Investigating the Acceptance of Electronic Banking in the Rural Areas of Pakistan: An Application of the Unified Model

Ikram Ullah Khan[1], Zahid Hameed[2], Muhammad Hamayun[3]

Abstract

The growth of electronic banking (e-banking) has taken the world by surprise, and despite its proliferation across the globe, its acceptance has not been too encouraging, especially in the rural areas of the developing countries. This study revolves around this very key issue of e-banking acceptance in the rural areas of Pakistan by employing a comprehensive framework of Unified Theory of Acceptance and Use of Technology (UTAUT), called a unified model by Venkatesh, Morris, Davis, and Davis (2003). This paper extends the unified model through personality openness and investigates the moderation of trust between behavioral intentions and usage behavior. Using a survey-based questionnaire, data were collected from the customers of rural areas of Pakistan. The authors obtained 434 valid responses from universities' students having a rural background and analyzed the data through structural equation modeling with Smart-PLS. Our results reveal that performance expectancy, social influence, and effort expectancy have a significant and positive impact on behavioral intentions of rural customers in Pakistan. Moreover, we find that personality openness significantly shapes behavioral intentions and trust on the internet moderates customers' intentions and their usage of e-banking.

Keywords: *Electronic banking, UTAUT, personality openness, trust, adoption, Pakistan*

1. Introduction

Electronic banking is a fast-emerging phenomenon in developing Asian countries (Sengupta, Lam, & Desmet, 2014). The Information and Communication Technologies (ICTs) are filling the gap in democratizing the financial services by providing facilities of financial transactions/management at doorsteps in the far-flung rural areas. The advancement of technology has been shifting the preferences of people

1 Institute of Management Sciences, University of Science and Technology Bannu, KP, Pakistan.
Email: ikram.bnu@gmail.com
2 Department of Management Sciences, Khwaja Fareed University of Engineering and Information Technology, Rahim Yar Khan, Pakistan.
3 Department of Management Sciences, Bacha Khan University, Charsadda, KP, Pakistan.

towards e-banking where the rural people avail the online financial services in an inexpensive and faster way (Kishore & Sequeira, 2016). The developing Asian economies are transforming to the digital system of banking for speedy transactions and therefore the last five years witnessed a 35% increase in the electronic transactions (Khan, Hameed, & Khan, 2017). Individual and corporate customers believe in clicks and mortar system due to ease and ubiquitous nature of financial dealings through e-banking (Nguyen & Gopalaswamy, 2018). The acceptance of e-banking is an affable process that consistently enables customers to perform their transactions in a few clicks while sitting in their homes, and thus it saves them a lot of precious time as well as the hassle of visiting different branches. The technology of e-banking is widely considered as a key driver and a motivating force for the people to participate in the ever-changing technological world where technology brings comfort to the lives of human beings on a massive scale. (Aboobucker & Bao, 2018). The customers, who are unaware or unwilling to use online banking might lose in terms of time, efforts, cost, and performance (Zhang, Weng, & Zhu, 2018). That's why individuals, as well as joint/corporate businesses, use e-banking to have continuous access to their bank accounts for paying their utilities, managing their finances, investing, and availing other financial services anytime and anywhere (Alalwan, Dwivedi, Rana, & Algharabat, 2018).

Acknowledging the game-changing role of digital banking and finance, the prevailing research highlights the pressing need of ICT adoption in banking services (Afshan & Sharif, 2016; Chiu, Chiu, & Mansumitrchai, 2019). The contemporary researchers believe in the financial inclusion of rural populace, and therefore they explored the acceptance of electronic/mobile banking in the far-flung areas of developing countries (Behl, Singh, & Venkatesh, 2016; Masocha, Chiliya, & Zindiye, 2011; Ramavhona & Mokwena, 2016). The rural customers have more concerns about online banking due to their perceptions, knowledge, risks, information leakage and e-transactions (Tarhini, El-Masri, Ali, & Serrano, 2016). It is, therefore, an imperative to understand the enablers that derive the technology acceptance in the rural areas. To this end, the managers and regulators are supposed not only to consider the traditional factors, but also the social, facilitation-based, and personality-oriented factors. The bank management needs to 'know the rural customers' because they have a different level of know-how and perception about technology acceptance than the urban customers (Venkatesh, Morris, & Ackerman, 2000; Venkatesh et al., 2003).

A small number of studies investigated the use of mobile or internet banking in Pakistan using various Information System (IS) models, i.e., Theory of Reasoned Action(TRA), Technology Acceptance Model (TAM), and Theory of Planned Behavior (TPB) and different attributes of the systems (Kaleem & Ahmad, 2008b; Kazi & Man-

nan, 2013). They discussed the pros and cons of mobile/internet banking in Pakistan, but used simplistic models (Afshan & Sharif, 2016) and particularly overlooked the customers' personality-driven factors. Zahid, Mujtaba, and Riaz (2010) explored the determinates of e-banking, using TAM (i.e., perceived usefulness, security and privacy and quality of internet). Shakil Ahmad, Rashid, and Ehtisham-Ul-Mujeeb (2012) evaluated the operational problems through electronic customers' relationship management (ECRM) in a case study of Askari Bank Limited. Afshan and Sharif (2016) applied UTAUT in alignment with TTF (Task-Technology Fit) and ITM (Initial Trust Model) in Pakistan to explore mobile banking adoption. Kaleem and Ahmad (2008a) studied electronic banking from the bankers' perspective using 18 attributes. Similarly, using UTAUT-2 model and cultural theory, Khan, Hameed, and Khan (2017) determined the antecedents of online banking focusing on the urban customers in Pakistan.

This research aims at examining the focal point whether the extension of UTAUT by personality openness has an impact on e-banking proliferation in the rural areas/ customers. It also tries to know which driver is more effective in the adoption of e-banking in Pakistan. Similarly, the study evaluates the moderating role of trust in the acceptance and thus furnishing a number of contributions to the existing literature and practice. First, to the latest/best understanding of the authors, the study is the first one that investigates the customer's acceptance of e-banking in the rural areas of Pakistan. Majority of the past efforts focused primarily on the developed countries or urban areas of the developing countries, thus leaving a wider gap to explore the phenomenon in the rural areas of developing countries (Masocha et al., 2011). Moreover, as per the Pakistan Demographics Profile 2018, only 39.7%[4] of Pakistani population resides in urban cities while the rest lives in the rural areas, thus it is more managerially significant to ascertain the e-banking acceptance in the rural areas across the country. In this way, the rural populace can be financially-included. Second, the study uses the comprehensive UTAUT model extended by the personality openness to bring forth the most relevant factors in attaining the customer's intentions. The UTAUT model is more powerful in predicting the adoption level of e-banking (Rahi, Ghani, & Ngah, 2019). Moreover, the integrative model strengthens the significance of results (Oliveira, Thomas, Baptista, & Campos, 2016). Personality openness (openness to experience) leads customers to the favourable experience of electronic technology which is mandatory for a successful acceptance. Third, the study uses a moderator, i.e., trust on the internet, which is considered as a potential inhibitor of e-banking in developing countries. The authors believe that the trust might affect the usage behavior and has implications for bank management and regulators.

