

## EFFECTS OF CYBERNETIC AND SOCIO-PSYCHOLOGICAL APPROACHES OF COMMUNICATION IN DEVELOPING THE INTENTIONS TO USE MOBILE BANKING SERVICES

Faheem Ahmad Khan<sup>1</sup>, Muhammad Umer Quddoos<sup>2</sup>, Saif Ullah<sup>\*3</sup>, Arslan Ahmad Siddiqi<sup>4</sup>

<sup>1</sup>Assistant Professor, Department of Management Sciences, COMSATS University Islamabad, Wah Cantt, Pakistan

<sup>2,\*3</sup>Assistant Professor, Assistant Professor, Department of Commerce, Bahauddin Zakariya University, Multan, Pakistan.

<sup>4</sup>General Manager, Institute of Industrial and Control System, Islamabad, Pakistan

<sup>1</sup>faheemkhan@ciitwah.edu.pk, <sup>2</sup>umerattari@bzu.edu.pk, <sup>\*3</sup>saifullahq@bzu.edu.pk, <sup>4</sup>dr.arslan.siddiqi@gmail.com

Corresponding Author: \*

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### ABSTRACT

The main motive of this study is to measure the effects of two different communications media, i.e., cybernetic and socio-psychological on the intention to use mobile banking services through a mediation process of perceived usefulness, as earlier readings advocate that there is indistinctness in the measurement of direct effects of these two communication approaches. This study employed a quantitative research approach. Data were obtained from three hundred and fifty respondents using convenience sampling. Statistical Package for the Social Sciences (SPSS) version 25.0 and Analysis of Moment Structure (AMOS) version 22.0 were used for the data analysis. In light of the results, accurate decisions on banking marketing strategies can be developed by adopting the appropriate communication approach that can speed up the customer's decision to adopt mobile banking services. The study results can be applied to enhance the knowledge of the differentiated effects of two communication approaches on clients' perceptions and intentions to adopt mobile banking services. The findings demonstrate that selecting a diffusion technique in the target market can produce remarkable results. This research is beneficial not only for the top management of banks but also for branch managers to decide on their approaches.

**Keywords:** Mobile Banking, Cybernetic Channel, Socio-Psychological Channel.

### INTRODUCTION

Banks especially commercial banks have been continuously bringing the latest proven technical services to meet customer satisfaction and expectations. Considering that mobile phones are widely used, a new style of banking has arisen in the last few years. In a nutshell, banks introduced Internet banking on mobiles, called Mobile Banking (mb). Today, most banks have introduced mb with new and smart characteristics to achieve the lion's share of

the banking industry. The latest mb apps are not only assisting in retaining customers but are also helpful in bringing more and more new customers (Mehra et al., 2021). The mb is the most accessible way of banking on mobile in this competitive environment hence, commercial banks are not only focusing on their software but are also introducing new mobile applications called APPs. Very soon, mb will become the most reliable and acceptable source of the financial

transaction throughout the country. Currently, more and more commercial banks in Pakistan are recognizing the significant value of this banking mode. *mb* has a huge potential and growth in the market of Pakistan as the data mentioned above authenticate the fact.

No doubt, the use of mobile in general is now widely acceptable in developed economies but still, many customers are reluctant to use it for banking purposes. Especially aged customers mostly opt for conventional banking services and are reluctant to use Internet-based banking because of reliability and security reasons. According to Ananda et al. (2020), the most significant question that arises in their research is how banks can increase the number of customers of *mb* services. Most of the past research has explained the question of why customers are not using *mb* and if they are then why do they show reluctance to adopt? The lack of knowledge and awareness about the fruitfulness of *mb* in the financial and banking industry is misleading the customers and breaching their trust. This study has investigated the influence of two communication approaches that can modify the customers' thinking and perception and their attitude toward the use of *mb*. Since there is a plethora of research on the investigation and comparison of different communication channels, but specifically there is no evidence of research on the Cybernetic communication channel in the context of *mb* services (Wu & Ho, 2022).

