The Degree of Readiness of South African Senior Citizens for Electronic Banking: An Exploratory Investigation

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Abstract

Our contribution reports the results of an exploratory investigation into how ready South African senior citizens are to adopt electronic banking practices (e-Banking). We base our conclusions on an exploratory survey of 70 senior citizen bank customers that reside in old age centres in Gauteng and North-West provinces, with Gauteng considered to being predominantly urban and North West Province considered to be predominantly peri-urban. Electronic banking (e-Banking), requires that senior citizens have bank accounts and are registered at their banks to access those electronically via ATMs, via landline telephones or smart cell phones. Our findings reveal that senior citizen bank customers who have access to electronic services and products are ready for electronic banking.

Keywords: e-Banking, technology, ICTs, TRI, senior citizens, South Africa, Cellphone banking, Internet banking, relationship marketing, adoption.

Introduction

There is a growing body of research about how organisations in free market open societies worldwide are increasingly being transformed by giving their customers access to their products and services via electronic communication technologies, linked over the Internet (e-Commerce, e-Government, e-

Health). By contrast, considerably less is known about the impact of these technologies on the every-day personal lives of people at the periphery of economic activity, like for instance senior citizens, particularly ones in rural communities.

The banking industry is among the early adapters to these technological innovations. As a result, the banks are able to provide their customers services and products such as Automatic Teller Machine (ATM) banking, real-time transactions with bank cards, Internet banking, landline telephone banking and more recently, cell phone banking services (Termsnguanwong 2010).

Among some of the benefits of these technological services and products for the banks is improved efficiency resulting from reduced operational costs compared with traditional branch networks (Bateng & Kamil 2010; Padachi, Rojid & Seetanah 2008). In addition, the provision of technological products and services, such as cell phone and Internet banking, have the potential to increase the market shares of participating banks (Termsnguanwong, 2010). For customers, the benefits of the technological services provided by the banks include increased convenience, and time saving, irrespective of a customer's age (Padachi, Rojid & Seetanah 2008). This study measures the technology readiness and adoption by senior citizen bank customers, and establishes the relationship between technology readiness, access to technology, and desirability of usage among this segment of bank clients.

Problem Statement

Technological banking services offer benefits and positive prospects for both the banks and their customers. Despite the benefits of the technological banking services and products, the South African banks do not seem to be successful in getting customers to use these services in numbers. Customer adoption is a recognised dilemma for the strategic plans of the banks throughout the world (Safeena, Abdullah & Date 2007). Therefore, it is befitting to conduct this study to measure the technology readiness of senior citizen bank customers of the South African banks, and to determine the relationship between technological readiness and technology-related adoption and behaviour of existing and prospective senior citizen bank customers. The

relationship between age and the adoption of technology has been a researched area for some time (Rose & Fogarty 2010; Chung *et al.* 2009; Xiong & Mathews 2005).

Orientation

The age of customers as a moderator in business decision making is a dominating modern marketing decision making discussions as a result of the overall increases in the global senior populations (Tanderayen-Ragoobur & Aygra 2011; Chung *et al.* 2009; Berger & Genzler 2007). South Africa is growing into an ageing society with older persons constituting approximately 7.7% (3,9 million) of the population (Statistics South Africa 2011). The Older Persons Act (2006) defines a senior citizen as a person who, in the case of a male, is 65 years of age or older and in the case of a female is 60 years or older. It is projected that by 2025, more than one person in ten will be 60 years or older in this country (Joubert & Bradshaw 2006).

Many senior citizens have savings facilities with the banks and make use of the investments products offered by the banks (Pieterse 2008). These bank customers generally have had bank accounts with their banks for long periods, and have become accustomed to face-to-face interactions with bank staff. Senior citizen bank customers are also accustomed to banking products such as bankbooks that were preferred banking channels before the introduction of technology-based channels.

Senior Citizens as a Growing Customer Segment

The world population trends demonstrate an effective growth in the number of elderly people globally, which is not met by a corresponding increase in population rates of younger generations (United Nations 2002). According to a recent report by Deloitte (Consumer 2020), numerous factors drive people to have fewer children (Hutter 2011). As countries progresses through their development phases, many of their citizens undergo various lifestyle changes such as more females putting focus on their careers and thus having children very late in life (Hutter 2011). On the opposite side of the shrinking average sizes of households are the increasing life expectancy of countries as a result of improving living conditions and medical advances. The outcome of these developments is the shrinkage in labour forces, consumption and output

which may have overall dire effects (Hutter 2011; United Nations 2002).