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4 *https://www.indexmundi.com/pakistan/demographics_profile.html*

1.1. Status of e-banking in Pakistan

Since the wave of privatization and liberalization, the banking sector of Pakistan has a paradigm shift to digitize its operations and services. It is because the privatization requires more openness and transparency in financial operations, which can be achieved through digitization and automation. The exponential growth in Internet services, the stiff competition, and mounting demands of the customers compel the banks to provide e-banking facilities in Pakistan (Khan, Hameed & Khan, 2017). Though the Customers' tend towards e-banking is quite rapidly penetrating into the urban areas, yet the acceptance rate is slow. The latest statistics of Pakistan's central bank (State Bank of Pakistan) show that there is an increase of 102% in the transactions of e-banking in the economy. Similarly, the value of electronic transactions reached from 1292 (Rs. in billion) to 38052 (Rs. in billion), indicating 30-times increase during the last twelve years (see Table 1 for details). The number of electronic bank branches reached to 14,150 in 2017, showing a 243% increase since 2011 as reported by State bank of Pakistan, Annual Report-Statistical supplement (2017). The burgeoning increase in electronic branches and transactions manifests the tendency towards e-banking revolution in Pakistan. Furthermore, the skyrocketing growth in the telecommunication sector has also been a constant source that leads to accepting e-banking in the rural areas of Pakistan. In this regard, the exponential growth in teledensity (4% to 64%); the huge number of cellular subscribers that reached to 122,595,936 in 2015 (http://www.pta.gov.pk); the boom of 3G, and 4G networks; the phenomenal increase in the number of smartphones and the 24/7 Internet access has helped emerge e-banking in Pakistan (Pakistan Telecommunication Authority).

The UTAUT model, which is a unified view of the previous IS models, has a considerable potential to elucidate the most relevant factors of e-banking acceptance (Baabdullah, Alalwan, Rana, Kizgin, & Patil, 2019). Previous researchers have found that the UTAUT model is a robust tool that explains 70% variance in the behavioral intentions to adopt online banking (Zhang et al., 2018). The personality openness has been duly added to the UTAUT to present a comprehensive model which will help explore technology-related factors as well as individuals' openness to experience the new technology. The extended model with many implications has not been tested in any of the developing economies, especially in rural areas. The past studies revealed that personality openness does matter in behavioral intentions, as the openness leads to intellectual curiosity and creativity, and therefore those people whose score are high on openness to experience tend to have more adoption to new technology (Yoon & Steege, 2013).

Table 1: Status of E-banking Adoption in Pakistan (2005 to 2017)

Year	No of ATMs	Growth (%)**	Real-time Electronic Branches	Growth (%)	Point of Sales (No)	Growth (%)***	Total No of Electronic Transactions (Thousand)*	Growth (%)**	Total Value of Electronic Transaction (Billion)*	Growth (%)**
2005	1,028	-	2,897	-	-	-	45,321	-	1,292	-
2006	1,612	57	3,555	23	32,331	-	67,774	50	7,040	45
2007	2,294	123	4,179	44	46,329	43	99,367	119	10,497	712
2008	3,121	203	5,282	82	43,903	36	124,447	175	13,893	975
2009	3,999	288	6,040	108	49,715	54	159,783	253	14,373	1,012
2010	4,465	334	6,671	130	52,049	61	196,301	333	17,333	1,242
2011	5,200	406	7,416	156	37,232	16	243,354	437	22,141	1,614
2012	5,745	458	9,291	221	34,879	08	277,385	512	26,023	1,914
2013	6,757	557	10,015	246	33,748	04	320,526	607	29,691	2,198
2014	8,240	702	10,640	267	34,428	06	403,652	791	33,698	2,508
2015	9,597	834	11,315	291	41,183	27	469,058	935	35,848	2,675
2016	11,381	1,007	12,674	337	50,769	57	543,807	1,100	37,225	2,781
2017	12,689	1,234	14,150	488	54,490	69	624,629	1,378	38,052	2,945

Source: "State Bank of Pakistan, Annual Report-Statistical supplement FY 2015, FY 2016, and FY 2017[5]"; The authors used 2006 as a base year

5 *Total value of Electronic transactions includes ATMs transactions, Point of sales transactions, Real-time Electronic branches transactions, Mobile phone transactions, call Centre transactions, and internet transactions ** Growth percentages has been calculated with comparison to the base year of FY 2005 (Author's calculation) *** Growth percentage of POS has been calculated with comparison to the base year of FY 2006 (due to non-availability of 2005

2. Literature Review and Development of Hypotheses

2.1. Unified theory of acceptance and use of technology

Individuals' behaviors and technology adoptions have always been a debatable topic in the IS literature. There are a number of models proposing and investigating the association between users' intentions and acceptance of any technology. For example, Afshan and Sharif (2016) and Rahi and Abd, Ghani (2019) highlighted the various models that have certain similarities and dissimilarities and concluded that the UTAUT model is all-inclusive and has a high explanatory power to predict the adoption of any technology. They argued that the multiplicity of theories steered the emergence of a unified model which can be considered as accommodative to all the major ingredients of various past theories (Khan, Hameed, & Khan, 2017) and has a wider applicability in multiple contexts (Rahi et al., 2019; Yuan, Lai, & Chu, 2018). After thoroughly studying the earlier eight[6] theories of IS acceptance, Venkatesh et al. (2003) proposed the unified theory called UTAUT. The unified theory articulates the customers' use intentions of ICT by theorizing four constructs (Performance expectancy, efforts expectancy, social influence and facilitating conditions) that are the direct determinates of users' acceptance and usage behavior. The theory also introduced various moderators such as age, the voluntariness of use, experience, and gender. The model (UTAUT) has multiple applications in different contexts with various extensions/modification in the last decade, for example in the context of e-learning (Tarhini, Hone, Liu, & Tarhini, 2016)e>; e-government (Lallmahomed, Lallmahomed, & Lallmahomed, 2017); e-prescribing (Khan, Yu, Hameed, Khan, & Waheed, 2018), yet very little is known about e-banking in the rural areas of developing countries. The main concepts of UTAUT are: (1) Performance Expectancy (2) Efforts Expectancy (3) Social Influence, and (4) Facilitating Conditions.