Commercial banks and financial institutions are the representatives and leading industries of any economy. Today, the banking industry is in the first row in the adaptation and provision of modern efficient technological financial services to their clients. The most modern modification in the service of banks is to provide wireless Internet-based financial services on their customers' mobiles. The *mb* is also defined as a channel through which a customer interacts with a bank through a tablet or mobile set. *mb* is a channel through which an account holder links to his account and gets financial services without visiting the bank branch to do any financial transactions (Nguyen-Viet & Ngoc Huynh,

2021). *mb* has its unique new innovative features, such as it being always available 24/7. Mobility is the key reason for *mb* success. *mb* has opened new doors for *mb* diffusion. *mb* has made the dream of the easy accessibility of financial services and products to consumers, into reality (Wu & Ho, 2022).

Today almost all commercial banks are offering *mb* services with a variety of features through mobiles and tablets (Kuzey et al., 2022). Generally, there are three types of financial services which are available on mobile devices. Firstly, financial services are available through SMS, secondly, through web-based browsers such as Internet Explorer or Chrome on mobiles, and thirdly through mobile-based financial service applications. *mb* has marvelous and magnificent characteristics, such as financial technological services that will never be offered by financial institutions before. This financial service provided through mobiles is a wonderful and successful innovation in the field of Internet-based financial services (Anouze & Alamro, 2019). Analysts in the banking industry have proved that banking clients trust in *mb* if the benefits provided by *mb* services are greater than traditional banking service delivery. Also, consumers intend to use *mb* if the requirement of consumers' trust and credibility level has been fulfilled (Rahi et al., 2020). The number of *mb* consumers has rapidly increased over the last few years. *mb* is considered one of the best value-added banking services in the entire history of the banking industry. The main objective of this study is to measure the impact of two different communication channels on Intentions to Use (IU) *mb* and explore the role of Perceived Usefulness (PU) as a mediator between two different communication channels and their IU *mb*. This research study attempts to answer the following questions:

- 1.Does Cybernetic Media (CM) communication affect IU *mb*?
- 2.Does Socio-Psychological (SP) media communication affect the IU *mb*?
- 3.Does CM affect PU? Does SP affect PU?
- 4.Does PU mediate the relationship between CM communication and IU *mb*?

5. Does PU mediate the relationship between SP media communication and IUmb?

## 2. Literature Review and Hypotheses

### 2.1 Cybernetic Approach (Non-Interactive Approach)

The CM is more important in the spread of information and knowledge at the diffusion stage of products and services, on the other hand, SP communication is more influential at the pursuit stages (Mohammad et al., 2016). CM has a wonderful platform for a customer in the adoption of services (Cookson et al., 2023). In terms of the numerical approach, there is a strong correlation between CM and customers' expectation of taking advantage and usefulness of any new innovative service (Mohammad et al., 2016). CM plays a vital role in the development of trust in the security and protection of the customers' account in a bank, reducing its hesitation effectively to use *mb*, proving the influences of the CM on IUmb and PU (Giles et al., 2023). CM is a powerful tool for communicating information to customers who are not so active in seeking knowledge about new innovative technologies but tend to use CM. CM is a way of communication in which there are only a few senders at one side but at the receiving end, there are a large number of receivers. CM is a strong and knowledge-based communication channel. CM is effective enough to send the message quickly to a large number of consumers. The diffusion of information through CM is also considered an extension of traditional communicational channels. CM is also the name of the web-based word of mouth. The CM is the best tool for spreading information and has proven its value in the present times (Mohammad et al., 2016). CM has provided a new way of interacting with individuals which strongly influences the consumer's decision-making process. The CM has changed the concept of one-to-one and one-to-many SP conventional platforms. CM are web-based channels through which different people exchange their knowledge comments, perceptions pictures, and videos with others (Ramondt et al., 2022). CM conveys a message in a very quick way to a large number of audiences (Hussain & Soomro,

2023). The information diffused through CM between different communities has a significant impact on costumer's perceptions and decisions.

The contradiction in earlier research compels us to conduct new research on the impacts of different communication methods assisting in the diffusion of information about new innovative financial services (Kolotouchkina et al., 2023). CM influences people's purchasing decisions and buying behavior, especially teenagers and young (Tarifa-Rodriguez et al., 2023). The features of the CM have made it a more powerful tool for the diffusion of information to any community. Today, more and more people are turning towards Internet-based sources rather than taking opinions from their friends or family members. The latest research conducted on CM has proved that it has become a very powerful weapon in the diffusion of any kind of information because of its accessibility and speed of communication. Today, in the era of information technology, CM has gained a lot of power, value, and importance against the conventional ways of communication in developing the customers' attitudes and behavior.

