



## Research Article

# Use and Non-Use of Internet Banking Among Elderly People in Nigeria

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**Keywords:** Attitude; Elderly people; Ibadan metropolis; Perceived Usefulness; Use and non-use of internet banking

### Abstract

Existing research in electronic banking has not deeply investigated the determinants of use and non-use of Internet Banking (IB) among the older adults who have been found to exhibit reluctance in using ICT. This study, therefore, investigates the factors that influence use and not use IB among elderly people in the Ibadan metropolis, Nigeria. Survey research design was adopted. Findings indicate that, in addition to the TRA (attitude and subjective norms) and TAM (perceived usefulness and perceived ease of use) variables, trust, self-efficacy, security and facilitating conditions are the factors the elderly population consider in choosing to use or not using IB. Findings also reveal that the non-users have the intention of using IB in the future, while the users have the intention of continuing using IB. This study is novel in the sense that no known study have investigated use and non-use of IB among the elderly in Nigeria in a single study. The paper could assist policymakers in promoting and implementing policies that would ensure the financial inclusion of the elderly and reduce the digital divide between this group and the younger ones.

### Introduction

The emerging trend of information and communication technologies (ICT) in business today has led to the computerisation of banking activities. Increasing development of ICTs, particularly in the use of Internet for business transactions, has transformed banking operations from traditional system to an electronic banking (e-banking) system (Aliyu and Tasmin, 2012). E-banking is the use of automated information system to carry out financial transactions with or without bank customers' physical

presence at bank premises or designated locations. E-banking system comprises of interrelated technology components that facilitate financial operations with no real life people to people interaction. E-banking systems such as Automated Teller Machines, Point of Sale Terminals, web banking, mobile banking, and many other financial technologies have simplified banking activities for completion of transaction process in our society of today. E-banking makes financial technologies (banking channels)

accessible at customers' convenience without the need of meeting with bank staff. It is evident that with the aid of financial technologies, nearly all banking activities ranging from transfer of fund, withdrawal of fund, deposit of cash, enquiry of bank statement, payment of bills, telephone voucher top-up, and many more can be carried out by bank customers. All these services are made available through an automated bank operation system.

The innovations in the banking sector have made many nations of the world to tend towards going cashless, exploiting the many benefits of Internet to improve their economy. Virtually all the commercial banks in Nigeria have adopted IB in order to improve on service delivery and align with the technology age that is in practices all over the world. It has, however, been noted that despite many advantages of IB, a cross-section of consumers still doesn't use the technology (Braganza, 2017; Mattila *et al.*, 2003). For the older generation, who are not very familiar with digital technology and who often depend on cash, use of IB has been a herculean task. Thus, many of older adults are still lagging behind in the adoption and use of IB. The elderly people have historically been late adopters to the world of technology compared to their younger compatriots due to many barriers or challenges they face such as physical conditions or health issues that make it difficult to use new technologies, skeptical attitudes about the benefits of technology, difficulties learning to use new technologies, among other factors. In addition, most of the elderly people have little or no experience of using digital technologies, having being born in the pre-digital era.

Studies have tried to investigate use of IB among bank customers in various countries, however, no known study was found to have considered the elderly population which studies (e.g. Smith, 2014) have established are late adopters to the world of technology. In addition, while numerous studies have identified various factors that could influence use of IB, only one study (Braganza, 2017) was found to have identified factors that could also influence non-use. Thus, there is limited study on the extensive comparison between the factors influencing use and non-use of IB, especially in Nigeria. This study, therefore, seeks to investigate the factors that influence use and non-use of IB among the elderly in Ibadan metropolis, Nigeria. The study also seeks to investigate the intention of the IB users in continuing using IB, as well as the intention of the non-users to use the technology in the future. This study is necessary because, according to data from World Population Prospects: the 2015 Revision (United Nations, 2015), the number of older persons, those aged 60 years or over, has increased substantially in recent years in most countries and regions, and that growth is projected to accelerate in the coming decades. This calls for the need to consider the financial inclusion of this age category which will continue to increase over time.

## Literature Review

Age categorisation is at variance across different organisations, territories and regions globally. Even though there are commonly used definitions of old age, there is no general agreement on the age at which a person becomes old. The common use of a calendar age to mark the threshold of old age assumes equivalence with biological age, yet at the same time, it is generally accepted that these two are not necessarily synonymous. The elderly" are people over the age of 60. However, some countries adopt the age range of 65 and above as older adults. The United States government, for example, typically classifies people aged 65 as elderly, at which point citizens are eligible for federal benefits such as Social Security and Medicare. The United Nations has not adopted a standard criterion, but generally use 60+ years to refer to the older population (WHO, 2002). Realistically, if a definition in Africa is to be developed, it should be either 50 or 55 years of age, but even this is somewhat arbitrary and introduces additional problems of data comparability across nations. The more traditional African definitions of an elder or 'elderly' person correlate with the chronological ages of 50 to 65 years, depending on the setting, the region and the country (WHO, 2002). However, there is the difficulty of establishing a definition for Africa; the reason being that actual birth dates are quite often unknown as many individuals in Africa do not have an official record of their birth date. In addition, chronological or "official" definitions of ageing can differ widely from traditional or community definitions of when a person is older. Therefore, the pensionable age limit (60 years) often used by governments was adopted to set a standard definition of the elderly in this study.

