WOULD GENDER, EDUCATION AND AGE INFLUENCE INTERNET BANKING ADOPTION CONSTRUCTS IN JORDAN?

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ABSTRACT

Internet banking is becoming a commodity rather than a strategic choice for banks in the 21st century. This study aimed at exploring the influence of the factors adopted from the SERVQUAL model and extended with trust and security to predict customer satisfaction with IB. The second objective is to see if education, gender, and age have significant influence on the constructs proposed by the research model. The study utilized a questionnaire to measure the research model utilizing a structural equation modeling technique. Results emphasized the role of security concerns, reliability and responsiveness in predicting the level of trust in IB. Also, trust was a significant predictor of satisfaction in IB services. The level of prediction yielded 22% of the variance in satisfaction. Finally, nearly no influence was estimated by all three demographic factors in determining the level of all model variables.

KEYWORDS

Internet Banking, education, gender, age, SERVQUAL, trust, customer satisfaction, Jordan, PLS.

1. INTRODUCTION

Internet banking (IB), e-retailing, mobile commerce, and other systems can be treated as innovations and self-service technologies among customers who adopted such technologies (Yousafzai & Soriano, 2012). Consequently, recent research showed that banks emphasized the benefits of such new application in an effort to increase customers' satisfaction and decrease bank's expenses (Kim et al., 2009). IB evolved when financial institutions (especially banks) began to offer their operations online, which provides many advantages for banks like the freedom of geographical constraints, operating in new market places, expand delivery options, improve performance, increase customers' loyalty, and reduce cost of operations. Also, customers benefit from a customized and personalized service, and a reduction in wait

time for the sake of more convenient service (Liao & Cheung, 2008; Cheng et al., 2008; Cheung & Lee, 2005; Yee & Faziharudean, 2010).

Researchers focused on understanding how banking institutions are trying to make customers happy and how to make them more loyal. They investigated users' acceptance and satisfaction of IB based on the quality of services provided and the factors related to it (Luo et al., 2010). The SERVQUAL model mainly describes how the quality of the website along with its services will affect users' acceptance and satisfaction with IB. The core dimensions of this model are: Empathy, Reliability, Responsiveness, Assurance, and Tangibility (Udo, Bagchi & Kirs, 2010; Collier et al., 2006).

Past research asserted that the highly educated people have generally higher likelihood to adopt IB; the same can be extended to the influence of gender and age (Clemes et al., 2012). Mattila et al., (2003) concluded that people older than 65 years are considered late adopters of IB. Although Mutengezanwa and Mauchi, (2013) found an association between IB adoption and educational level, occupation, age and income, some researchers argued that there are no differences between Internet users based on age or educational level. Hennigs et al, (2010) mentioned that females are more familiar with IB. In contrast, Okeke and Okpala (2014) found that males are more inclined to use IB.

This paper will extend the SERVQUAL model to include perceived trust, perceived risks (security and privacy concerns) and identify the impact of these factors on Jordanian users' satisfaction with IB. In addition, it will examine if the demographic factors influence the adoption of the IB and its quality measures.

2. LITERATURE REVIEW

Many innovations have recently cloned the way banking activities are executed in an aim to accelerate the diffusion of financial services (Suping & Yizheng, 2010). Although IB is widely adopted all over the world, strategies must be developed to make customers aware of this technology based on its service delivery contributions. Many studies addressed the challenges that arise when using IB and how banks should gain customers' confidence and intention to use such systems (Khan et al., 2014; Abu-Shanab & Pearson 2007; Md Nor & Pearson, 2007; Md Nor et al. 2008). Major challenges include avoiding the high failure rate of such innovative service, perceived risk, security assurance, privacy of users, and reliable and convenient connectivity (Kesharwani, & Bisht 2012; Aldas-Manzano et al., 2011; Nasri, 2011). The following sections will review the literatures related to these challenges and factors.

2.1 Service Quality Concerns

Organizations are starting to realize that customers' perceptions of service satisfaction is influenced by the electronic service quality which is defined as customers' judgment regarding the delivery of the service in the online marketplace along with the outcomes of the service (Ramseook-Munhurrun & Naidoo, 2011; Santos 2003). The issue of e-service quality is being recognized as a strategic issue because its influence on customers' attitude towards the services offered like their willingness to pay, trust, loyalty, and site intention (Ladhari, 2010).

