has analysed that the antecedents namely perceived ease of use, perceived usefulness and perceived credibility for accessing ICT by the poor people residing in rural areas[6][7]. The researcher study has developed a conceptual model for examining the impact of Information and Communication Technology for Financial Inclusion.

Perceived Ease of Use:

Perceived Ease of Use has been defined by Radner and Rothschild in the year 1975[34]. The researchers has stated that perceived ease of use is defined as the extent to which an individual believes that accessing a specific system or an application would be free of threats. Made a research study on analyzing the dimensions that have an impact for adopting self-banking services technologies. The study has adopted the TAM model (Technology Acceptance Model) for examining the adoption of self- service banking technologies among the consumers. The primary data has been gathered by adopting the TAM model and targeting the 208 consumers. Path analysis has been made for measuring the collected data. The researchers has highlighted that there exist a positive relationship between the variables attitude and perceived ease of use for utilizing the self-service banking technologies with the beta value of 0.23. Has analyzed the faculties' attitude for accessing ICT (Information and Communication Technology) for teaching the students belong to higher education[38]. In the research study, the researcher has made an examination on the dimensions that impacts the usage of ICT (Information and Communication Technology) among the faculties in universities at Thailand. 261 lecturers have been targeted for gathering the primary data. The researchers has narrated that ICT will increase the competencies and performance of the faculties working in the universities at Thailand. Have done an examination on the factors for accessing mobile banking services in rural villages. The research study has

narrated that the dimension Perceived Ease of Use is the highly significant factor for accessing the mobile banking services in the villages of district, Thoothukodi.

III. VOLUNTARINESS:

Has suggested five different characteristics that are highly important in describing the dimensions of innovative technology services in banking such as mobile banking such as observability, complexity, triability, relative advantage and compatibility. Theory of Planned Behavior has justified that voluntary use of a technology is described as the behavioral intention of the individual that in turn describes the individual's attitude in accessing the technology. Have stated that Voluntariness of use is described as the person or an individual believes that usage and acceptance of particular technology is based on their Voluntariness. Has adopted UTAUT model for developing the conceptual model. The researchers have stated that voluntariness of use acts as a moderator between behavioral intention and social influence. The research study has analyzed that Voluntariness has a direct effect towards the intention among the respondents for accessing the data technologies. Has done a research study on acceptance of data technologies among the data users[2]. The research study has adopted UTAUT model for constructing the theoretical model. The researcher has highlighted that the all the predictors for the study including Voluntariness of use except facilitating conditions influences 45% of variance towards accessing data technologies[41][42].

IV. SUBJECTIVE NORMS:

Has done a research study on subjective norms towards trust on E-Ticketing in China. The researchers has adopted Technology acceptance Model (TAM) by including subjective norms as one of the antecedents and they highlighted that subjective norms is said to be the salient factor for adopting e-ticketing technology among the respondents in china. Have stated that subjective norms are described as the perception of people that are performed or not performed in question. Has found that there is significant relationship that exists between subjective norms and their intentional adoption. Hartwick and Barki (1994) found that subjective norm had an effect on adoption intention in mandatory settings but not in voluntary settings while showed that experience and voluntariness moderated the effect of subjective norm on usage intention. In their research study they have analysed that subjective norms is said to be an important predictor to analyze the cross cultural studies among the people when they make some effective decisions.

V. ATTITUDE:

Have stated that attitude is a negative and positive feeling of an individual towards performing the specified behavior[20][21]. Has analyzed that the attitude is the dimension that determines the behavioral intention of the consumers towards accessing Internet banking services. In the research study, the researchers have utilized the theory

of planned behavior for building the conceptual model[30][31]. The researchers have highlighted that the mediating dimension “Market maven” that lies between the overall dimensions and respondents’ behavioral intention for utilizing internet banking services in India. Have done an investigation on attitude of consumers and their behavioral intention for utilizing the internet banking services[25]. In the research study the researchers has made an examination on the dimensions that describes the access towards mobile banking services in India. The researchers has used TAM model (Technological Acceptance Model) for making the conceptual framework. The Primary data for the research study has been gathered by targeting 697 respondents those who are accessing the internet banking services in India. Have made an examination on the relationship that exists among the variables used in the study for accessing cashless payment system. The researchers has narrated that the dimension attitude is the said to be the highly dominating variable for accessing cashless payment system.