### 2.2. Socio-Psychological Approach (Interactive Approach)

SP communication channel has a greater impact on consumers' attitudes and behavior. Interpersonal communications are far more influential on the attitude of the adopters. SP communication assists consumers in developing their thinking about any new innovative service (Haverila et al., 2022). There is also a strong relationship between SP communication and PU. SP communication removes all social and psychological barriers in convincing an adopter's hesitation for using new technology, SP media has a positive effect on altering the customer's beliefs and motivating them to utilize the new innovative *mb* services (Giles et al., 2023). Previous research has shown that the customers who are receiving messages through SP communications are more convinced than the customers who are receiving messages through other media. This

is the proven evidence that SP communication is a stronger and more influential factor.

SP media is also playing as a game changer and increasing the base of consumers at a surprisingly high rate, SP communication is also considered as SP exchanges of perceptions, ideas, and concepts between two or more persons. SP media is a very effective interpersonal channel because it is a communication between a small number of groups of people (Nicolaou & Petrou, 2023). SP communication is the actual interaction between two or more individuals without any technological interference. SP interaction is defined as a conversation with another individual in a physical presence with eye-to-eye contact (Topping, 2023). SP communication is defined as an exchange of knowledge between two or more persons. Expert marketers who have more information and experience on the product or service can convince the consumer more easily and rapidly during SP communications. SP communication will be considered successful if both the receiver and sender understand each other's messages. The front-line officers in the banks can listen and respond to the customer according to their body gestures and can explain the benefits of the new innovative services more efficiently. After the SP communication in banks, follow-up through web-based instruments will lead to a successful sale (De Felice et al., 2023). SP communication **in banking can enhance the adaptability of mb services** (Mohammad et al., 2016).

### 2.3 Perceived Usefulness

PU is defined as "the degree to which an individual believes that using a technology would improve his/her performance" (Sorkun et al., 2022). Previous research is evidence of a positive correlation between PU and IUmb services. Previous research has also proved that most clients calculate the cost and benefit analysis, before using any new technology (Wilson et al., 2021). The researchers have applied different adoption and spread theories to investigate the influential factors of mb, in developed and underdeveloped economies. The most

valuable model that has been used for IUmb is the Technology Acceptance Model (TAM) which explains the PU more prominently. The combination of this model with other communication channels explained the customers' IUmb in a precise way.

In technological innovativeness terms, there is a deficiency of research on measuring the influence of PU on IUmb. Previous research also showed that smart characteristics and ample flexibility also played a key role in the diffusion of mb services. If the consumers of mb services are perceived as free of security risks and threats, this perception upgrades the credibility of mb. The customer avails the mb services fearlessly if customers expect that his account information will not be disclosed to anyone (Kimiagari & Baei, 2022).

In the banking industry, security and private concerns are on the highest rank in the adoption of any new financial innovation. The more the customer has trust in terms of security and privacy the higher will be the adoption of mb services. Researchers have proved that satisfied mb customers are continuously assisting the banks in the diffusion of mobile banking services to other new customers and are working as unpaid freelancer marketers of mb services (Shrestha et al., 2020). The marketing of any banking services is the most sublime and specialized field of marketing, especially when new innovative banking services are introduced. Previous studies were conducted to measure the impact of traditional communication channels. As Internet-based communication channels are new and need to be studied in different settings (Verma & Kumar, 2020).

### 2.4 Intentions to use Mobile Banking

A person's credence about the consequences of behavior performed defines his/her intention. All the consumers who believed that mb is better than traditional banking linked this with ease and fulfillment of needs and showed higher intent to use mb services. Taking into consideration all the determinants and beliefs, the system or technology is influenced strongly by intentions (Ginting et al., 2023). The Theory of Reasoned Action (TRA) is a well-established theory used to predict behavior. It



proposes that an individual's belief regarding the consequences of a particular behavior impacts an individual's feelings, whether positive or negative towards that particular behavior, which in turn influences actual behavior (Putri et al., 2023).