2.1.1. Performance expectancy

Venkatesh et al. (2003) elaborated performance expectancy as "the degree to which an individual believes that using the system will help him/her to attain gains in job performance". Performance expectancy emerged out of five constructs from previous IS theories i.e., Perceived Usefulness (PU), Job Fit (JF), Extrinsic Motivation (EM), the Relative Advantage (RA), and Outcome Expectations (OE). As per the proposed model of UTAUT (Venkatesh et al., 2003), the PU was taken from TAM, EM was used from MM, JF from Model-of-PC-Utilization (MPCU), RA from

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6 *Theory of Reasoned Action (TRA), Technology Acceptance Model (TAM), Motivational Model (MM), Theory of Planned Behavior (TPB), Combined TAM-TPB, Model of PC Utilization (M-PCU), Innovation Diffusion Theory (IDT), Social Cognitive Theory (SCT)*

Innovation-Diffusion-Theory (IDT), and OE was taken from Social-Cognitive-Theory (SCT). Venkatesh et al. (2003) established that PE is the most important amongst the predictors of individuals' intentions, as it is supposed that online technology will help ease and enhance customers' performance. Various recent studies concluded that PE has a significant impact on customers' behavioral intentions (Afshan & Sharif, 2016; Baabdullah et al., 2019; Baptista & Oliveira, 2015; Khan, Hameed, & Khan, 2017). We propose that the customers of rural areas in Pakistan will improve their banking performance by starting/continuing the use of e-banking. The study, therefore, posits the hypothesis.

H1: Performance expectancy has a positive influence on behavioral intentions to use e-banking.

2.1.2. *Efforts expectancy*

Venkatesh et al. (2003) termed the Effort Expectancy (EE) as "The degree of ease associated with the use of the system". They further explained that Effort Expectancy has been derived out of the three models (perceived ease of use (PEOU) and complexity from TAM, MPCU, and IDT respectively. Users are willing to be connected to those technologies that provide convenience and simplicity in usage (Alalwan, Dwivedi, Rana, & Algharabat, 2018). In more plain words, customers opt to use the technology that is easily accessible, more automatic, efforts-reducing, and friendly to experience (Dwivedi, Rana, Jeyaraj, Clement, & Williams, 2017). Martins, Oliveira, and Popoviⅉ (2014) and Kim and Park (2009) established that EE construct has a positive influence on users' behavioral intentions. However, contrary findings were reported by (Baptista & Oliveira, 2015) in the African context. Keeping into consideration the rural areas of Pakistan, this study believes that EE will significantly affect the intentions of rural dwellers. Therefore, it is posited:

H2: Effort Expectancy has a positive effect on behavioral intentions to use e-banking.

2.1.3. *Social influence*

Venkatesh et al. (2003)Venkatesh et al. (2003)Venkatesh et al. (2003) explained Social Influence (SI) as "The degree to which an individual perceives that important others believe he/she should use the new system". The Subjective Norm (SN) of the TRA model, social factors of MPCU and image of IDT helped shape the construct of social influence. The social influence was empirically tested and found as a significant predictor of individual intentions (Chong, Chan, & Ooi, 2012; Lu, Yao, & Yu, 2005). Kim, Shin, and Kim, (2011) termed social influence as one of the significant predictors of users' intentions in South Korea. Similarly, Lu (2014) argued that social

influence is less dynamic/influential than personal innovativeness. Individuals are influenced by the society where they live. Earlier studies discovered that there were pressures from social networks, like near relatives, friends, bosses, peer-relations, family and colleagues to adopt branchless/e-banking (López-Nicolás, Molina-Castillo, & Bouwman, 2008). Similar results were found in the studies of Bhatti (2007), Chan and Yee-Loong Chong (2013), Chong et al. (2012), Lu (2014), and Min, Ji, and Qu (2008) To identify the determinants of m-commerce, Kalinic and Marinkovic (2015) concluded that social influence indirectly affects the intentions through PU and PEOU which are the direct predictors of behavioral intentions. In the same way, Chaouali, Yahia, and Souiden (2016) articulated that trust and social influence affect the acceptance of technology indirectly. The dwellers of rural areas are more connected to social networks and are highly likely to be affected by peers and social pressures. Therefore, the authors propose that:

H3: Social influence has a positive impact on behavioral intentions to use e-banking.

2.1.4. Facilitating conditions

As per the UTAUT model, Facilitating Conditions (FC) is amongst the main drivers of behavioral intentions. Facilitating Conditions has a direct effect on the adoption of any technology. The term Facilitating Conditions is defined as "The degree to which an individual believes that an organizational and technical infrastructure exists to support use of the system" (Venkatesh et al., 2003). FC refers to the availability of adequate infrastructure that can help customers complete their electronic transactions. FC has been emerged out of the Perceived Behavioral Control (PBC) taken from TPB, FC taken from MPCU and the compatibility taken from IDT. The extended UTAUT-2 model posited the relationship of FC to both behavioral intentions and actual usage (Venkatesh, Thong, & Xu, 2012). Several authors authenticated that FC does affect the behavioral intentions and usage behavior of various electronic technology users (Afshan & Sharif, 2016; Khan, Yu, Hameed, Khan, & Waheed, 2018; McKenna, Tuunanen, & Gardner, 2013; Tosuntaş, Karadağ, & Orhan, 2015). The customers in the rural areas are expected that the availability of facilitating conditions might have a positive impact on their intentions and adoption of e-banking in Pakistan. It is, therefore, hypothesized:

H4a: Facilitating Conditions have a positive influence on behavioral intentions to use e-banking.

H4b: Facilitating Conditions have a positive influence on the use of e-banking.

2.2. Personality openness

Personality Openness is one of the personality traits that show how customers are open to accept or experience new technology. Personality Openness directs the relationship of experience and actions with each other. According to the big five factors model (Costa & McCrea, 1992; McCrea, 1992), personality is developed over time and many factors influence its development during the course of one's life, therefore, individuals tend to develop habits in which they can positively ascertain their actions which are related in one way or other to one's personality. The low scorers on openness are conventional in attitude and have a traditional approach towards electronic technologies (Yoon & Steege, 2013). Such customers like the traditional system based on "bricks and mortar" and are hesitant to adopt e-banking. On the other side, the high scorers on personality openness have a range of choices and are likely to accept digital channels for transactions (Lee, 2009). Such open customers are more likely to adopt e-banking (Devaraj, Easley, & Crant, 2008). Previous scholars found that openness leads to personal innovativeness and acceptance of ICT (Nov & Ye, 2008).

Discussing customers' personality and use of e-banking, Yoon and Steege (2013) concluded that personality openness urges people to be participative in innovations; a new experience that further leads to the acceptance of any new technology. The high scorers on personality openness tend to be more creative, curious and innovative in their outlook. They are likely to challenge the traditional notions and hence liberal to use the new technology without any hesitation (Venkatesh, Sykes, & Venkatraman, 2014). The low scorers on personality openness may not be easily adapted to new technology, as they have a conservative and prejudiced outlook (Butler, 2000; Sibley & Duckitt, 2008). Aluja, García, and García (2002). Therefore, individuals with a higher degree of personality openness will experience a new technology. These people can also be stated as innovators in the market as these individuals formidably try out the product and basically introduce it to the public (Halder, Roy, & Chakraborty, 2017). The rural dwellers in Pakistan are expected to be opened to a new experience of e-banking and hence it is proposed:

H5: Customers' Personality Openness will positively influence their behavioral intentions to use e-banking.