VI. FINANCIAL LITERACY:

OECD (2005) has defined financial literacy as the process through which the financial investor could improve their awareness and understanding of financial services and products. They also understand the concepts, information and instruction or financial advice that in turn develop their skills and improve their confidence level to get aware of financial opportunities and financial risks to get their choices and make effective choices for financial well-being. has defined financial literacy as a general or health literacy that might give us a theoretical model with two important factors for understanding their knowledge towards personal finance and accessing it. Therefore it is described as “examining how well a person can understand and make use of the information related to personal finance”. have stated that the financial literacy supports consumers in getting prepared at difficult time periods by explaining the risk mitigate strategies and in accessing financial services or products effectively. has done an examination between the relationship between financial unlucky and social wellbeing by highlighting a relationship between psychological behavior and unfavorable events like financial stress and over debts. The research study has done an investigation on awareness of social work among the students and identified whether financial literacy is impacting future implementations of social workers in future.

VII. BEHAVIORAL INTENTION:

Davis et.al, 1989 has defined behavioral intention as the prospects that an individual or a person who adopt any system or application [18][19] has constructed the structural model for accepting the technology. The researchers have constructed the proposed model for the study by adopting the technological acceptance model. The researchers have built the conceptual model for the research study by using technology acceptance model. The study has targeted nearly 720 employees working at steel manufacturing company for gathering the primary data. The researchers have use SEM model for measuring the constructed model. The researchers has highlighted that there is a positive relationship that exist between the study variables system

usage and behavioral intention. Has made an investigation on accessing mobile banking service at Oman[40]. The researchers has used TAM model for making the theoretical framework. The researcher has used the survey method for gathering the primary data among the respondents those who are utilizing the mobile banking services at Oman. The findings of the study highlights that there is a positive relationship that exists between actual usage and behavioral intention towards accessing mobile banking services. Have examined the usage of mobile banking services at rural villages. The researchers has identified that “Business Correspondent Model” is the mediator that exists between attitude and behavioral intention of rural people towards accessing mobile banking services. The study has stated that the total value of mobile banking used has been increase to 0.05 percent when the mediator “Business Correspondent Model” takes part in the model.

VIII. RESEARCH METHODOLOGY

The study has designed a structured questionnaire for measuring the rural customer’s perception of mobile banking services at Tirupur district. There are 55 times in the research study for analyzing the usage of mobile banking services of rural bank customers. The variable “Financial Literacy has been considered as a mediating construct for the research study. The study is descriptive in nature and has chosen convenience random sampling as a sampling technique for selecting the respondents.

a. Sampling Techniques:

The preliminary data for the study has been gathered from 600 rural bank customers in the randomly selected villages of district Tirupur. Table 1 highlights the respondent’s demographic profile. The constructed questionnaire has been distributed to the customers in rural villages of Tirupur District. SPSS software tool has been used for analyzing the data gathered. To examine the reliability of the questionnaire constructed, validity test has been made. The value of validity is found to be 0.89. To analyse the relationship of study variables Structural Equation Modeling (SEM) has been used.

Table 1: Demographic Profile of the Respondents

Variable	Description	Frequency	Percentage
Gender	Male	246	48.0
	Female	254	52.0
Age (Years)	18-25	151	30.0
	26-35	150	30.0
	36-45	112	22.0
	46-55	60	11.0
	Above 55	27	5.0
Marital Status	Married	458	91.8
	Unmarried	42	8.2
Occupation	Farmer	140	28.2
	Job	266	53.0
	Own Business	76	15.0
	Land Labors	20	3.8
Education	Below SSLC	110	22.2
	SSLC	128	25.4
	HSS	145	28.8
	Graduate	117	23.6
Income	Rs.25k to Rs.50k	279	55.6
	Rs.50K to 1Lakh	185	37.2
	Above Rs.1Lakh	36	7.2
Did you have mobile Phone?	Yes	500	100.0
Type of Bank	Private Sector Bank	56	11.2
	Public Sector Bank	428	85.6
	Regional Rural Bank	16	3.2

IX. DATA ANALYSIS

Hypothesis

The relationship between the variables is displayed in Table 2.

H₁: Adoption Factors is associated positively with Attitude of Rural Respondents.

Sub Hypothesis:

- H_a: The Antecedent Perceived Usefulness has an effect on Adoption Factors of Mobile Banking Services
- H_b: The Antecedent Perceived Ease of Use has an effect on Adoption Factors of Mobile Banking Services
- H_c: The Antecedent Voluntariness has an effect on Adoption Factors of Mobile Banking Services
- H_d: The Antecedent Subjective Norms has an effect on Adoption Factors of Mobile Banking Services

- H₂: The Attitude of rural people is associated positively with Behavioral Intention to use Mobile Banking Services.
- H₃: Attitude is positively associated with Financial Literacy for accessing mobile banking services.
- H₄: Financial Literacy is positively associated with Behavioral Intention to use mobile banking services.