As aging concept is continuous, there is a consensus that technologies can assist elderly adults to improve their living conditions, thereby promoting healthier life and living independently for longer period of years in their various settlements or communities. Modern technologies such as mobile phones, computers, home electronic appliances and many other assistive technologies offer wide range of solutions for older adults in order to live independently. Scholars (Kim, 2008; Marston *et al.*, 2016; Melander-Wikman, 2008; Nef *et al.*, 2013; Peek *et al.*, 2016; Selwyn, 2004) have identified technology as one of the solutions to the problems associated with aging. This is mainly because technology offers opportunities in providing support and in enhancing the daily lives of older people. Selwyn (2004) mentioned that the ability to use ICT is assumed a prerequisite to living in the information age. Therefore, ICTs is one of the tools that can ensure active ageing and socio economic participation for the elders.

Due to the high penetration of internet technology in Nigeria recently, the banking industry has joined their counterparts, all over the world, to develop a web based platform (internet banking) for customers to have access to

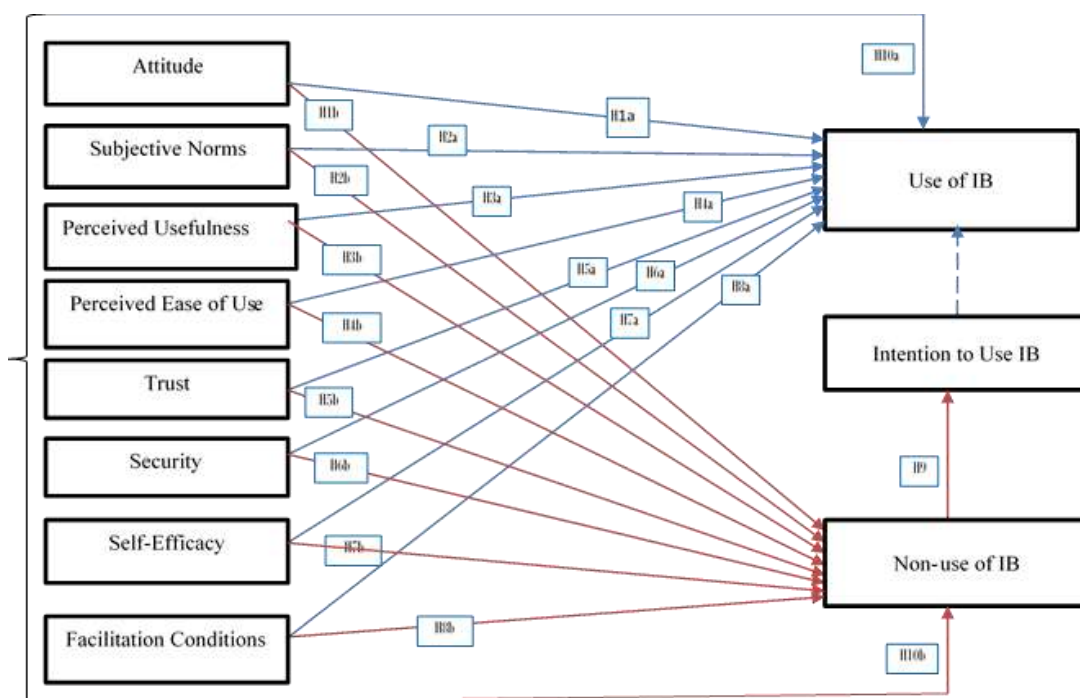
banks' products and services at their convenience, which could relieve people, especially the elderly, the burden of travelling down to bank branches for initiation and completion of financial transactions. Also, there are aging population supportive features made available via banks' website notably online/video chat and account demonstration guide. Hence, these services and technologies can really make life simple and easy for the aging population. IB can make it so easy for the aging population to have access to their accounts, with less effort, at their homes or business places anytime any day. However, a pertinent research question is to ask whether the Nigerian elderly population has embraced the use of IB and what factors influence use or non-use of the technology? These questions are provided answers to by this research.

**Theoretical Background, Research Model and Hypotheses**

Technology adoption theories such as the Theory of Reasoned Action (TRA), the Theory of Planned Behaviour (TPB), the Technology Acceptance Model (TAM), the Unified Theory of Acceptance and Use of Technology (UTAUT), the Motivational Model (MM), and the Diffusion of Innovation theory (DOI) have been used in predicting behaviour and behavioural intentions of using various technologies in diverse settings. The theories have been used to explain why and how people adopt new technologies, including IB, in diverse research disciplines. However, it has been noted that these theories may not be sufficient to investigate use and non-use of IB in the developing country context. This study, therefore, considered some other constructs, in addition to constructs

from the TRA and TAM, which may be pertinent to use and non-use of IB among the elderly population in Nigeria.