2.3. Adoption of e-banking moderated by trust

Trust is one of the factors affecting behavior which ultimately influence customers' intention to use technology. Following the previous studies (Boateng, Adam, Okoe, & Anning-Dorson, 2016), we use trust as the reliance and safeguarding the privacy of users' information on the part of banks or internet providers to execute the electronic

transactions. In the Malaysian context, Masrek, Mohamed, Daud, and Omar (2014) found a significant link of technology trust and mobile banking. They concluded that the three groups of technology trust (i.e., trust on network t, trust on website and trust on a mobile phone) have a positive association with mobile banking adoption and satisfaction. Those customers who know the sources and use of technology can have greater trust in those who have no or low information. Task characteristics, social influence, personal innovativeness, and risk perception have an influential effect on trust which in turn leads to mobile banking. The risk is negatively associated with trust while task characteristics, social influence, and personal innovativeness have a positive correlation with trust in mobile banking (Malaquias & Hwang, 2016).

More recently, Sharma and Sharma (2019) found that trust is a key antecedent of users' intentions, especially where some confidential information is needed to provide for online transactions. Using the Internet Banking Services Acceptance Model in the context of Mauritius, Devi Juwaheer, Pudaruth, and Ramdin (2013) concluded that trust and security have a central role in the acceptance of virtual banking. Another recent study concluded that online trust is a prerequisite for the adoption of e-banking (Chiu et al., 2019). Considering the previous literature, we propose that:

H6: Trust on the internet will moderate the relationship between behavioral intention and adoption of e-banking such that the higher the trust, the higher the usage of e-banking.

3. Research Model and Methodology

3.1. Theoretical model

As we have already mentioned that the present s study aims at testing the customers' acceptance of e-banking in the rural areas of Pakistan, therefore it uses the foundation of UTAUT that was introduced by Venkatesh et al. (2003) together with the openness to experience, adopted from Yoon and Steege (2013) and trust (see figure 1). The openness is theoretically sound to include in the model, as this trait urges behavioral intention to adopt e-banking (Devaraj et al., 2008). In earlier studies, the personality openness has been reflected as an antecedent of beliefs and users' intentions (Kim , Mirusmonov, & Lee, 2010; Nov & Ye, 2008; Yoon & Steege, 2013).

To examine the relationship between proposed variables, the study employed a survey questionnaire. The adapted questionnaire comprised of a total 34-questions along with demographic information. More precisely, in the absence of a complete and reliable list of rural customers and their contact information, a convenient sampling technique was used; a commonly-used practice in social sciences research
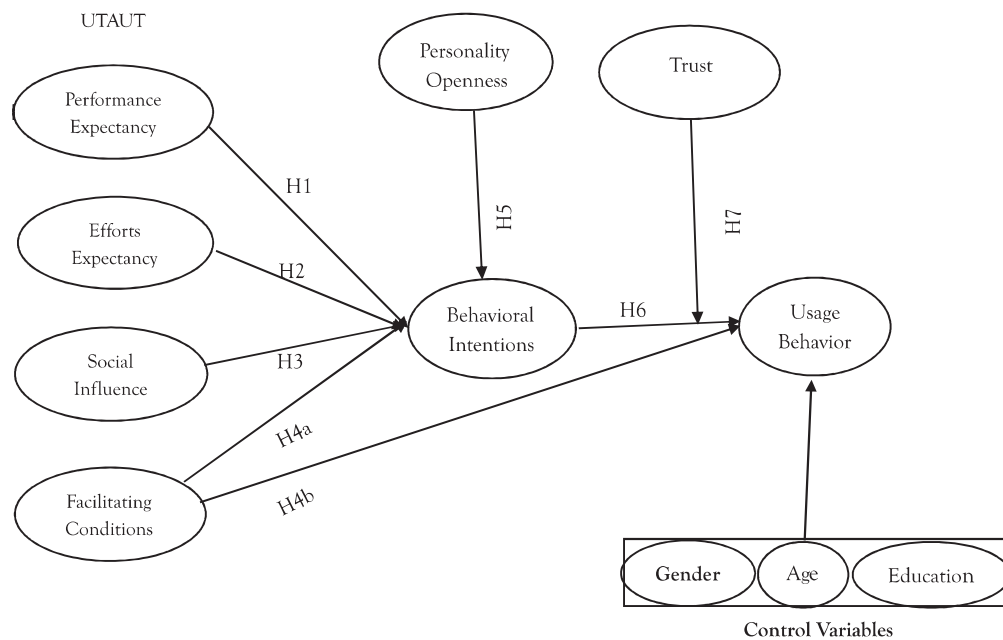
Figure 1: Proposed Theoretical Model

(Yadav, Chauhan, & Pathak, 2015). Following Behl et al. (2016), only those respondents having rural background and had a bank account(s) were selected to join and respond to the survey. The survey questionnaire was constructed on the basis of the UTAUT model extended by personality openness and a moderator (trust). To improve the understanding of the questionnaire, a focused group was managed engaging five researchers and four practitioners before its distribution (Saunders, Lewis, & Thornhill, 2015). The focus group recommended minor modifications to the wordings in ten questions which were duly addressed and thus the instrument became relevant, reliable and easy to understand.

3.2. Data sample and procedure

Before receiving the responses, it was clarified to the participants that e-banking refers to the internet commerce application where the bank customers can make the everyday bank transactions (for example requesting for cheque book, balance inquiries, blocking of lost card(s), electronic transfers of money, foreign exchange rates and ATM locations, etc.) through e-banking.

Keeping in view the previous literature on technology acceptance, especially e-banking (Tarhini, El-Masri, et al., 2016), a quantitative approach was employed to ascertain the relationships in the model. Using convenient sampling, the study collected data from university students who were of rural background and had a bank account(s) in the capital cities of the four provinces in Pakistan (Behl et al., 2016). Three public

sector universities[7] in each of the four capital cities were selected randomly. Moreover, following Tarhini, El-Masri, et al. (2016) some data were collected from the main halls of the banks near the universities to have a balanced and more representative data in terms of experience. Data collection was carried out in a self-administered way and through emails during the first quarter of 2018. The selection of university students was based on the previously published literature because the participants were more familiar and had the knowledge to use e-banking (Yu, 2012), reflecting the current and potential e-banking users (Alalwan, Dwivedi, & Rana 2017; Alalwan, Dwivedi, & Williams, 2014). The study measured the relationship of constructs in the proposed model by using a seven-point Likert-scale (Khan, Liu, Khan, Liu, & Hameed, 2018; Venkatesh et al., 2012).

In a fair and free environment, all the participants took part voluntarily. To enhance the validity of results, we indicated that the questionnaire should be filled by those respondents who had a bank account(s) and were aware of the e-banking. To foster the data collection and minimize self-reporting biases, we informed that all participants may get the results of the study. We also announced various small gifts to the respondents to accelerate the responses. After two weeks, we revisited and sent reminders to the non-respondents and thus became able to get a total of 462 responses. Out of the total responses, 28 were data-constrained and were eliminated in the final stage. Finally, 434 responses were used for estimation and testing the hypotheses.