E-service quality (E-SQ) is defined as the expansion of the purchase process from the early phases (navigating the website, comparing and choosing the product, and protecting personal information) to the post phases (delivery, support, execution, and reclamation policy) (Parasuraman et al, 2005). In the online environment customers can save time and effort while comparing prices, and interacting with the website with confidence; the absence of person-to-person interaction can increase efficiency. IB is a service that captures many aspects of E-SQ like customers' side, online direction and the bank service/product quality (Jun &Cai, 2001).

The SERVQUAL model is probably the most widely used service quality instrument (Parasuraman et al 1988; El Saghier & Nathan, 2013) comprising 22 survey-items that measure the difference between performance and expectations as a gap score based on five distinct dimensions.

1. *Tangibles*: include the physical equipment, physical appearance of the personnel staff and communication materials. It is defined as the visible things in the banking environment that affect customers' satisfaction like well-decorated offices, good looking personnel, and visually appealing materials.
2. *Reliability*: performing the committed service accurately. It is also defined as the level of sincerity of the bank and its employees in handling any problems related to the service, its provision on the right time, an error free service, a customized service, and a 24/7 availability.
3. *Responsiveness*: the level of readiness to help customers and provide the required service emphasizes the employee's level of response and involvement for customers' required assistance and the good understanding of their needs and wants. Responsiveness includes service recovery and problem solving, keeping track of customer's safety in his transactions and ensuring the proper delivery of services.
4. *Assurance*: the knowledge and friendliness of employees and their capability to create trust and confidence. It is related to how employees are dealing with customers' and their importance.
5. *Empathy*: The level of caring and individualized attention the bank provides to its customers. It represents also the attitude towards solving problems and making customers feel they are important

Although the SERVQUAL model has been largely utilized within a wide range of service organizations (dental, library, healthcare, information systems...etc.), it has received many criticisms regarding its conceptualizations and operationalization. The model was used within an e-commerce domain along with system quality and information quality to capture the content of the website and its quality (Cai & Jun, 2003; Rai et al., 2002). The resulting modified SERVQUAL model can measure customers' satisfaction. Cheung and Lee (2005) demonstrated the role of information quality, system quality, and service quality in influencing customer's satisfaction within Internet shopping. The authors found that only three out of five dimensions of the SERVQUAL model (assurance, empathy and responsiveness) are related to measuring SQ.

Udo, Bagchi and Kirs (2010) explored the dimensions of web site quality depending on customers' perceptions and expectations. These dimensions were perceived risk, web site content, and convenience. They relied on using the SERVQUAL model to examine the constructs of the operational SQ and they concluded that the service convenience and the content of the website will have an important influence on customers' satisfaction of SQ and this is a good indicator of the behavioral intentions.

2.2 Internet Banking Perceived Trust and Perceived Security

As defined earlier, IB is providing banking services via a secure website that use the Internet as a delivery channel (Kim et al., 2008). Trust is one of the crucial factors in e-commerce because of the uncertainty that makes customers irresolute about making online purchase unless they trust the e-service provider (Abu-Shanab & Ghaleb, 2012). This is even more important in IB, where the risk is high due to the absence of face-to-face interaction between the customer and traditional banks where the customer can evaluate the service provided. Kim et al. (2008) developed a trust based decision model that describes how a customer decides to conduct an online purchase. Their research results showed that trust, perceived risk and benefits are key factors that affect customer's intention to purchase.

Research investigated the factors influencing customer's loyalty towards IB like trust, SQ, perceived value and reputation. Results indicated that when IB provider meets customers' needs and provide them consistently, customers become more trusting and loyal (Yee & Faziharudean, 2010). Other research focused on factors like: structural assurance, trust in physical banks, and trust in IB (Montazemi & Saremi, 2013). Trust in the IB requires that banks minimize the degree of uncertainty and risk that exists in their online environment compared to the traditional setting in order to ensure the continuous use of customers (Yieh et al., 2007; Dahiyat et al., 2011).