The TRA is conceived to explain human behaviour; that is, the determinants of consciously intended behaviours. It is based on the importance of an individual's beliefs for the prediction of his/her behaviour (Fishbein and Ajzen, 1975, 1980), as every action undertaken by an individual is determined by series of processes working together to culminate in decision taken, which the TRA aimed at understanding. This study adopts the variables Attitude, Subjective norms and Intention from the TRA. The second theory, the TAM, is a well-established, powerful, and parsimonious model for predicting user acceptance, and has been widely employed to investigate use of diverse set of technologies and users. Researchers (e.g. Adams *et al.*, 1992; Benbasat and Barki, 2007; Davis *et al.*, 1989; Mavetera *et al.*, 2014), have been able to establish that the theory has performed incredibly in exploring use of technologies. The variables PU and PEOU are adopted from the TAM. However, in order to have a comprehensive theoretical perspective of IB acceptance and use or non-use among the elderly in the context of Nigeria, the variables from the TRA and TAM are considered inadequate to succinctly investigate this issue. Hence, three additional variables, Self-efficacy (SE), Security (SEC), Trust (TR) and Facilitating Conditions (FC) are added because of the nature of level of technology skills possessed by the elderly, security concerns about IB, and availability of resources needed to use IB, which are all major issues in Nigeria with regards to technology use. The relationship among the variables are shown in the conceptual framework presented in Fig. 1.



**Fig. 1: The Conceptual Framework**

### **Attitude**

Attitude is “an individual’s positive or negative feelings about performing a behaviour” (Fishbein and Ajzen, 1975, p. 216). It is determined through an assessment of one’s beliefs regarding the consequences arising from a behaviour and an evaluation of the desirability of these consequences. ATT has been found to influence perception and hence, rate of adoption and extent of utilisation of various technologies. Behavioural models assume that users’ beliefs and attitudes toward a particular technology largely determine whether users exhibit the behaviour of using the technology. Generally, technology that an individual has a positive attitude towards is more likely to be utilised by the individual than the one he/she is not favourably disposed to use. Studies (e.g. Md Nor *et al.*, 2010) have supported the significance of ATT to behavioural intention to use and actual usage. In this study, the influence of the attitude of the elderly is examined on their use and non-use of IB; hence, it is proposed that:

**H1a:** Attitude of the elderly towards IB would influence their use of IB.

**H1b:** Attitude of the elderly towards IB would influence their non-use of IB.

### **Subjective Norms**

Subjective norm alludes to an individual’s observation that conducts of superiors that are important to the individual influence the way he/she behaves (Fishbein and Ajzen, 1975). Thus, SN is the perceived social pressure, where the superior try to persuade other people to perform, or to refrain from, the behaviour in question (Lee *et al.*, 2013). SNs of individuals such as peers, social influencers, social groups, opinion leaders, mentors, etc., could positively or negatively influence use of technology. SN has been found by previous studies (e.g. Ezzi, 2014; Nasri and Zarai, 2014; Zahir and Gharleghi, 2014) as one of the significant variables that has a great effect on the adoption and usage of IB through social influence such as friends, colleagues, and family members. Thus, it is proposed that:

**H2a:** Subjective norms of the elderly could influence their use of IB.

**H2b:** Subjective norms of the elderly could influence their non-use of IB.

### **Perceived Usefulness**

Studies (e.g. Davis *et al.*, 1989; Venkatesh and Davis, 2000) have proved that PU has a significant influence on intention, actual usage and continuance usage of technologies. Intention, usage and continuance usage is attributed to the gains or enjoyment derive or that would be derived from such technologies. Among the perceived gains or benefits derive from IB are convenience, easy access to financial information, monitoring of transaction activities, quick settlement of transactions, and many more. Studies such as

Arenas-Gaitán *et al.* (2015), Mavetera *et al.* (2014), and Nasri and Zarai (2014) indicate that a more critical factor to behavioural intention and actual use of IB is the perception of usefulness. Hence, the perception of the usefulness of IB could influence use by the elderly, while non-perception of usefulness could prevent use; hence, the next hypothesis:

**H3a:** Perception of usefulness of IB would influence use among the elderly.

**H3b:** Non-perception of usefulness of IB would influence non-use among the elderly.

### **Perceived Ease of Use**

PEOU, in this study, refers to the extent the elderly perceives IB as easy to understand and use. It is highly important for a system to be easy to learn and use by individuals because people tend to embrace system that is simple and require less effort to use, which makes them perform a task or accomplish more work, thereby enhancing job performance. If the elderly feel that IB is convenient and easy to use, they are more likely to use it and vice-versa. More so, because of the fact that majority of the elderly population may not be technology savvy, it is expected that PEOU may be more important for this aging population. Studies (e.g. Arenas-Gaitán *et al.*, 2015; Ezzi, 2014; Mavetera *et al.*, 2014) have found varying results with regards to the influence of PEOU on use of technology, hence, it is considered necessary to investigate the influence of PEOU on use and non-use of IB; hence, the fourth hypothesis:

**H4a:** Perceived ease of use of IB among the elderly would influence its use.

**H4b:** Non-perception of ease of use of IB among the elderly would influence its non-use.

### **Trust**

Trust has been identified as a crucial factor in online business transactions due to uncertainty of safety that makes individuals not to be confident toward e-banking channels usage unless there is assurance by the banks (Al-Fahim, 2013). Trust is found to be a strong influence on individual’s attitude toward accepting IB due to the absence of face-to-face interaction between bank customers and bankers (Popoola and Arshad, 2015). Studies (e.g. Alalwan *et al.*, 2014; Mavetera *et al.*, 2014; Zahir and Gharleghi, 2014) have proved that the higher the level of consumers’ trust in IB, the higher the chances of adoption and usage. The importance of trust in online transactions cannot be overemphasised as some degree of trust is essential in environments perceived to be risky, as the case of IB; hence, the inclusion of the variable in this study. It is, therefore, hypothesised that:

**H5a:** Trust in IB would influence use among the older population.

**H5b:** Lack of trust in IB would influence non-use among the elderly.

### **Security**

The security of financial transactions over the internet has become a critical concern that influences customers' intention to adopt and use IB. Yousafzai *et al.* (2010) define security in banking as customers' perceptions of the degree of protection against fear of fraud, account information privacy and provision of sophisticated hardware and software for business operations over the internet. One of the major determinants of IB adoption and use, that studies (e.g. Al-Fahim, 2013; Alwan and Al-Zu'bi, 2016; Ezzi, 2014; Suh and Han, 2002, 2003; Tarhini *et al.*, 2015; Zanoon and Gharaibeh, 2013) have found is the security of business transactions. Thus, IB will be used if the elderly perceive that the safety of its usage is guaranteed and vice versa; hence, the sixth hypothesis:

**H6a:** Perception of security of IB would influence its use among the elderly.

**H6b:** Perception of insecurity of IB would influence its non-use among the elderly.

### **Self-Efficacy**

Self-efficacy is the judgment of one's ability to use a technology (e.g. computer) to accomplish a particular job or task (Venkatesh *et al.*, 2003, p. 432). Self-efficacy reflects individuals' beliefs in their abilities to organise and execute the courses of action needed to complete specific tasks successfully in given context such as in tasks involving computers (Compeau *et al.*, 1999). Individuals are more allured to perform activities of which they have high self-efficacy and less allured to perform the task in which they have low self-efficacy (Bandura, 1995; Ezzi, 2014; Berkowsky *et al.*, 2018). In regards to this study, self-efficacy is treated as the elderly' belief about their ability to use IB independently. Self-efficacy has been empirically observed by researchers (e.g. Nasri and Zarai, 2014) as a determinant of individual's intention to use IB. John (2013) argue that, an individual who is highly skilful in term of using computer and internet to source for information and other needful activities may have a higher intention to embrace a system than an individual who has little or no skill relating to computing. Hence, a skilful older adults, with high knowledge of computing, may rate IB as easier to use than an individual who has relatively little knowledge of computing; thus, it is proposed that:

**H7a:** Self-efficacy of the elderly would influence use of IB.

**H7b:** Lack of self-efficacy of the elderly would influence non-use of IB.

### **Facilitating Conditions**

Facilitating conditions can be regarded as external environmental enablers and constraints to behaviour. Also,

it could be described as the degree to which an individual believes that the needed resources are available to complement with the expected opportunities, thereby leading to utilisation of the system (Venkatesh *et al.*, 2003). Studies have revealed that FC are capable of influencing individuals' intention to accept and use technology. Obviously, studies (e.g. Tarhini *et al.*, 2016) have shown that customers' behavioural intention to use and actual usage of IB were significantly and positively influenced by FC. Contrarily, studies of Alalwan *et al.* (2014) and Mbokoh (2015) found that FC did not have significant relationship with people's behavioural intention and use of IB. Hence, this study sought to know whether the availability or non-availability of FC would influence use of IB among the elderly; thus, the next hypothesis:

**H8a:** Availability of facilitating conditions would influence use of IB among the elderly.

**H8b:** Lack of facilitating conditions would influence non-use of IB among the elderly.

### **Intention to Use IB**

Behavioral intention (BI) measures a person's relative strength of intention to perform a behavior. BI encompasses the user's motivational factors that influence technology system usage behaviour. TRA posits that individual behaviour is driven by BI; hence, intention is an immediate antecedent of behaviour. Intention represents desires, wishes or willingness or self-instructions to behave in a certain way, and captures the motivational factors that influence behaviour (Ajzen, 1991). Intention is an indication of how hard an individual is willing to try, and of how much effort such individual uses in order to perform a behaviour. Intention, in this study, depicts the willingness or readiness of the non-IB users to use IB in the future. This implies that for IB to be used, the non-user must develop or nurture the intention to do so. Ajzen (1985, 1991), Armitage and Conner (2001), and Fishbein and Ajzen (1975) have shown that intention has a strong and direct influence on behaviour. It is assumed that non-use of IB could lead to intention to use and eventual use of IB; hence, it is proposed that:

**H9:** Non-use of IB could lead to intention to use IB in the future.

### **Use of IB**

Use of IB is the actual use of IB by the elderly to carry out their banking activities. Use of IB is assumed, in this, study to be influenced by ATT, SN, PU, PEOU, TR, SEC, SE and FC. Hence, it is hypothesised that:

**H10a:** Use of IB could be individually and jointly influenced by ATT, SN, PU, PEOU, TR, SEC, SE and FC.

**H10b:** Non-use of IB could be individually and jointly influenced by ATT, SN, PU, PEOU, TR, SEC, SE and FC.

### Methodology

Survey research design was adopted for the study. The location of this study is the Ibadan metropolis, Oyo State, Nigeria. The population of study are the elderly, aged 60+, who resides in the Ibadan metropolis and who are account holders of commercial banks. Ibadan metropolis has five local government areas (LGA), namely Ibadan North, Ibadan South, Ibadan South West, Ibadan North West and Ibadan North East. The population of the elderly in the LGA is indeterminate; hence, they were selected by convenience and snowball sampling techniques. Two sets of questionnaires were used for data collection. The questionnaires utilised both open and close ended questions. Measurement items were adopted from Braganza (2017) and Mbrokoh (2015). The items were rated on a five-point Likert scale ranging from (Strongly Disagree (1) to Strongly Agree (5). Three researchers helped to check the instruments for face and content validity. Reliability of the instrument was tested through internal consistency. The Cronbach Alpha results, presented in Table 1, show that all

the variables have alpha ( $\alpha$ ) not less than the acceptable threshold of 0.70.