3.3. Measures

The proposed research model has five independent variables: Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, and Personality Openness. The instrument and scales of Performance Expectancy were adapted from (Venkatesh et al., 2003; Venkatesh et al., 2012); Effort Expectancy from (Davis, 1989; Venkatesh et al., 2003); Social Influence as well as Facilitating Conditions from (Ajzen, 1991; Venkatesh et al., 2003). The instrument and scales of personality (openness) were adopted from a previous study (Yoon & Steege, 2013); behavioral intentions from (Kim, Shin, & Lee, 2009; Venkatesh et al., 2003). The items and scales of trust were adopted from Carter and Bélanger (2005) and the adoption items/scale was chosen from (Khan et al., 2017; Zhou, Lu, & Wang, 2010).

4. Data Analysis

In order to examine the validity of the scale, a pilot study was conducted on the

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7 *University of Peshawar, Islamia College University Peshawar, Agriculture University Peshawar; University of Punjab, GC College University Lahore, UET Lahore; University of Karachi, NED University of Engineering and Technology, Sindh Madressatul Islam University; University of Baluchistan, Bolan Medical College, Quetta, Baluchistan University of Information Technology, Engineering and Management Sciences (BUITEMS)*

data taken from 35 university students from rural areas who were bank customers and were using e-banking. These students were excluded from the final survey. For the data analyses, structural equation modeling was employed with a two-stage approach to know both the validity/reliability of the model and to test the proposed hypotheses. Confirmatory factor analysis was carried out in the first stage to validate the adequate level of the model fitness, and secondly, through the structure model, the hypotheses were tested. Preliminary results showed that the instrument has a sound validity and reliability, except for the two items (BI1, TOI1) that were removed from the final data. Using the cut-off criterion of (Henseler, Ringle, & Sinkovics, 2009), we eliminated the two items whose loadings were below 0.40.

Following some recent studies (for example, Afshan & Sharif, 2016; Baabdullah et al., 2019; Kishore & Sequeira, 2016), data were obtained through self-administered way and thought using emails of the respondents. Table 2 presents the complete profile of our sample with respect to age, gender specification, qualification/education, level of experience, and respondents' provinces. Out of the total respondents, 68% were male, and the rest were female. The profile further elaborates that 41.3% of the participants were master level students and there was a majority of the e-banking users whose experience was below three years. The age composition describes that the older respondents (older than 36 years) account for 30% of the total respondents. Majority of the participants (29.7%) were from the rural areas of Punjab province, while 22% responses were received from the rural customers of Baluchistan Province.

Table 2: Demographic Information

Characteristics	Number of Respondents	(n=434)
Gender	Male	295
	Female	139
Age	<= 25.00	41
	26.00 - 27.00	78
	- 30.00	83
	31- 35.00	103
	>=36.00	129
Qualification	Bachelor	157
	Master	180
	M.Phil/MS	86
	Doctorate	11

Domicile	Khyber Pakhtunkhwa	103
	Punjab	129
	Sindh	110
	Baluchistan	95
Use experience	3 Years	354
	3-5 Years	61
	5-8 Years	12
	8 & above Years	07

To examine the empirical data, the Structural Equation Modeling (SEM) ana-lyzed through Partial Least Squares (PLS) was chosen. Smart-PLS is a more suitable statistical tool which well-handles SEM, Confirmatory Factor Analysis (CFA) and regression simultaneously (Nachtigall, Kroehne, Funke, & Steyer, 2003). Smart-PLS 3.0 was employed in the study to get the data analyzed.

4.1. Common method bias

Common Method Bias is an issue of survey method that results out of the data which are single-sourced and have gathered at a single point of time (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). This study used two procedural remedies to ensure that CMB was not an issue in the data set. First, it was stated in the survey's covering letter that there was no right or wrong question(s) and participants' answers would neither be related with their personalities nor be disclosed to anyone. There-fore, the confidentiality of respondents in research can reduce the likelihood of the presence of CMB effects (Podsakoff et al., 2003). Second, we examined correlations based on the Pavlou, Liang, and Xue (2007) recommendations, who suggested that CMB may exist if the correlations among constructs are very high. But in our case, the correlations were substantially lower and significant. Third, the CMB was ana-lyzed using Harman's single factor test (Podsakoff et al., 2003). The previous research (see Baabdullah et al., 2019; Liu, Chu, Huang, & Chen, 2016) also used Harman's single factor test to detect CMB effects. Our results demonstrated that all items can be divided into seven factors, among which the first factor explained 27.17% of the variance. Our findings prove no threat of CMB in this study.

4.2. Multicollinearity

The authors examined the issue of multicollinearity so that the results and findings have the precision and strong statistical power of the regression model. To this end, the Variance Imation Factor (VIFs) was tested and the independent values

were checked through getting their tolerance values. There is no existence of multi-collinearity issue, if the range of tolerance values is greater than 0.10 and VIF values (which is 1/Tolerance values) are below 10 (Mason & Perreault Jr, 1991). Our results specify that the VIF values are in between 1.490 and 2.219, thus, indicating no issue of multicollinearity in this work.

4.3. Internal consistency and validity

The authors examined the structural model by evaluating the content validity, convergent validity, and discriminant validity. The content validity was examined by sorting the most relevant published literature and through evaluating the results of pilot testing. We measured convergent validity by examining the values extracted from the factor loadings, Composite Reliability (CR), Average Variance Extracted (AVE) and Cronbach's alpha (Cα) (see Table 3).

Table 3: Factor loadings, Cronbach's Alpha, CR and AVE

Constructs			Loadings	Cronbach's alpha	CR	AVE
Behavioral Intention (BI)	BI1		0.892	0.876	0.923	0.73
	BI2		0.915			
	BI3		0.877			
	BI4		0.723			
Effort Expectancy (EE)	EE1		0.643	0.777	0.844	0.52
	EE2		0.743			
	EE3		0.770			
	EE4		0.792			
Facilitating conditions (FC)	FC1		0.824	0.787	0.862	0.61
	FC2		0.768			
	FC2		0.761			
	FC4		0.771			
Performance Expectancy (PE)	PE1		0.655	0.725	0.830	0.55
	PE2		0.783			
	PE3		0.761			
	PE4		0.762			

Openness	OP1	0.774	0.697	0.820	0.53
	OP2	0.694			
	OP3	0.741			
	OP4	0.688			
Social Influ-ence (SI)	SI1	0.736	0.822	0.878	0.643
	SI2	0.744			
	SI3	0.845			
	SI4	0.874			
Trust	TRU1	0.825	0.776	0.849	0.58
	TRU2	0.755			
	TRU3	0.808			
	TRU4	0.662			
Usage behav-ior	UB1	0.691	0.732	0.810	0.52
	UB2	0.692			
	UB3	0.747			
	UB4	0.753			

The results specifies that the loadings meet the cut-off criterion, i.e., having greater values than 0.6 (Nunnally, 1978). Moreover, as per Flynn, Sakakibara, Schroeder, Bates, and Flynn (1990) and Hair, Anderson, Tatham, and William (1998), the reliability criteria for the Cα, CR and AVE are that their values should be greater than 0.70 for Cα and CR, while greater than 0.50 for AVE. Our results in Table 3 clarify that we got a sound level of convergent validity by achieving all the cut-off criteria and thus our estimation demonstrates that all the constructs are valid for analyzing the proposed model (Bouwman, Carlsson, Molina-Castillo, & Walden, 2007).