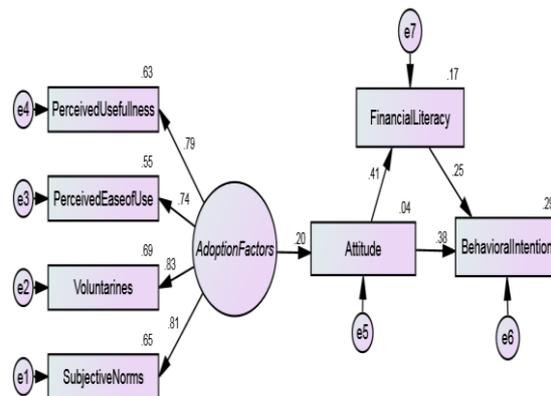


Figure 1: Behavioral Intention to use Mobile Banking Services with the Mediating Effect of Financial Literacy

The Variables used in the model are:

I. Observed, endogenous variables: Perceived Usefulness, Perceived Ease of Use, Voluntariness, Subjective Norms, Attitude, Financial Literacy and Behavioral Intention.

II. Unobserved, exogenous variables: Adoption Factors and e1 to e7.

The path analysis model has been constructed and examined by using AMOS software and the relationship between exogenous and endogenous variable has been checked. The constructed model explains the path analysis to analyze the overall fit and examines the relationship among the study variables. The model consists of 20 elements in considering all the unobserved, observed, endogenous and exogenous variables.

Table 2: Variables in the SEM (Structural Equation

Variable Name			Unstandardized Coefficient	Standardized Coefficients	S.E.	C.R.	P	Label
Attitude	<---	Adoption Factors	2.206	.245	.059	4.184	0.000	H ₁ is Supported
Financial Literacy	<---	Attitude	0.516	.352	.035	10.182	0.000	H ₂ is Supported
Subjective Norms	<---	Adoption Factors	0.223	1.000			0.000	H _d is Supported
Voluntariness	<---	Adoption Factors	0.873	.891	.046	19.421	0.000	H _c is Supported
Perceived Ease of Use	<---	Adoption Factors	1.000	.969	.056	17.211	0.000	H _b is Supported
Perceived Usefulness	<---	Adoption Factors	1.724	.962	.052	18.491	0.000	H _a is Supported
Behavioral Intention	<---	Attitude	1.351	.389	.042	9.242	0.000	H ₃ is Supported
Behavioral Intention	<---	Financial Literacy	1.839	.303	.050	6.109	0.000	H ₄ is Supported

Model)

Table 2 explains the cause and effect relationship that exists between the study variables. It also explains the hypothesis that are framed among the predictors such as Adoption factors towards attitude of the rural people and behavioral intention to access mobile banking services with the mediating effect of Financial literacy to create awareness among the rural people for accessing mobile banking services. The adoption factors have a positive relationship with the attitude with an unstandardized coefficient value of 2.206 and the P value is found to be significant (0.000) at 1 percentage. The variable attitude is found to be significant with the mediating variable Financial Literacy. The unstandardized coefficient value is found to be 0.516 and the p value is found to be significant at 0.000 at 1 percentage. The variable attitude is found to be significant with behavioral intention. The unstandardized coefficient value is found to be 1.351 and the p value is found to be significant at 0.000 at 1 percentage. The mediating variable financial literacy has a positive relationship with the dimension behavioral intention. The unstandardized coefficient value is found to be 1.839 and the p value is found to be significant at 1 percentage.

Table 3: Model Fit Summary for Structural Equation Model:

Goodness of Fit Statistics	Value	Values for Good Fit
Chi Square Value (CMIN)	93.860	-
P Value	0.07	>0.05 (Hair et al., 1998)
Chi Square / Df (CMIN/Df)	2.890	<5.00 (Hair et al., 1998)
Goodness of Fit Index (GFI)	0.999	>0.90 (Hu and Bentler, 1999)
Root Mean Square Error of Approximation (RMSEA)	0.080	<0.08 (Hair et al., 2006)
Adjusted Good of Fit Index (AGFI)	0.961	>0.90 (Hair et al., 1998)
Comparative Fit Index (CFI)	0.976	>0.90 (Hu and Bentler, 1999)
Normed Fit Index (NFI)	0.902	>0.90 ((Hu and Bentler, 1999)

From the above table 3 it is found that the calculated P value is 0.07 which is greater than 0.05 therefore null hypothesis (H_0) is rejected and model has a good fit. Here GFI (Goodness of Fit Index) value and AGFI (Adjusted Goodness of Fit Index) value is greater than 0.9 which represent it is a good fit. The calculated CFI (Comparative Fit Index) value is 0.977 which means that it is a perfectly fit and also it is found that RMR 0.021 (Root Mean Square Residuals) and RMSEA 0.080 (Root Mean Square Error of Approximation) value is which is less than 0.08 which indicated it is perfectly fit. has stated that value of Chi Square that is lesser than 5 is acceptable. The value determined in table describes the

validity of the suggested model. This makes sure that the data set absolutely fits into the suggested model.