Administration of the two sets of questionnaires were conducted by the researchers with the help of five research assistants. The researchers visited homes, pension houses, banks, markets, shops, churches, mosques and relaxation centres for the data collection. Five hundred respondents were selected for the study, that is, 50 IB users and 50 non-users, from each of the LGA. However, 91 IB users and 187 non-IB users participated in the study, thereby giving 55.6% response rate. Respondents were made to be aware of the purpose of the study in order to get their informed consent, and make them understand that the study is purely for research purpose. They were also assured of the anonymity and confidentiality of their responses. Only respondents that were willing to participate in the study were involved.

### Results

Pearson correlation analysis was carried out to establish the strength of relationship and direction of relationship between dependent variables (use of IB and non-use of IB) and independent variables (ATT, SN, PU, PEOU, SE, TR, SEC and FC). All hypotheses were tested in the null forms. The level of significance was pre-set to 5%. The results are presented in Table 2.

**Table 1:** Cronbach alpha result for IB and non-IB users

	Users		Non-Users	
	No of Items	Cronbach Alpha	No of Items	Cronbach Alpha
ATT	4	0.783	4	0.815
SN	4	0.729	4	0.820
PU	4	0.723	4	0.794
PEOU	4	0.784	4	0.802
TR	4	0.831	4	0.862
SEC	4	0.859	4	0.819
SE	4	0.858	4	0.731
FC	4	0.961	3	0.805
Use of IB	5	0.795		
Continuance intention to use IB	4	0.819		
Non-use of IB			3	0.902
Intention to Use IB			4	0.895

**Table 2:** Spearman correlation results of the hypotheses

		Null Hypotheses		Use of IB	Decision		Non-Use of IB	Decision
Spearman Correlation	Ho1a	ATT	Correlation Coefficient	0.535**	Rejected	Ho1b	0.479**	Rejected
			Sig. (2-tailed)	0.001			0.000	
			N	89			179	
	Ho2a	SN	Correlation Coefficient	0.554**	Rejected	Ho2b	0.512**	Rejected
			Sig. (2-tailed)	0.000			0.000	
			N	88			186	
	Ho3a	PU	Correlation Coefficient	0.515**	Rejected	Ho3b	0.514**	Rejected
			Sig. (2-tailed)	0.000			0.001	
			N	89			180	
	Ho4a	PEOU	Correlation Coefficient	0.513	Rejected	Ho4b	0.684**	Rejected
			Sig. (2-tailed)	0.000			0.000	
			N	89			185	
	Ho5a	TR	Correlation Coefficient	0.778**	Rejected	Ho5b	0.672	Rejected
			Sig. (2-tailed)	0.000			0.004	
			N	88			180	
	Ho6a	SEC	Correlation Coefficient	0.716**	Rejected	Ho6b	0.769**	Rejected
			Sig. (2-tailed)	0.001			0.000	
			N	89			185	
	Ho7a	SE	Correlation Coefficient	0.695**	Rejected	Ho7b	0.499**	Rejected
			Sig. (2-tailed)	0.000			0.000	
			N	86			183	
	Ho8a	FC	Correlation Coefficient	0.538	Rejected	Ho8b	0.527**	Rejected
			Sig. (2-tailed)	0.003			0.002	
			N	86			183	
** Correlation is significant at the 0.01 level (2-tailed).								

**Table 3:** Spearman correlation results of the hypotheses

		Null Hypotheses			Intention	Decision
Spearman Correlation	Ho9	Non-Use	Correlation Coefficient		-0.208**	Accept
			Sig. (2-tailed)		0.001	
			N		183	

All the variables have moderate positive correlations and significant relationships with use of IB, except for TR and SEC and SE where the correlations are strong. Thus, the attitudes of the IB users, their subjective norms, their perception of usefulness of IB, their perception of ease of use of IB, their self-efficacy at using technology, the trust they have in IB, their perception of the security of IB, as well as availability of resources needed to use IB influence use among the elderly users in the Ibadan metropolis. The results also show that for an increase in the values of these variables, there would be an increase in use of IB among the elderly, which means that these variables need to be promoted among the elderly to increase IB use.

For non-use of IB, the analysis reveal that all the variables also have moderate positive correlations and significant relationships with non-use of IB, except for PEOU and SEC where the correlations are strong. Thus, the results shows that the attitudes of the non-IB users, their subjective norms,

their non-perception of usefulness of IB, their non-perception of ease of use of IB, lack of self-efficacy at using technology, lack of trust in IB, their perception of insecurity of IB, as well as non-availability of resources needed to use IB influence non-use among some elderly in the Ibadan metropolis. The results also show that, for an increase in the values of these variables, there would be an increase in non-use of IB, which means that these variables need to be taken into cognisance when advocating for use of IB among the elderly people.