While assessing the discriminant validity, the authors applied two approaches (Gefen & Straub, 2005; Liu et al., 2016). First, we compared the relationships of cor-relations among constructs and then got the square root of average value extraction (AVE), following (Fornell & Larcker, 1981). Table 4 further indicates the correlational relationships among the constructs and reveals a higher square root value than the correlations among the various constructs which signifies a satisfactory level of dis-criminant validity. Secondly, to construct the correlations, the authors evaluated all the items by ascertaining the values of item loadings and their cross-loadings. The results (Appendix 1) identify that the item loadings of all the constructs are higher than their respective cross-loadings of other latent variables, thus representing a sound discriminant validity.

Table 4: Descriptive Statistics, correlations and discriminant validity (N = 443)

	M	SD	BI	EE	FC	Trust	UB	Openness	PE	SI
BI	3.736	0.786	0.854							
EE	3.591	1.099	0.464**	0.722						
FC	3.452	1.732	0.570**	0.546**	0.781					
Trust	3.592	0.664	0.093	0.032	0.056	0.765				
UB	3.478	0.982	0.415**	0.520**	0.448**	0.123*	0.721			
Openness	3.498	0.775	0.699**	0.804**	0.621**	0.104	0.519**	0.728		
PE	2.265	0.804	0.534**	0.655**	0.620**	0.076	0.693**	0.589**	0.742	
SI	3.722	1.05	0.694**	0.498**	0.547**	-0.084	0.390**	0.650**	0.466**	0.802

Note: The diagonal bolded figures represent the square root of the AVE of each construct. Sig Level: *P< .05, **P<.01

PE=Performance Expectancy; EE=Efforts Expectancy; SI=Social Influence; FC=Facilitating Conditions; BI=Behavioral Intentions; UB=Use Behavior

4.4. Structural model

We used 1000 bootstrap to predict the path significance levels. It is worth mentioning that the R^2 criterion was used to judge the predictive capacity of our proposed model (Chin, 1998). Investigation of R^2 portrays that the given model sufficiently explains Behavioral Intentions (BI) and e-banking Use Behavior (UB) of the rural customers. The final model with results is shown in Figure 2 and Table 5. Results of the analysis indicate that Performance Expectancy (PE) (β= 0.216; p<0.001), Social Influence (SI) (β= 0.349; p<0.001) are statistically significant in explaining Behavioral Intentions (BI), hence supporting hypotheses H1 and H3. The results of Figure 2 communicate that (SI) is a highly significant construct that affects individual's behavioral intentions towards e-banking. Results further show that Effort Expectancy (EE) (β= -0.132; p>0.05) and facilitating conditions (FC) (β= 0.079; p>0.05) have insignificant influence on behavioral intention, so hypotheses H2 and H4a were not supported. Personality openness (personality dimension) (β=0.594; P<0.001) is also statistically significant in explaining BI. Hence, hypothesis H5 is confirmed. This study assumed that facilitating conditions and behavioral intention explain the customer acceptance of e-banking in rural areas of Pakistan. In this regards, we found that both the hypotheses H4b-facilitating conditions (β=0.303; p<0.001) and H6-behavioral intentions (β=0.225; p<0.001) are supported. Their path coefficients and p-values are statistically significant to e-banking adoption. The structure model results show that our overall model explains 64.5% variance in BI and 25.6% in the adoption of e-banking.
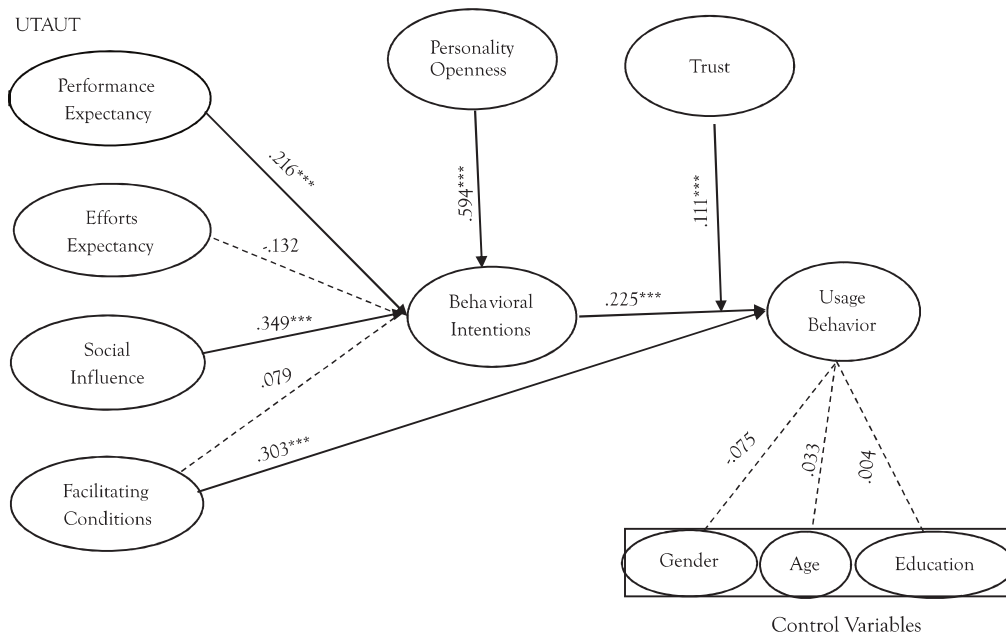

Figure 2: Model with Results

4.5. The moderating effect of trust

The proposed model of the study investigates the moderating role of trust on the internet. In this regard, Figure 2 represents that the interaction term (behavioral intentions × trust on the internet) has a significant effect on e-banking adoption (β=0.11, p <0.01). Our results show that the effect of behavioral intentions on e-banking adoption increases with a higher level of trust. Our results indicate that high behavioral intention was related to increasing e-banking adoption for individuals who have more trust on the internet.