TRA speculates that individuals' behaviors are based on previous biases and intentions. The theory excludes impulsive and habitual behavior, as these types of behaviors do not include conscious decisions. To cater to potential customers and galvanize them towards mobile advertising, marketers need to entertain two basic attitudes of customers when incorporating the theory of reasoned action: normative and individual. Individual attitudes and behavior stem from the personal psychology of people. More importantly, the normative actions are the result of societal norms, which happens to be the focal point of this specific theory. Many studies have used TRA to measure IU technology adoption and a major portion of

them is occupied by *mb* adoption. TRA described trust and PU to be an important factor in determining IU<sub>mb</sub>, as there is a high degree of risk associated with *mb* technology so trust helps in minimizing risk and uncertainty encouraging IU<sub>mb</sub> (Laradi et al., 2023). According to Purbondaru et al. (2023), there are three facets of IU, subjective norms and attitude toward behavior. These three aspects are interconnected and are also known as motivational factors for intention; motivational factors can be the usefulness of the system or the ease of using it. Motivation also involves peer pressure to use a particular technology, stronger motivation will lead to strong intention (Zhang et al., 2023). This provides a framework for banks to follow. In building trust, banks must focus on improving their goodwill. They need to establish a niche in the market, and to do that they would have to reiterate the risk factors to build intentions to use technology.

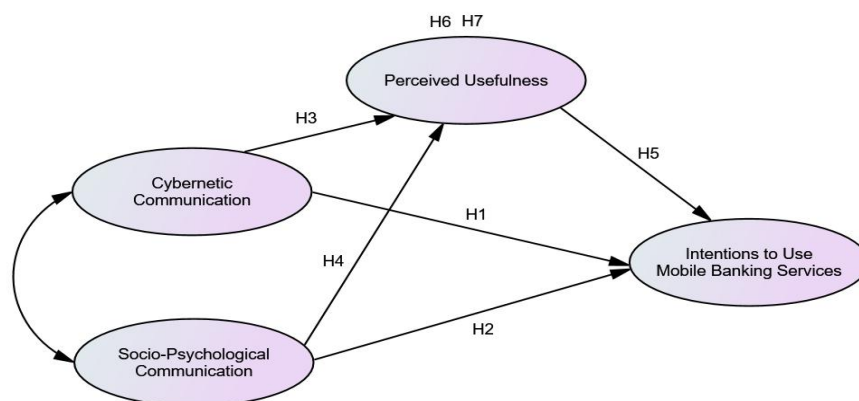


Figure 1 Research Model

H<sub>1</sub>: Cybernetic media has a positive impact on the intentions to use mobile banking services.

H<sub>2</sub>: Socio-psychological media has a positive impact on the intentions to use mb services.

H<sub>3</sub>: Cybernetic media has a positive impact on the perceived usefulness of mobile banking.

H<sub>4</sub>: Socio-psychological media has a positive impact on the perceived usefulness of mb.

H<sub>5</sub>: Perceived usefulness of mb has a positive impact on the intentions to use *mb* services.

H<sub>6</sub>: Perceived usefulness of mb mediates the relationship between Cybernetic media and intentions to use mobile banking services

H<sub>7</sub>: Perceived usefulness of mb mediates the relationship between Socio-psychological media and intentions to use mb services

### 3. Research Methodology

Pakistan's banking sector comprises commercial banks, foreign banks, Islamic Banks, development financial institutions, and microfinance banks. The industry constitutes around thirty-one banks, of which five are public-sector banks, twenty-two are private-sector banks, and four are foreign banks. Cross-sectional data was collected through a structured questionnaire. The data was collected from primary as well as from secondary sources. Secondary data was

collected from online journals, publications, and articles on the banking industry. Three hundred and fifty banking customers from ten different banks were taken as samples. A convenient sampling technique was used in this study because of the nature and demand of the study. The instrument was adopted from the previous studies- CM communication, SP communication, PU, and IUmb were measured by adopting the scale developed by Kucukusta et al. (2015) and Mohammad et al. (2016). All variables were measured using five-point Likert scales.

## 4 Results

### 4.1 Normality of the Data

After the gathering of the data, we proceeded with the data cleaning which included identifying missing values and outliers from the gathered data. The Plot box technique was used to identify outliers. 22 responses from the data sheet were deleted due to missing values. Moreover, QQ plots were produced to cross-check the normality of the data. 10 outliers were deleted again based on the deviation from the normality. The results of skewness and kurtosis also show that the

data was normal after the deletion of outliers. Bivariate correlation values range from 0.36 to 0.65 for all four variables which refute the issue of multicollinearity among variables.