Table 3 presents the results for hypothesis 9. The relationship between non-use of IB and intention is significant with negative and low correlation ( $r = -0.208$ ,  $p = 0.001 < 0.05$ ). This shows that the elderly non-users have the intention to use IB in the future. However, the results show that an increase in the value of non-use of IB would result into a decrease in intention to use, and vice versa.

Hence, the more the elderly refrain from using IB, the less their intention would be to use it.

Table 4 presents the results of the multiple regression analysis done to test for Hypothesis 10, showing the individual as well as the joint contribution of the variables to use of IB.

The results show a coefficient of determination (R Square) value of 0.761. By implication, 76.1% of the variation in Use of IB is influenced by all the independent variables, while the remaining 23.9% can be attributed to other factors. The correlation coefficient (R) value of 0.826 also indicates a strong positive relationship between the independent variables and the dependent variable. In other words, high levels of ATT, SN, PU, PEOU, SE, TR, SEC and FC are associated with high level of the elders' use of IB. In addition, the significance of the effect of the independent variables on the dependent was also assessed; and the results show that all the independent variables jointly determine use of IB by the elders ( $F(8, 91) = 75.170$  and  $p = 0.000 < 0.05$ ). After determining the joint effect of the independent variables on the dependent variable, the individual effect of each of the independent

variables on the dependent variable was also examined. The results indicates that apart from SE ( $p = 0.090 > 0.05$ ) and FC ( $p = 0.071 > 0.05$ ), all the other independent variables are significant predictors of Use of IB. The results further show that PEOU exhibited the largest effect ( $\beta = 0.586$ ) on Use of IB.

The individual as well as the joint contribution of the variables to non-use of IB were also tested as presented in Table 5. Results show joint significant relationship of the variables on non-use of IB ( $F = 73.278$ ,  $R = 0.725$ ;  $R^2 = 0.687$ ;  $p = 0.001 < 0.05$ ) with the variables accounting for 68.7% of the variance in non-use of IB. Hence, all the variables jointly determine non-use of IB, whereas PU, PEOU, SN, SE, and TR individually determine non-use of IB among the adults, while ATT, SEC and FC do not. The results also show that PU exhibited the largest effect ( $\beta = 0.571$ ) on Non-use of IB.

The study also investigated the intention of the IB users to continue using IB. Table 6 presents the descriptive analysis of the results. Almost all the elderly has the intention of continuing using IB, with item "I intend to continue using IB" having the highest mean score (3.20).

**Table 4:** Results of multiple regression results of joint influence of independent variables on dependent variables

	Predictors	Beta weight	t-value	Sig.	R (coefficient of relationship)	R <sup>2</sup> (coefficient of relationship)	F-ratio	Sig.
Ho10a	ATT	0.456	2.865	0.000	0.826	0.761	75.170	0.000
	SN	0.388	3.447	0.001				
	PU	0.455	3.450	0.000				
	PEOU	0.586	2.945	0.000				
	SE	-0.425	2.619	0.090				
	TR	0.455	3.136	0.000				
	SEC	0.526	3.013	0.000				
	FC	0.543	2.338	0.071				
Dependent variable: Use of IB								

**Table 5:** Multiple regression results of individual and joint influence of independent variables on dependent variables

	Predictors	Beta weight	t-value	Sig.	R (coefficient of relationship)	R <sup>2</sup> (coefficient of relationship)	F-ratio	Sig.
Ho10b	ATT	0.425	2.226	0.156	0.725	0.687	73.278	0.001
	SN	0.193	2.719	0.043				
	PU	0.571	2.560	0.000				
	PEOU	0.294	-2.307	0.000				
	SE	0.264	0.262	0.000				
	TR	-0.138	-0.428	0.003				
	SEC	0.413	0.333	0.061				
	FC	0.206	0.502	0.140				
Dependent variable: Non-use of IB								



**Table 6:** Descriptive analysis of continuance intention of the IB users in using IB

Measurement Items (N=91)	SD	D	U	A	SA	Mean
I intend to continue using IB	1 (1.1%)	1 (1.1%)	7 (7.7%)	75 (82.4%)	7 (7.7%)	3.20
I will continue to do most of my banking transactions online	1 (1.1%)	1 (1.1%)	5 (5.5%)	61 (67.0%)	23 (25.3%)	3.16
I will frequently use IB	0 (0.0%)	16 (17.6%)	5 (5.5%)	45 (49.4%)	25 (27.5%)	2.90
I do not intend to continue using IB in the future	64 (70.3%)	22 (24.2%)	5 (5.5%)	0 (0.0%)	0 (0.0%)	2.21

Values given in parentheses indicate percentages

**Table 7:** Descriptive analysis of intention of the non-users to use IB

Measurement Items (N=187)	SD	D	U	A	SA	Mean
I may consider using IB in the future if my bank encourages me	9 (4.8%)	6 (3.2%)	11 (5.9%)	59 (31.6%)	102 (54.5%)	3.38
I may consider using IB in the future if I am able to acquire the skills that I need	10 (5.3%)	33 (17.6%)	19 (10.2%)	28 (15.0%)	97 (51.9%)	3.29
I would use Internet banking in the future if I have no other choice	17 (9.1%)	29 (15.5%)	23 (12.3%)	43 (23.0%)	75 (40.1%)	3.21
I may likely use IB in the future	22 (11.8%)	35 (18.7%)	25 (13.4%)	24 (12.8%)	81 (43.3%)	2.77

Values given in parentheses indicate percentages

Likewise, the study sought to know the intention of the non-user towards using IB. Their responses, shown in Table 7, reveal that most of them are favourably disposed to using IB in the future. However, the item "I would use Internet banking in the future if my bank encourages me" has the most agreement (86.1%), mean score = 3.38.