Many studies identified security risks as one of the most important barriers for online customers who are expected to make an online transaction (Laukkanen et al., 2008). Research indicated that security and privacy are major antecedents of intention to use a website (Yousafzai et al., 2009; Abu-Shanab & Abu-Baker, 2011). Perceived risk is defined as *"customer's thought about the potential uncertain negative consequences of purchasing the product or service"* (Kim et al., 2008, P. 546), which influences the user trusting behavior. Since perceived risk appeared in the technology adoption process, the state of affairs creates feelings of uncertainty and anxiety (Featherman & Pavlou, 2003; Abu-Shanab & Ghaleb 2012; Kim et al., 2008).

Various types of risks have been identified in research: financial, physical, performance, time, social, psychological and cost risk (Jacoby & Kaplan, 1972). Security and privacy were found to be prevalent obstacles to the adoption of the IB in Australia (Sathye, 1999). Security is considered a significant part of the cognition-based trust antecedent (Kim et al., 2009). It has been widely recognized as one of the major barriers to the adoption of IB (Aladwani, 2001).

Security threat is defined as *"circumstance, condition, or event with the potential to cause economic hardship to data or network resources in the form of destruction, disclosure, modification of data, denial of service, and/or fraud, waste, and abuse"* (Kalakota & Whinston, 1996, p. 224). Security threats can be technical ones which can be made either on the network, data transaction attacks and software applications.

2.3 Demographic Factors influence on IB Adoption

Previous research discussed the factors influencing IB, its adoption and use. Moreover, research examined a wide range of issues such as demographic factors, growth of commercial use and other differences (Hoffman et al., 1996; Cockburn & Wilson, 1996; Teo & Lim, 1997; 2000; Abu-Shanab et al. 2010). Huang (2005) proclaimed that due to the rapid increase in the

number of young men and women Internet users, and the continued rapid expansion of the IB and the commercial services, it is indispensable to examine the demographic variables that are associated with IB (Al-Ashban & Burney, 2001; Karjaluoto et al, 2002). In another research, a proposed model examined the direct relationship between demographic variables (gender, age, educational level) and motivation variables and how they affect Internet use activities (Teo, 2001).

Several studies have investigated the gender variable and found that there is a relationship between gender and computer use ability. Qureshi and Hoppel, (1995) said that males are better than females, while Times (1996) showed the antithesis. Females should cope their computer anxiety and become confident IT users at work and at home (Karjaluoto et al, 2002). Parasuraman and Igbaria (1990) claimed that no difference is accounted for gender. Rainie and Packel (2001) reported that the number of women (58%) who bought online exceeded the number of men (42%). Hung (2006) found that men are more influenced by the advantages of IB and they are expected to be the prevailing when using IB. Some commercial websites are intended to be women-centric to better target the needs of the growing number of female Internet users (Huang, 2005).

Times (1996) and Kerem (2002) showed that the Internet users tend to be young adult and they would be very much attracted to utilize innovative banking services, while in the Ramayah and Koay (2002) research, the probability of adopting Internet banking decreases by the age of the family members. The mid-aged people are more likely to use Internet banking than younger or older consumers and they will have an important effect on subsequent adoption of further new technology (Akinci et al., 2004; Laforet and Li, 2005). Spacey et al (2004) showed that older people are less convenient when using technology. Kleijnen et al (2004) said that the age has an effect on the perceived usefulness, perceived ease of use, and intention to use in wireless financial services acceptance. Al-Jamal & Abu-Shanab (2015) concluded that age is a significant predictor of the intention to use technology.

In the context of IB, Abu-Shanab (2011) supported the influence of education as a moderated of the relationships between behavioral intention and four variables: PE, SE, PT and LOC. Al-Ashban and Burney (2001) investigated the adoption of tele-banking in Saudi Arabia, the result showed that the educational level played an important role in the adoption and usage of tele-banking. Laukkanen and Pasanen (2008) contradicted such result by concluding that educational level is insignificant in differentiating between users. Porter and Donthu (2006) emphasized the role of education as being associated with the Internet and customer attitude towards IB adoption. People with higher educational level may have competence for computers and possess good information processing skills, which better facilitate Internet use (Nasri, 2011). Izogo et al (2012) found that more educated consumers adopt e-banking more than the less educated ones.

It is still not confirmed whether gender, age or education are significant predictors or moderators of technology adoption. Previous research utilized intention to use, but this study will utilize satisfaction as an ultimate construct defining the adoption process. This contribution of this study would be the first according to the knowledge of authors.