Table 5: Overall Summary of the Hypotheses

Hypotheses	Path coefficient	Standard error	t-value	P-value	Study Results
H1: PE ⇝ BI	0.216	0.040	5.327	P< 0.001***	Supported
H2: EE ⇝ BI	-0.132	0.054	1.926	P> 0.05	Not Supported
H3: SI ⇝ BI	0.349	0.039	8.897	P< 0.001***	Supported
H4a: FC ⇝ BI	0.079	0.041	1.838	P> 0.05	Not Supported
H4b: FC⇝ UB	0.303	0.058	5.270	P< 0.001***	Supported
H5: PO⇝ BI	0.594	0.067	8.914	P< 0.001***	Supported
H6: BI⇝ UB	0.225	0.055	4.075	P< 0.001***	Supported
H7: BI× Trust ⇝ UB	0.111	0.053	2.106	P< 0.01**	Supported

Note: PE=Performance Expectancy; EE=Efforts Expectancy; SI=Social Influence; FC=Facilitating Conditions; BI=Behavioral Intentions; PO=Personality Openness; UB= Usage Behavior: N = 443; *P< .05, **P<.05, ***P<.01

Taken together, the results indicated that trust has moderation impact on the relationship between BI and e-banking adoption. The results in (see Table 5) confirm the hypothesis H7, which proposed that trust can moderate the path of behavioral intention and adoption. That's why people after having behavioral intentions will need to resolve the trust and security issues to use electronic technology. The result concedes that the higher the trust the higher the usage of internet banking in the rural areas.

5. Conclusion

The present study examined the determining factors that influence individuals' intention to adopt e-banking in the rural areas of Pakistan. The findings of the paper justify that the UTAUT model extended by personality openness and trust (moderator) is theoretically and empirically sound to ascertain the rural customers' intentions of e-banking in the country. Despite multiple studies that highlighted the acceptance of e-banking, there was a scarcity of studies focusing on rural areas/customers. Closing the gap, we used a model based on a survey questionnaire to integrate the framework of UTAUT with personality openness and trust. The integration presents a novel way to understand the emerging phenomenon of e-banking in the rural areas of developing countries. Overall, our proposed model reveals that internet banking is welcomed in the rural areas. The regulators need to focus on the determining factors that can uplift the proliferation of e-banking to the expected level.

Most of the coefficients in the model showed positive and significant relationships. Our model explains 64.5% variations in behavioral intentions of rural dwellers in Pakistan and 26% in their usage behavior, indicating a higher explanatory model than the original UTAUT model. There is a positive influence of performance expectancy on intentions signifying that customers are seeking to develop their performance by using the e-banking technology. The customers of rural areas might also increase their performance through e-banking channel. Our results provide consistent finding with the earlier studies of Ezzi (2014), Tarhini, El-Masri, et al. (2016), and Venkatesh et al. (2012). The regulators can better enhance online banking in rural areas by improving the quality of services and thus increasing customers' perception to use the technology. They may provide some type of manuals highlighting the rules and benefits of e-banking to guide rural customers. The result of efforts expectancy did not prove to be a salient determinant of behavioral intentions in the rural areas of Pakistan. The result is not consistent with the findings of (Venkatesh et al., 2003; Venkatesh et al., 2012), however, some recent studies support our results (e.g., Baabdullah et al., 2019; Khan et al., 2017). The rural customers may prefer to avail the beneficial characteristics of e-banking rather than merely the ease of use. The results imply that regulators and developers of e-banking might focus on users' friendly features of the online system to assimilate it properly in the far-flung areas of developing countries.

Social influence was found to be a positive factor representing that rural customer are influenced by their societal pressures, like friends, peers, relatives etc. in the acceptance of any technology. This is also because the rural areas are closely knitted in social relationships and the joint family system in Pakistan also adds to the significance of social influence. Another reason can be the collectivist culture of Pakistan where the social networks matter in acceptance of any technology. The

previous studies of (Afshan & Sharif, 2016; Venkatesh et al., 2012) reported similar results, indicating that the social influence was a positive enabler of e-banking in both rural and urban areas. The path of facilitating conditions towards customers' behavioral intentions was found insignificant whereas it affects the usage behavior positively. The rural customers may be unaware or unaffected by the online banking facilities. The customers can be benefited by providing them with some support like instructing them how to effectively use the e-banking or availability of real-time help. Providing internet services and the easy provision of digital gadgets can help increase the use of e-banking technology. Besides the external factors, the individual's internal/personality traits also influence the acceptance of any technology.

In our study, personality openness (openness to experience) to behavioral intentions, represented by H5, shows a positive and significant determinant of e-banking. The result indicates that openness fulfils its dominant role in the users' adoption of technology. Previous studies also verified that the 'openness to experience' has an impactful association with technology usage (Mark & Ganzach, 2014), and with social media (Hughes, Rowe, Batey, & Lee, 2012). The high scorers on openness express open-mindedness of the participants as they are curious to experience new technology (Guadagno, Okdie, & Eno, 2008). The study also used trust as a moderator and found that trust has a positive moderation effect on the path between customers' intentions and their actual usage of e-banking. The result details that if there is a trust on the internet and online banking, there will be a higher usage of the e-banking. As found by Alalwan, Dwivedi, Rana, Lal, and Williams (2015), the result advocates developing trust-building measures by banks/regulators to improve the quality of structural assurance, complete secrecy, legal coverage, and safety of financial information.

5.1. Implications

The study provides a comprehensive model illuminating the positive factors that can enable the acceptance of e-banking in the rural areas of Pakistan. To get the objective, the current study used a unified model i.e., UTAUT in combination with personality openness to better predict the behavioral intentions of rural dwellers towards e-banking adoption.

The study provides numerous theoretical contributions viz-a-viz literature of e-banking in Pakistan as well as other developing countries. First, it adds to the UTAUT literature by applying it in a new context with new user group (rural customers). As per the wordings of Venkatesh et al. (2012), their unified model can be extended, modified, and used in multiple contexts with different users' groups. The application of the unified model to understand the intentions of rural customers give fresh evidence to the applicability of the UTAUT model. This will soundly provide a base

for future studies to adopt the model in other contexts with some new technology/ users or new additions/modifications. This study also integrates personality openness highlighting the fact that personality models can have a wider application in e-banking adoption. As acknowledged by Mark and Ganzach (2014), the future theorists and academicians have better opportunity to formulate their studies with the inclusion of personality models. Furthermore, the use of a moderator (trust) contribute to the model and gives impetus to theory and future research.

The study enriches managerial practices in a number of ways. The findings can be utilized by the regulators and bank management to promote e-banking amongst the rural dwellers in Pakistan. The significant variables of the study can be focused on while devising strategies to reach every potential customer. Specifically, performance expectancy, social influence, and personality aspects need to be concentrated for expanding the net of e-banking to all the areas. The customers can be motivated if their trust and security issues related to electronic transactions are resolved (Dwivedi et al., 2015). In this regard, the service and system quality can be improved to get the customer's performance elevated and gain their trust in the system. As proposed by Baabdullah et al. (2019), the level of e-banking acceptance can be enhanced through supporting the rural customers in real-time, availability of facilities, the reliability of services and educating them towards the usage of e-banking. There must be some mechanisms to cross-check the online transactions, SMS service, deactivation option, email alerts, and other codes for authenticating the actual customers. Taking the worthy suggestions of Aboobucker and Bao (2018) Bank managers need to be more vigilant and use a more protective mechanism to safeguard their customers from any financial mishap.