### Discussion of Findings

All the variables have correlations and significant relationships with use and non-use of IB, even though with varying correlation coefficients and level of significance. Regarding the core TRA constructs, the results of this study lend support to the findings of many studies who have found that ATT and SNs influence intention and behaviour (use and non-use of IB in this study). ATT and SNs have been found to be strong influencing factors on use of IB in a noteworthy amount of studies examining IB use in various contexts. Studies, such as Braganza (2017), Camilleri and Grech (2017); Hill *et al.* (2015), Gitlow (2014), and Piiparinen (2014), have confirmed that, generally, technology that older adults has a positive attitude towards is more likely to be utilised, while the one that an individual has negative attitude towards will not be used. This explains

that the elderly users have favourable attitudes towards IB, while the non-user have unfavourable attitude towards the technology. Likewise, the influence of SNs on use and non-use of IB has been supported by some other studies (e.g. Braganza, 2017; Ezzi, 2014; Nasri and Zarai, 2014; Zahir and Gharleghi, 2014), which shows the importance of social pressure in influencing the users and non-users' intentions to use IB. Even though, Venkatesh *et al.* (2003) explain that users of technology are affected by referent groups and by individuals' necessity in a voluntary context, as the case of IB use, this study results indicate that SNs have significant positive influence on use and non-use of IB, which shows the significant influence of referent peers or groups. However, past research findings have also shown that SNs is a factor of greater importance among inexperienced users as found by Braganza (2017) and Venkatesh *et al.* (2003). In this context, it is advised that banks could persuade the elderly users to help in promoting it to the non-users, through positive word-of-mouth. Banks could also employ the use of social websites and communities the elderly belong to promote IB benefits.

The results of this study, with regards to the TAM variables (PU and PEOU), indicate that the two key variables have moderate correlations and significant relationships with use and non-use of IB by the elderly. Perception of usefulness has been found to be a strong influencing factor on intention and actual use of various technologies, as well as IB (Mavetera *et al.*, 2014; Yousafzai *et al.*, 2010). Hence, when the elderly finds IB as a useful mean to perform their banking transactions, then they are more likely to have better perception about using the technology. Therefore, banks should improve the quality of IB system based on users' suggestions to attract more users and meet their expectations and needs. In order to achieve this, banks could provide user manual that include a detailed instruction about the benefits of the system. Ease of use or usability is not a factor to be overlooked, as studies have also confirmed its strong influence on use of technologies, IB inclusive. This study shows that the elderly IB users found IB easy to understand and use, while the non-users perceived it as requiring a lot of efforts to use, which influenced their non-use. This finding supports the findings of Ronning and Solvberg (2017), which explain that the elderly who are users of IB sometimes find it difficult to navigate through webpages of IB platform; as a result, they spend longer time to get business transactions completed. This study found that majority of the elderly are not so skilful at using technology which, in turn, may discourage them from trying to use IB. Some of them actually confessed, informally, to the researcher during the data collection process that they are not technology savvy. Some said their children and wards help them operate even their cell phones. Thus, it is expected that this category of people will not want to embrace the use of IB and would prefer simple and easy to use technology because of their peculiarities, as some do forget procedure to use technology if it is complex. Peek *et al.* (2016) have explained that, in most cases, when technology usage procedure is complex they either decide not to use at all or call on someone else to help them. Therefore, it is advised that software developers should design more user friendly IB interfaces in order to encourage consumers with less computer skills to adopt and use the system.

Trust has been found to be an important factor in most online business transactions because of the risks associated with online transactions. This study found support for the influence of trust on use and non-use of IB as other noteworthy studies (e.g. Alalwan *et al.* 2014; Al-Fahim, 2013; Jham, 2016; Mavetera *et al.*, 2014; Suh and Han, 2002, 2003) have also found. Older adults have been found to frequently deploy the concept of trust when discussing digital technologies; hence, it can be assumed that lack of trust in IB is largely responsible for the low use of IB among the elderly population. In face-to-face banking transactions, customers build trust based on physical

interactions and human mannerisms of bank officials, compared to the faceless online banking which do not give the users the benefits of human interaction, making users base their use or non-use on the perception of trust or distrust they have on the online sites. It is, therefore, expedient for banks officials to educate the elderly on the security measures they have put in place on their IB interfaces, assurances of stress-free transactions, as well as unhindered accessibility to the IB platforms at all times. This would help build the trust of the non-users and help increase the trust of the users that the system will not fail them.