3. RESEARCH METHODOLOGY

Two major objectives of this study were aimed. The first is to investigate the factors influencing the satisfaction in IB. The SERVQUAL notion will influence the level of trust in IB, which in turn will influence satisfaction level. Thus, service quality has a strong indirect effect on customer's satisfaction and future behavior. The research model in Figure 1 assumed the relationships and related attributes that have an impact on satisfaction of IB.

Service quality dimensions: This research has explored five SERVQUAL dimensions and adopted four of them by merging the assurance and empathy dimensions. The four dimensions are hypothesized to influence service quality. Based on this the following four hypotheses are stated:

H1a: Perceived tangibles will have a positive influence on IB overall service quality.
H1b: Perceived reliability will have a positive influence on IB overall service quality.
H1c: Perceived responsiveness will have a positive influence on IB overall service quality.
H1d: Perceived assurance and empathy will have a positive influence on IB overall service quality.
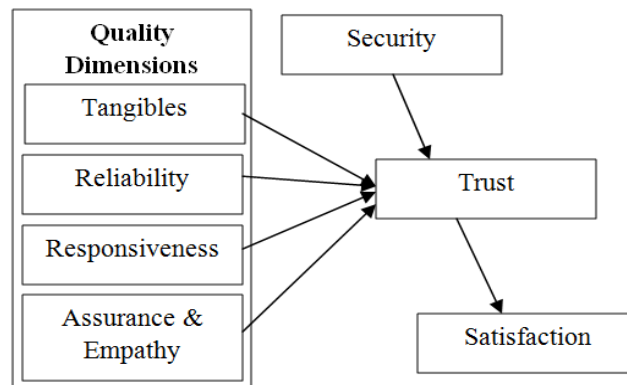

Figure 1. The proposed research model

The second objective is to see if a difference between such major variables exist according to three major demographic factors: Education, gender and age. Such issue will be investigated using an ANOVA test utilizing the factors as determinants of difference.

Perceived security concerns: Aladwani (2001) considered security as one of the major barriers to the adoption of IB. The basic security control requirement used to protect and secure customer's data can be summarized into five categories: authentication, non-repudiation, confidentiality, privacy protection and data integrity. Based on this, the following hypothesis can be stated:

H2: Customers' perceived security of IB will have a positive influence on customer satisfaction.

Perceived trust: There are different trust dimensions in IB like trusting the bank, online environment provider, and the wireless infrastructure (Luo et al., 2010; Abu-Shanab, 2014;

Abu-Shanab & Al-Azzam, 2012). The unique characteristics of the IB like the extensive online transactions, reduction of physical contact with the teller, and uncertainty nature of the technology, make trust a critical factor (Grabner-Kräuter, & Faullant, 2009). In some cases it depends on the previous interactions (Dahiyat et al., 2011) and it acts as a subjective guarantee to make sure that the customers receive the required benefits from the exchange as expected or not (Suh & Han, 2003). Based on that, the following hypothesis is stated:

H3: Customer trust in IB will have a positive influence on customer satisfaction.

This study utilized an instrument with 5 items measuring tangibles, 6 items measuring reliability, 7 items measuring responsiveness, 4 items measuring responsiveness and empathy, 7 items measuring security (dropped 4 of them and kept 3 only after a PLS estimation), 5 items for trust, and 5 items measuring satisfaction. The survey included a Likert scale with 1 representing strongly disagree, and 5 as strongly agree. The instrument items were adopted from previous research related to IB.

The sample of this study consisted of 178 surveys collected randomly in May 2015, with 67 males and 111 females. As for age, 81 subjects were younger than 35 years, and 97 subjects were older than 35 years. To estimate the proposed model an SEM analysis utilizing SmartPLS software and algorithms was conducted. The SmartPLS tool is free for academic purposes and calculates easily the item loadings and the correlations (path coefficients for the whole model are depicted).

The estimated model yielded a good fit with loading to the endogenous variable at acceptable levels (more than 0.6). All beta values more than 1.95 can be considered significant at the 0.05 level error rate. Figure 2 represents the estimated model, and Figure 3 represents the bootstrapping estimation. The model yielded significant prediction of Satisfaction (beta = 0.22). Trust was predicted with a larger beta =0.501, which indicates its importance in summing the perceptions of subjects towards the service quality and security dimensions influence on satisfaction. We can see in Figure 3 that the assurance and tangibles are not significant in predicting trust. The final research model result is shown in Figure 4.