6. Limitations and Future Work Suggestions

Besides the fact that the study gives multiple theoretical and practical contributions, there are few limitations that the authors tend to acknowledge. First, the study applied cross-sectional design in terms of time horizon, which is although correct in the case, yet future study can focus on longitudinal design for getting more robust results. Second, the current study has a small sample framework, where we used students' sample from rural areas. Although previous studies used and accepted the students' sample (Khan et al., 2017; Zhou, 2012), still there was a chance of external validity and generalizability issue (Bhattacherjee, 2012), implying to use a more inclusive sample. As the data has been taken from rural customers, so it could not be applied to other demographic groups of urban areas. New research can appropriately use a larger sample from more rural areas in the developing countries, as well as in Pakistan. Using the direction of Kaleem and Ahmad (2009), this model can also be used from

organizational perspective (like SMEs) in the urban or rural areas of Pakistan or other developing countries. Third, the research was limited to the users' technology and personality-related factors, and thus ignored the social, psychological, religious, legal and cultural paradigms that might have effects on the e-banking adoption. The future researchers can work on a larger sample including all the other aspects into its domain. Finally, this work has been accomplished in Pakistan where the concept of e-banking is still in its embryonic stage. The results have implications for those countries that have similar settings and are not generalizable to the developed economies. New research can include some other variables like digital regulations, digital literacy, and other aspects of security that may affect financial transactions. Moreover, as suggested by Baabdullah et al. (2019), the model can be integrated with some other IS models, like task-technology fit model, initial trust model, or innovation model etc., which will further help strengthen its explanatory power. The model is worth using in new contexts of e-developments like mobile banking, m-tourism, m-health, and e-learning.

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Appendix 1: Cross-loadings

	UB	BI	EE	FC	PE	Openness	SI	Trust
UB1	0.691	0.254	0.484	0.323	0.341	0.434	0.330	-0.032
UB2	0.692	0.328	0.390	0.342	0.512	0.399	0.336	0.083
UB3	0.747	0.305	0.275	0.278	0.571	0.284	0.240	0.145
UB4	0.753	0.297	0.372	0.333	0.554	0.383	0.208	0.158
BI1	0.406	0.892	0.442	0.540	0.528	0.601	0.696	0.092
BI2	0.380	0.915	0.444	0.539	0.486	0.710	0.600	0.088
BI3	0.323	0.877	0.352	0.443	0.412	0.555	0.562	0.067
BI4	0.3532	0.723	0.432	0.345	0.362	0.167	0.152	0.243
EE2	0.295	0.242	0.647	0.316	0.437	0.392	0.254	-0.002
EE3	0.273	0.198	0.643	0.299	0.399	0.361	0.292	0.017
EE4	0.348	0.367	0.743	0.352	0.460	0.648	0.394	0.035
EE5	0.439	0.411	0.770	0.472	0.534	0.709	0.385	0.069
FC1	0.372	0.501	0.459	0.824	0.570	0.521	0.442	0.009
FC2	0.336	0.437	0.396	0.768	0.473	0.418	0.397	0.000
FC3	0.345	0.369	0.384	0.761	0.433	0.430	0.440	0.061
FC4	0.348	0.462	0.462	0.771	0.452	0.564	0.433	0.109
PE1	0.516	0.392	0.502	0.408	0.655	0.450	0.413	0.035
PE2	0.534	0.413	0.445	0.405	0.783	0.400	0.321	0.087
PE3	0.578	0.390	0.508	0.492	0.761	0.446	0.273	0.068
PE4	0.424	0.387	0.489	0.538	0.762	0.453	0.376	0.033
PO1	0.334	0.714	0.401	0.500	0.354	0.774	0.714	-0.055
PO2	0.324	0.310	0.683	0.313	0.419	0.624	0.265	0.108
PO3	0.424	0.410	0.704	0.451	0.504	0.741	0.330	0.193
PO4	0.444	0.370	0.705	0.463	0.483	0.688	0.327	0.168
SI1	0.298	0.389	0.414	0.409	0.339	0.408	0.736	-0.084
SI2	0.308	0.383	0.477	0.309	0.395	0.492	0.744	-0.093
SI3	0.279	0.608	0.368	0.484	0.341	0.546	0.845	-0.036
SI4	0.369	0.725	0.399	0.510	0.429	0.606	0.874	-0.076
TU1	0.121	0.092	0.034	0.021	0.074	0.072	-0.016	0.825
TU2	0.087	0.030	0.013	0.032	0.025	0.058	-0.127	0.755
TU3	0.098	0.091	0.032	0.095	0.081	0.115	-0.059	0.808
TU4	0.041	0.065	0.010	0.015	0.035	0.079	-0.099	0.662

Appendix 2: Survey Questionnaire

Performance Expectancy (Venkatesh et al., 2003; Venkatesh et al., 2012)
PE1: I find electronic banking useful in my daily life.
PE2: Using electronic banking increases my chances of achieving things that are important to me.
PE3: Using electronic banking helps me accomplish things more quickly.
PE4: Using electronic banking increases my productivity.
Effort Expectancy (Venkatesh et al., 2003; Venkatesh et al., 2012)
EE1: Learning how to use electronic banking is easy for me.
EE2: My interaction with electronic banking is clear and understandable.
EE3: I find electronic banking easy to use.
EE4: It is easy for me to become skillful at using electronic banking.
Social Influence (Venkatesh et al., 2003; Venkatesh et al., 2012)
SI1: People who are important to me think that I should use electronic banking.
SI2: People who influence my behavior think that I should use electronic banking.
SI3: Use of electronic banking is a status symbol in our environment.
Facilitating Conditions (Venkatesh et al., 2003; Venkatesh et al., 2012)
FC1: I have the resources necessary to use electronic banking.
FC2: I have the knowledge necessary to use electronic banking.
FC3: Electronic banking is compatible with other technologies I use.
FC4: I can get help from others when I have difficulties using electronic banking.
Personality Openness (Yoon & Steege, 2013)
PO1: I am curious about many different things.
PO2: I like to think up new ways of doing things.
PO3: I like to challenge the norms.
PO4: I am open to challenging technologies.
Trust (Carter & Belanger (2005)
T1: I think I can trust on the electronic banking website.
T2: The e-banking website can be trusted to carry out online transactions faithfully.
T3: In my opinion the electronic banking website is trustworthy.
T4: I trust the e-banking website to keep my best interests in mind.
Behavioral Intention (Venkatesh et al., 2003; Venkatesh et al., 2012)
BI1: I intend to continue using electronic banking in the future.
BI2: I will always try to use electronic banking in my daily life.
BI3: I plan to continue to use electronic banking frequently.