Pieterse (2008) argues that in the past, senior citizens received care from their children when they reached the age of seniority and this is no longer the case. Care for senior citizens is increasingly becoming their own responsibility, and this is often met through long-term savings and state pensions (Pieterse 2008). Because of these changes in societal structures, many senior citizens in the country either live on their own or belong to special care facilities or old age centres. Despite their age seniority, the majority of senior citizens in the country remain economically active in many ways such as managing their banking affairs. As a result, senior citizen customers have become a target population for many businesses these days (Mattila, Karjaluoto & Pento 2003). While not deriving regular income from salaries, as is the case with society members of working age, senior citizens receive regular income from state pensions and in some cases, from their investments.

For instance, the South African Social Services Department is currently disbursing over R7bn in state funds to senior citizens in the form of social pensions (Case & Deaton 1996). Therefore, the national take-up of old age pensions in the country will inevitably increase simultaneously with the rising numbers of the elderly, making this demographic group a growing market segment for the banks and many businesses.

At present the usage patterns of banking services among senior citizens that have access to banking services differ from that of younger working members of the society. Ordinarily, senior citizens mostly use their banking facilities for savings which in most cases constitute their main sources of income (Pieterse 2008), thus contributing to bank deposits. The levels of bank deposits are regulated by the South African Reserve Bank as a sustainability measure of the local banking industry (South African Reserve Bank 2007/08).

The Technology Acceptance Model (Tam)

The implementation of Information Communication Technologies (ICTs) always arise questions of whether a new technology will adapt to the demands of its intended audiences (Park *et al.* 2009). Identifying factors that cause people to accept technology and make use of technological innovations

is one of the challenges of IT (King & He 2006). The Technology Acceptance Model (TAM) is a model developed to explain and predict user's acceptance of IT.

Davis (1986) is credited for developing the TAM (Webber & Kaufman 2011; Im, Hong & Kang 2011; Lee & Chung 2009; King & He 2006; Wu & Wang 2005; Shih 2004). According to the TAM (Figure 1), a person's acceptance of IS is determined by their perceived usefulness and perceived ease of use of the technology (Davis 1986), and these predictors determine actual use of the system (Davis, Bagozzi & Warshaw 1989). The TAM predictors are centred on the belief system of users about the usefulness of a system in the achievement of an end objective, and on whether the usage of such IS require less effort from them.

Ayo *et al.* (2010) explain though that the TAM predictors of perceived ease of use and perceived usefulness are not just antecedent to technology adoption and use, but also serve as an element of customer retention in self-service environments such as banking. In banking, technology is extensively used in the provision of electronic services such as Internet banking. Al-Somali *et al.* (2009) conducted research on the determinants of Internet banking adoption in Saudi Arabia. They found that the quality of the Internet connection, among some of the constructs of TAM, was an important predictor of the adoption of Internet banking in that country.

The Technology Readiness Model

The Technology Readiness model (TR) is a model developed to measure people's propensity to embrace and use new technologies for the accomplishment of goals in home life and at work (Parasuraman 2000). Therefore, TR is an attitudinal construct (Westjohn & Arnold 2009). As a result, in terms of the TR model, people's personalities play a significant role when they adopt new technologies either in the context of work or home (Chen & Li 2010). Therefore, the TR model essentially explores the psychological aspects of a person's reactions to technologies (Brush, Edelman & Monolova 2011).

The TR model measures the readiness of an individual to use technology by four personality traits that include optimism, innovativeness, discomfort and insecurity (Chen & Li 2010). Accordingly, these four

dimensions demonstrate a person's overall state of mind to embrace and use technology (Lee *et al.* 2009; Walczuch, Lemmink & Streukens 2007).

The Technology Readiness Index score classifies five categories of adopters of technology: innovators, early adopters, early majority, late majority, and laggards. The TRI does not indicate the competence of a person in using technology, but shows their readiness to interact with it and their attitudes (Walczuch *et al.* 2007).

Lin and Hsieh (2007) investigated the readiness of self-service technologies of adult consumers in Taiwan, including their satisfaction with these technologies. The research covered self-service technologies that are used in banks, railways, airlines, rapid transit systems, and the stock exchanges. The technology readiness of the study's population was measured via the 36-items scale of the TRI (Parasuraman 2000). The study's findings are that technology readiness is a driver of the satisfaction with self-service technologies. As a result, it was found that the higher the technology readiness of customers is, the more likely they will be satisfied with self-service technologies (Lin & Hsieh 2007).