To attain the second objective, an ANOVA test was conducted to estimate the influence of education, gender, and age on satisfaction. The major question is to see if the three factors are defining with respect to the research model. The test utilized the summated variables of all model factors and estimated an ANOVA test using one of the three demographic factors as a factor determining the difference.

The first factor used was gender, where results indicated non-significant results on all factors except for tangibles. Such result is not surprising and indicates a contradiction to previous research by Hoppel (1995) and Hung (2006), but a support of the claims of previous mentioned research which claimed no differences accounted for gender (Parasuraman & Igbaria, 1990; Times, 1996). Table 1 depicts results in the second and third column.
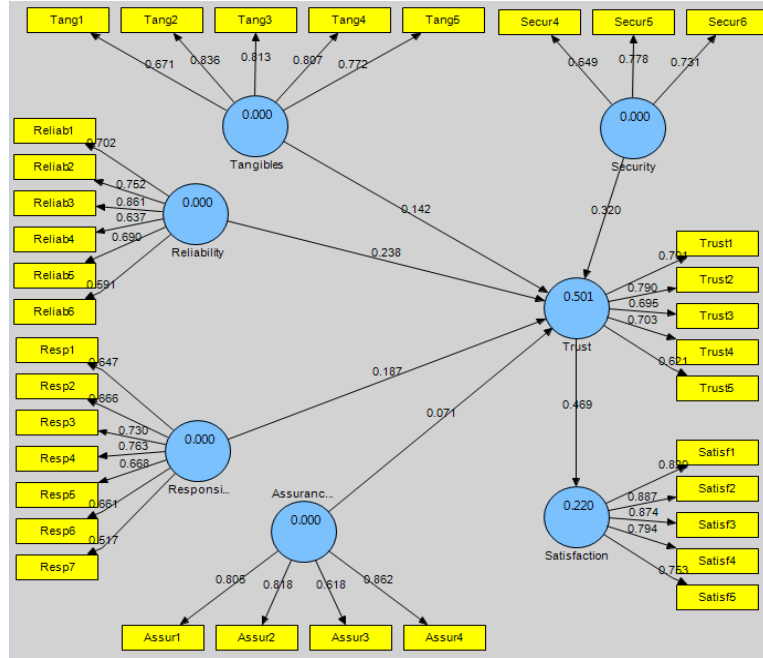
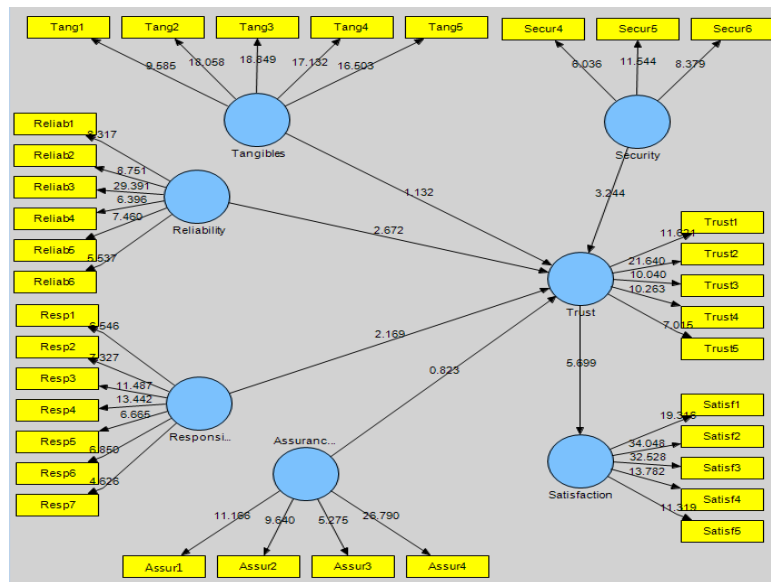Figure 2. PLS estimation of the model *(Using SmartPLS, Source: Ringle, 2005)*

Figure 3. PLS bootstrapping estimation of the model *(Using SmartPLS, Source: Ringle, 2005)*