This study found that perception of security or lack of security has a strong correlation on use ( $r = 0.778$ ) and non-use ( $r = 0.672$ ) of IB. Similar strong influences have been found in the studies of Aldás-Manzano *et al.* (2009). In fact, security has been indicated by past research to influence usage intentions not only directly but also indirectly. In general, security has been widely identified as factors influencing the acceptance and use of IB (Yousafzai *et al.*, 2010; Al-Fahim, 2013; Alwan and Al-Zu'bi, 2016; Ezzi, 2014; Tarhini *et al.*, 2015; Zanoon and Gharaibeh, 2013). This finding suggests that the elderly are aware of the likelihood of compromise of their safety on online platforms, and may not find IB to be fully dependable, as errors during the performance of a transaction may occur, due to human errors or system malfunction. There is bound to be some form of security concern by the elderly because of the kind of loss that could be suffered when the security of IB is compromised, and for the fact that the elderly are not technology savvy. It is, therefore, advised that banks should enhance consumer confidence and trust in using IB by providing secure and reliable platforms. Safety measures such as firewalls and intrusion detection should be provided during any IB transaction. In addition, banks should create awareness about safety measures when using IB, such as non-disclosure of passwords and account information to third parties.

In addition, this study found a strong influence of SE on use and non-use of IB. This finding supports findings by Nasri and Zarai, (2014). Some of the elderly have been able to acquire skills in using technology, mostly phones, through their children, family and community intervention, as a result of their willingness not to be left behind in the technology age. However, interactions with the elderly reveal that their skill levels are not so advanced. Some of the IB users stated that their children and families actually made them start using IB by training them. Since studies have confirmed that individuals are more allured to perform activities of which they have high SE and less allured to perform the task in which they have low SE, it is expected that the elderly with SE will likely use IB, while those without will not use.

A growing number of studies suggest that FC play an important role in the actual usage behaviour of technology (Alalwan *et al.*, 2014; Tarhini *et al.*, 2016; Yu, 2012) and the findings of this study confirm this. Resources needed to use IB, such as money, computer, smartphone, internet connectivity devices (modem), may be a great issue because of the financial status of the elderly. Besides, unavailability or poor of Internet service in Nigeria could be frustrating and thus discourage the elderly from using IB. Therefore, provision of ICT infrastructure needed for smooth usage of IB, such as uninterrupted internet access, computers, mobile phones could be made available, at discounted rates or through low interest loans, to the elderly in order to encourage them use the technology.

In addition, this study found that all the variables have positive correlations with use and non-use of IB. This indicates that the more the IB users have positive feelings towards IB, the more they perceive their referents believe they should use IB, the higher their perception of usefulness and ease of use of IB, the higher their SE, trust in IB, and perception of security of IB, and the more the availability of FC, then, the more the elders will use IB. On the other hand, the more the non-IB users have negative feelings towards IB, the less they perceive their referents believe they should use IB, the lower their perception of usefulness and ease of use of IB, the lower their SE, trust in IB, perception of security of IB, as well as non-availability of FC, the more they will not use IB. Hence, these factors need to be taken into cognisance when advocating for use of IB among the elderly people.

This study also found that most of the non-IB users have the intentions of using IB in the future. Many factors have been found to determine behavioural intention, among which are some of the variables this study has identified. As a general rule, the stronger the intention to engage in behaviour, the more likely a behaviour will be performed. So, it can be assumed that since the elderly have the intentions of using IB in the future, there is every likelihood that they will use it. It has been confirmed that behavioural intention, which is assumed to be an immediate antecedent of behaviour, is an indication of an individual's readiness or willingness to perform a given behaviour.

In addition, the study reveals that most of the elderly IB users have the intention of continuing using IB. According to the prominent expectation confirmation theory (ECT), developed by Oliver (1980), customers' intention to continue using a certain product or service is heavily dependent on their satisfaction with the past usage of those products and services. In the information technology context, the users' decisions to continue using an information system can be compared to the customer's intentions to repurchase (Bhattacharjee, 2001). The ECT has been adapted by Bhattacharjee (2001) to be consistent

with the context of information system and suggested that continuance intention to use specific system is usually affected by some factors. Other studies have also found that continuance intention of using a technology could be influenced by PU (Li and Luximon, 2018; Susanto *et al.*, 2016), PEOU (El-Kasheir *et al.*, 2009), Trust (Susanto *et al.*, 2016) Perceived Risk (Kassim and Ramayah, 2015), ATT (Kassim and Ramayah, 2015), satisfaction (Li and Luximon, 2018; Oliver, 1980; Susanto *et al.*, 2016), among other factors. It, then, means that the elderly IB users have positive attitude, are deriving some benefits, have found IB easy to use, thus satisfied with the use of IB for their banking transactions. Hence, banks need to improve on the services delivered through the IB platforms so that the users will continue to derive satisfaction from using the services.

## Conclusion

This study has been able to contribute to knowledge in the area of adoption and use of IB by identifying some of the factors that the elderly considers in using and not using IB. The research provides banks with knowledge of the factors to highlight in their strategies to increase IB services adoption and use. Banks could leverage these factors to promote and enhance use and continuous use of IB among the elderly. This study is novel in the sense that no known study have investigated use and non-use of IB among the elderly in Nigeria in a single study. Thus, to some, extent, the study is comprehensive in that both use and non-use of IB are considered. It is recommended that efforts could be made by banks to organise free computer skill acquisition training for this category of customers who did not have the privilege of being taught computer at younger ages, in addition to promoting the many benefits of IB, especially to this category of population.

The study has some limitations. First, it is limited to only five LGA in Oyo state; hence, future studies could try to enlarge the scope to cover the entire Oyo State or Nigeria. Second, data was collected with only one instrument; future studies could consider combining interview with questionnaire as instruments for data collection in order to have a more robust opinion of the elders. Some other variables could also be studied to provide for a more robust study.

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