### 4.2 Confirmatory Factor Analysis

To purify the scale, we ran a Confirmatory Factor Analysis (CFA) for each construct. We used the reference provided by Sila and Ebrahimpour (2005) to analyze the results of discrete CFA for  $\chi^2/df < 3$ , and for CFI, GFI, and NFI  $\geq 0.90$  respectively, and for RMSEA  $< 0.08$  were deliberated as cut-off-values. Most of the standardized factor loadings of the constructs i.e., SM and FTF, PU and IUmb were significant and  $> 0.50$ . 3 indicators i.e., SM1, PU2, and PU4 which had factor loadings less than 0.50 were deleted. Whereas the Normed Fit Index (NFI) obtained from CFA has been used as a benchmark to evaluate the convergent validity of the items. According to Bentler (1992), NFI  $\geq 0.90$  indicates strong convergent validity. All NFI values are  $> 0.90$  hence establishing the convergent validity.

**Table 1** Results of Individual CFA (N=318)

Constructs	Items	Unidimensionality					Convergent Validity			Reliability	
		$\chi^2/df$	GFI	CFI	RMR	RMSEA	NFI	FL [min-max]	AVE	$\alpha$	CR
CM	5	2.99	0.98	0.98	0.06	0.07	0.97	[0.73-0.50]	0.33	0.77	0.78
SP	5	1.75	0.99	0.99	0.05	0.04	0.98	[0.74-0.64]	0.31	0.80	0.86
PU	6	2.30	0.95	0.94	0.02	0.06	0.93	[0.58-0.81]	0.41	0.76	0.86
IUmb	7	1.81	0.98	0.99	0.03	0.05	0.98	[0.66-0.84]	0.40	0.89	0.90

**Notes:** CM=Cybernetic Media; SP=Socio Psychological Media; PU= Perceived Usefulness; IUmb= Intentions to Use Mobile banking  
Since the CFA model of CM and SP showed some non-acceptable absolute and incremental fit indices; as a result, we did apply modification indices to develop a modified model. After modified CFA models indicated a satisfactory level of fit, 5 items for CM were subjected to CFA and one item was removed once more centered on lower FL, the fit indices for SM  $\chi^2/df=2.99$ , Goodness-of-Fit Index (GFI) =0.98, NFI=0.97, Comparative Fit Index (CFI) =0.98, Root mean Residual (RMR)=0.06 and RMSEA=0.07. The fit indices for SP were  $\chi^2/df=1.75$ , GFI=0.95, NFI=0.98, CFI=0.99, RMR= 0.05, and RMSEA=0.04. 6 items for

PU were imperiled to CFA; 2 out of 6 items were deleted based on lower factor loadings, and the final fit indices for PU were  $\chi^2/df=2.30$ , GFI=0.95, NFI=0.93, CFI=0.94, RMR= 0.02 and RMSEA=0.06, see (Table 1) for details. 7 items for IUmb were subjected to CFA. The fit indices for IUmb were  $\chi^2/df=1.81$ , GFI=0.98, NFI=0.98, CFI=0.99, RMR= 0.03 and RMSEA=0.05. The reliability of the construct was measured through Cronbach's alpha values. Cronbach's Alpha values were within the range of 0.78 to 0.90.

### 4.3 Descriptive of Demographics

80.82 % of the respondents were male and the rest of the participants (19.18%) were female. A great majority of the participants

were youngsters or young adults almost 88% and almost 1% were 60 and above. Most of the respondents were well-educated people almost 96.5 % qualified as Bachelor and above. Only 3.5 % had an education of less than a bachelor's degree. Most participants almost 62% were well known by the banking systems, features, and procedures and had

been using a bank account for at least one year. Only almost 38 % had the experience of using a banking account of less than one year. 90 % of participants were using the bank account frequently for more than 5 times in a month and only 10 % were using it 5 times or below.