X. MEDIATION ANALYSIS

Mediation analysis is described as direct path that associates between the dependent and independent variable. Through this analysis the total value of the outcome variable either gets decreases or increases ((Baron and Kenny (1986))[5].

XI. DIRECT EFFECT

Figure 2 shows the direct path and the relationship that exist between the attitude of rural people and behavioral intention to access mobile banking services. The Table 4 explains the total value of behavioral intention (0.24) without the any mediating variable.

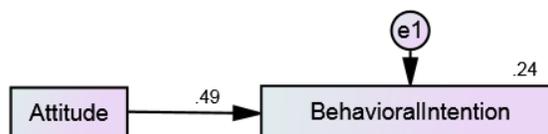


Figure 2: Path Analysis between Attitude and Behavioral Intention

Table 4: Path Analysis between Attitude on Behavioral Intention

Dependent Variable		Independent Variable	Estimated(Beta Value)
Behavioral Intention	<---	Attitude	.496

XII. INDIRECT EFFECT:

Figure 3 shows the mediating effect of financial literacy between attitude and behavioral intention to access mobile banking services. From the figure 3 it could be identified that the total value of behavioral intention has been increased from 0.24 to 0.29. This shows the mediating effect of Financial Literacy by increasing the value of 0.05 percentage in the total value of Behavioral Intention.

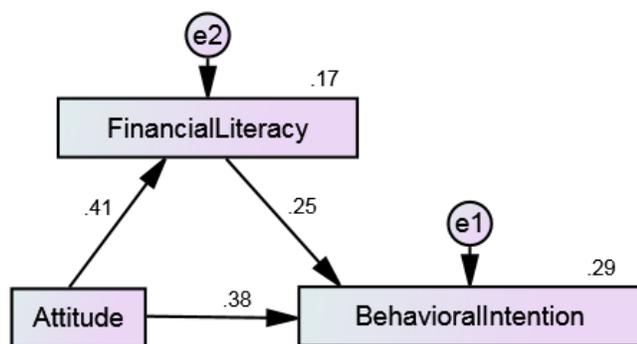


Figure 3: Path Analysis with a mediating effect of Financial Literacy between Attitude and Behavioral Intention

Table 5: Path Analysis with a mediating effect of Financial Literacy between Attitude and Behavioral Intention

Dependent Variable		Independent Variable	Estimated Beta Value
Financial Literacy	<---	Attitude	.352
Behavioral Intention	<---	Attitude	.389
Behavioral Intention	<---	Financial Literacy	.303

Sobel Test

Table 6: Direct Effects - Two Tailed Significance

	Attitude	Financial Literacy
Financial Literacy	.001	...
Behavioral Intention	.001	.001

Table 7: Indirect Effects - Two Tailed Significance

	Attitude	Financial Literacy
Financial Literacy	.001	...
Behavioral Intention	.001	.001

Table 8: Total Effects - Two Tailed Significance

	Attitude	Financial Literacy
Financial Literacy
Behavioral Intention	.001	...

The Conceptual Model has examined the direct and indirect relationship that exists between the study variables. Sobel test has been done to analyze the effects of study variables at two tail significance. The direct path beta coefficient between Behavioral Intention and Attitude is 0.389 and it is significant as shown in table (6). The Indirect path coefficient between Financial Literacy and Attitude is 0.352 and it is significant as shown in Table (7). Thus the study has examined the mediating effect of Financial Literacy between behavioral intention and Attitude. The increase in the Total value of Behavioral intention from 0.24 to 0.29 in association with Attitude is significant shown in table (8) and considered by the Mediator called Financial Literacy. This shows that Financial Literacy mediates the relationship between Behavioral Intention and Attitude of rural people to use Mobile banking Technology (Baron and Kenny (1986)).

XIII. DISCUSSION AND CONCLUSION

Mobile Banking services have a greater potential for the banks to facilitate banking services and considered as a greater opportunity for developing services in a cost effective manner. The bank employees are the highly responsible person to make the rural customers to adopt the services of Mobile Banking since in this study 100 percentage of people holds their mobile phones. This study has found that adoption factors have highly impacting the perceived ease of use towards accessing mobile banking services. The study has also analyzed the mediating effect of Financial Literacy between the behavioral intention and attitude of rural people towards accessing mobile banking services. From the sobel test it has been proved that through proper awareness about financial services, the utilization of mobile banking services. The government of India and authorized person could take all these findings into consideration and guide the banks to build a proper and innovative delivery channels to support rural people to accessing mobile banking services. This study also highlights that financial inclusion is not about opening the bank account but also accessing the banking technologies at an affordable cost.

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