Table 1. The ANOVA test results for gender, age and education

ANOVA	Gender		Age		Education	
Factors	F	Sig.	F	Sig.	F	Sig.
Reliability	1.101	0.296	0.145	0.866	0.279	0.840
Responsiveness	1.558	0.214	2.120	0.123	2.476	0.063
Assurance	0.943	0.333	0.543	0.582	0.086	0.967
Tangibles	5.955	**0.016**	0.307	0.736	2.586	0.055
Trust	1.181	0.279	0.036	0.964	1.534	0.207
Privacy	3.125	0.079	0.953	0.387	2.505	0.061
Security	0.002	0.961	0.101	0.904	0.246	0.864
Satisfaction	2.283	0.133	0.467	0.627	0.362	0.781

Similar to such result, no differences are accounted for age and education, Table 1 depicts such results also. The last four columns indicates no significant results for all variables accounted for education and age. As for age, this result contradicts with previous research done by Times (1996) and Kerem (2002).

Also, when testing for education, no significant results were accounted for education factor. Such results contradicts with previous research (Abu-Shanab, 2011; Al-Ashban & Burney, 2001), but supports the work of Laukkanen and Pasanen (2008).

4. CONCLUSIONS

This study aimed at exploring the SERVQUAL model and the influence on customers' satisfaction in IB. The study adopted four factors and extended with trust and security, where we conceptualized that all SERVQUAL factors and security concerns will strengthen the level of trust in the bank and in IB. Such process will eventually improve customer's satisfaction. Results yielded a significant prediction model with reliability, responsibility, and security positively predicting trust ($R^2 = 0.501$). Assurance and empathy construct failed to predict trust like the tangibles construct. Finally, trust significantly predicted satisfaction ($R^2 = 0.22$). This result means that our conceptualized factors can predict 22% of satisfaction. This result means that H1a, H1d were not supported. H1b, H1c, H2 & H3 are supported. The resulting model is shown in Figure 4.
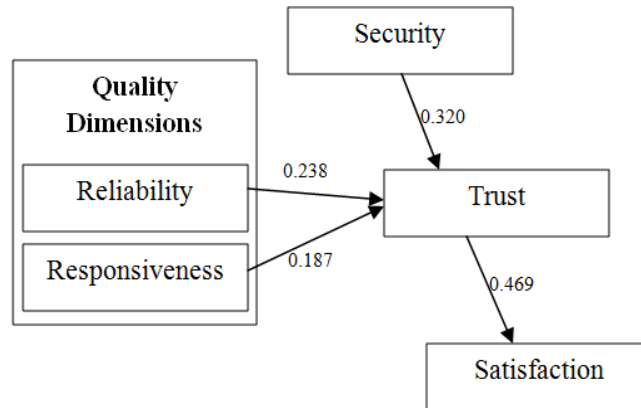
Figure 4. The Final research model

This research emphasized the role of reliability of service were customers rely on acquiring the exact service offered (time, accuracy, customization and convenience) and how the bank is handling customers problems. Also, customers depended on responsiveness, which means providing the required service, the proper assistance, and attaining customer's needs. Finally, security is important when dealing with financial transactions, and thus banks need to secure their systems against hackers and other vulnerabilities. This research emphasized the mediating role of trust in collecting all customers concerns and reflecting their influence on satisfaction.

The second major objective of this paper is to explore the influence of demographic factors. Previous research and most technology adoption models utilized gender, education and age as moderators of predictors of technology adoption (Tarhini et al, 2015). Results indicated no significant role of all three demographic factors (gender, age and education) except for one factor (gender) and only for one construct from our research model (tangibles). The same construct was close to be significantly differentiated by education, but still according to social sciences, results with an alpha more than 0.05 are not considered.

This study suffered from some limitations like the sample size, and the newly translated instrument, which yielded a loss of 4 items from security concerns. Language has a major influence on research results. Also, some items loaded with an acceptable value on their major construct but with a value between 0.6 and 0.8. Previous research recommended the use of surveys with the same native language of respondents, which is Arabic (Abu-Shanab & Md Nor, 2012). Future research is recommended to improve our understanding of the SERVQUAL model by improving the Arabic survey, increasing the sample size, and focusing more on other variables like privacy and risk propensity of customers.

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