**Table 2** Descriptive of Study Variables (N=318)

	Constructs	Min	Max	Mean	SD	Skewness	Kurtosis	CM	SP	PU	IUmb
1	CM	5.0	20.0	14.74	3.44	-0.66	0.36	✓	0.55**	0.38**	0.36**
2	SP	5.0	25.0	19.13	4.36	-0.88	0.46	✓	✓	0.39**	0.38**
3	PU	4.0	20.0	15.55	3.43	-0.89	0.62	✓	✓	✓	0.65**
4	IUmb	7.0	35.0	28.47	5.56	-0.1	0.81	✓	✓	✓	✓

**Notes:** CM=Cybernetic Media; SP=Socio Psychological Media; PU= Perceived Usefulness; IUmb= Intentions to Use Mobile banking; SD= Standard deviation; \*\*  $p < 0.01$ .

Table 2 presents the minimum and maximum values, means, standard deviations, Skewness, kurtosis, and inter-correlations among variables used for this study. As can be seen in Table 2 CM is positively correlated with SP ( $r=0.55$ ), CM and PU are also positively correlated with each other ( $r=0.38$ ) and CM is positively correlated with IUmb ( $r=0.36$ ). SP is positively associated with PU ( $r=0.39$ ), and also with IUmb ( $r=0.38$ ). PU is found to be positively related to IUmb ( $r=0.65$ ).

#### 4.4 Direct and Mediation-Related Hypotheses Testing

In hypotheses 1 and 2 we hypothesized that CM and SP have a positive impact on IUmb. As shown in Table 3, Model<sub>1</sub> we regress IUmb w.r.t CM and PU. The results from Table 3 show that the effect of CM on IUmb is statistically significant ( $F=47.81$ ,  $\beta=0.36$ ,  $p<0.001$ ,  $R^2=0.13$ ). Hence H<sub>1</sub> is accepted. Table 4 Model<sub>1</sub> also shows that the effect of

SP on IUmb is statistically significant ( $F=53.58$ ,  $\beta=0.38$ ,  $p<0.001$ ,  $R^2=0.14$ ). Hence H<sub>2</sub> is also accepted. Hypothesis 3 and 4 listed as CM has a positive impact on PU and SP has a positive impact on PU. The results from Table 3 Model<sub>2</sub> and Table 4 Model<sub>2</sub> confirm that the effect of CM and SP on PU is statistically significant ( $F=53.83$ ,  $p<0.001$ ,  $\beta=0.38$ ,  $R^2=0.15$ ) and ( $F=60.00$ ,  $p<0.001$ ,  $\beta=0.40$ ,  $R^2=0.16$ ). Hence H<sub>3</sub> and H<sub>4</sub> are also accepted. Regarding H<sub>5</sub> i.e., PU has a positive impact on IUmb. Table 3 Model 3 shows that the effect of PU on IUmb is statistically significant ( $F=235.96$ ,  $\beta=0.65$ ,  $p<0.001$ ,  $R^2=0.42$ ). Hence H<sub>5</sub> is also accepted.

For checking the mediation part of PU between CM and IUmb, we trailed a step-wise method advanced by Baron and Kenny (1986). PU has been measured as a mediator between CM and IUmb. Table 3 Model<sub>4</sub> when CM and PU were regressed collectively on IUmb, it can be comprehended that the  $\beta$  value pointedly abridged from 0.36 to 0.13  $R^2$  increase from 0.13 to 0.44 and the  $\Delta R^2=0.31$ . Grounded on the adjustment in  $\beta$  values and  $\Delta R^2$ , it was determined that PU partly mediates the effects of CM on IUmb.

**Table 3: Direct and Mediation Analysis of PU between CM and IUmb (N=318)**

Model	IV	DV	B	SE	$\beta$	t	R <sup>2</sup>	F	$\Delta R^2$
Model <sub>1</sub>	CM	IUmb	0.58	0.08	0.36	15.51**	0.13	47.81**	0.31
Model <sub>2</sub>	CM	PU	0.37	0.05	0.38	7.34**	0.15	53.83**	
Model <sub>3</sub>	PU	IUmb	1.06	0.07	0.65	15.36**	0.42	235.96**	
Model <sub>4</sub>	CM PU	IUmb	0.21 0.98	0.07 0.07	0.13 0.60	2.91* 13.26**	0.44	124.99**	

**Notes:** CM=Cybernetic Media; IUmb= Intentions to use Mobile Banking, PU= Perceived Usefulness; \*  $p < 0.05$  \*\*  $p < 0.001$ .

The same method was followed to check the mediation of PU between SP and IUmb. As can be seen in Table 4 Model 4. In Model<sub>4</sub> when SP and PU were regressed collectively on IUmb, the outcomes can be seen in Table

**Table 4: Direct and Mediation Analysis of PU between SP and IUmb (N=318)**

Model	IV	DV	B	SE	<i>B</i>	t	R <sup>2</sup>	F	ΔR <sup>2</sup>
Model <sub>1</sub>	SP	IUmb	0.48	0.07	0.38	7.32**	0.14	53.58**	
Model <sub>2</sub>	SP	PU	0.31	0.04	0.40	7.74**	0.16	60.00**	
Model <sub>3</sub>	PU	IUmb	1.06	0.07	0.65	15.36**	0.42	235.96**	0.30
Model <sub>4</sub>	SP	IUmb	0.18	0.06	0.14	3.10*	0.44	126.03**	
	PU		0.96	0.07	0.60	13.03**			

**Notes:** SP=Socio Psychological Media; IUmb= Intentions to use Mobile Banking, PU= Perceived Usefulness; \*  $p < 0.05$  \*\*  $p < 0.001$ .

## 5. Discussion

Previous studies demonstrate the significant role of communication channels in the technology adaptation process. Similarly in the banking industry, the role of different communication channels is very useful and effective. CM also assists in delivering significant results in convincing and encouraging the adoption of mb services, despite the reality of trust and security issues involved in mb services. Results reveal that SP and CM have the meaningful ability to influence the customer perception images and belief in the adoption of mb services. The SP and CM can be considered as the strongest factors influencing the customer intentions to use mb services through the mediating effect of PU who are reluctant to adopt Internet-based technological services. Some customers are always reluctant to adopt these Internet-based technological services even after intensive interpersonal communication and CM campaigns because of their psychological resistance.

## 6. Implications

In the light of the study's results banking practitioners and marketers can develop efficient marketing programs and strategies to promote campaigns regarding mb services and can develop their intentions. Based on the findings of the current study the bank staff of direct customer dealing can strongly

4 Model<sub>4</sub> that the  $\beta$  value is pointedly abridged from 0.38 to 0.14 and R<sup>2</sup> increases from 0.14 to 0.44 and the  $\Delta R^2=0.30$ . Centered on the adjustment in  $\beta$  values, the level of significance of t value, and  $\Delta R^2$ , it is determined that PU partly mediates the effects of SP on IUmb.

influence and convince the account holder to adopt the mb service. The front desk officers should be trained and capable enough to reduce the customers' concerns of security and risk about the mb to pick up fruitful results. Tutorial mb app should be prepared by the bank to teach the customers about the usage of mb without disrupting their accounts to reduce the hesitation to adapt the mb services. CM also plays a valuable role in the adoption process of mb services, but rather than using SP in marketing campaigns only in the adaptation process it should also be used for sharing of experience and feedback of the concerned customer to cultivate fruitful consequences for the banking industry because CM facilitates such services at low marketing cost and limited financial recourses.

## 7. Conclusion

The shift from traditional banking to Internet banking over the last decade has indeed been a transformative trend in the banking industry. This evolution is driven by advancements in technology, changing consumer preferences, and the need for more convenient and efficient banking services. Several factors contribute to the success of internet-based modern technological services in the banking sector. One crucial aspect is the effective delivery and communication of these technological innovations by the banks. These consequences demonstrate that selecting diffusion techniques in the target market can produce remarkable results. This research is beneficial not only for the banks



but also helps in the diffusion process of new Internet-based modern technological services in other industries as well.

### 8. Limitation of the Study

The research was conducted by taking a focal variable of IUmb rather than the actual behavior of adoption of mb services. Most of the respondents were young adults aged from 18 to 45 having experience of using the internet on wireless devices. The results from the sampling frame are not representative of the entire population of mb users. The research has a deficiency of information about the comparison of the complexity of mb service and various banking services (manual banking, physical preparation of pay order, or transfer of amount through cheque) concerning risk and economic benefits. Qualitative information should be collected from the respondents about the mb services.

### 9. Future Research Directions and Recommendations

The same research can also be conducted in other less developing countries or in different industries or on other new Internet-based technological services to make a comparison and contrast among different effects of diffusion of modern techniques. Differences between culture, motivation, banking system, economy, and mobile facilities can also be measured in measuring the effects of communication channels.

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