Services Relationship Marketing and Technology

Relationship marketing is a marketing construct concerned with the creation of long-lasting relationships between a business and its customers (Boshoff & du Plessis 2009). In contrast to traditional marketing which is characterised by push activities that are geared at influencing customers, relationship marketing acknowledges that consumers are no longer merely passive recipients, but key stakeholders in a two-way relationship with the companies that they support (Liu2007).

Customer satisfaction and trust are some of the main antecedents of relationship marketing (Wahab, Noor & Ali 2009). Trust is a central aspect to the building of long-lasting relationship as it is the fundamental source of positive action. The outlook of technology driven commercial activities should not only be based on the individual acceptance of these technologies as viable transaction means, but also on the recognition of these technologies as reliable milieu (Al-Gahtani 2008).

Gefen and Straub (2000) define trust as the belief that the other party to the transaction will behave in a socially responsible manner, and thus fulfil the expectations of the trusting party. Technology trust reduces uncertainty in

technology-mediated environments and is an essential requisite for all potential and current users (Hernandez-Ortega 2011:1). Customer relationship marketing has the effect of influencing the behaviour of the customer on their intentions to use or re-use technology based services, proving the significant of trust in this regard (Wahab, Noor & Ali 2009).
A benefit of relationship management for the firm is customer retention and loyalty. Profitability, reduced costs and increased brand equity are among the many benefits of retained and loyal customers (Boshoff & Du Plessis 2009).

Technology and Relationship Marketing in Banking

The banking industry has become a leading sector in the utilisation of technology on consumer markets (Barati & Mohammadi 2009). The relationship marketing efforts of the banks, in particular, are highly affected by technology as the banks continue striving for long lasting relationships that are based on trust with their customers.

In their study examining factors influencing the adoption of Internet baking in Taiwan, Wong, Rexha and Phau (2008) introduced the notion of perceived credibility as a new factor that reflects the user's security and privacy concerns in the acceptance of Internet banking. Credibility of a banking institution is one of the primary contributors to customer loyalty in banking given the high trust relationship that accompanies the customer-provider relationship in banking. Wong *et al.* (2008) findings were that perceived credibility had a significant effect on behavioural intentions of the participant, where credibility relates to user's security and privacy concerns.

In addition, technological advances have given birth to a new breed of customers on the marketing platform that are difficult for businesses across all spectrums to service satisfactorily (Masocha *et al.* 2011). Technology has given these customers access to more information that has widened their tastes and choices. As a result, customers have ready access to information on countless services options to choose from. This therefore, further makes it more challenging for services organizations such as banking institutions to find a better fit between technologies that they use for service provision and their various customer segments.

Service Quality and Relationship Marketing in Technology-based Services

The advancements in technology have a high impact in the manner that services firms interact with their customers. More and more services firms are motivated to invest in technology in order to exceed the expectations of their customers because firms that perform better are those that overcome the cynicism of customers and go beyond the point of encounter (Ombati 2010). Ombati *et al.* (2010), refer to technology-based services as performances whose delivery is mediated by information technology and service quality is said to refer to the extent to which a service meets, or even exceeds, a customer's expectations.

Service quality has the effect of improving customer repeat purchase behaviour, perceptions of value and positive word of mouth (Boshoff & du Plessis 2009). As a result, quality and value perceptions are the basis on which customers become loyal (Lee *et al.* 2009). Parasuraman and Grewel (2000) argue that service quality offers a greater competitive advantage for services firms because the price of a service, and the service itself, can be copied but competitors are not able to copy the quality of service. When the service offered by a firm is of quality, this will increase its perceived value and, in turn, increase customer loyalty. Both these factors have the effect of increasing a services firm's performance.

Wahab *et al.* (2009) investigated the role of electronic service quality on customer relationship management in the cellphone industry. This study (Wahab, Monami & Noor 2009) was conducted with a sample of University students in Jordan and its findings were that e-service quality had a significant relationship with customer relationship management.

Technology-based Banking Services

The banking industry across the globe is continually undergoing a paradigm shift in the way it conducts its business because of advances in information technology. The usage of a single channel, in the form of bank branches, to provide service to customers is outdated as technology is increasingly being used. The continued search for improved profitability, increasing market shares, and enhancing the experience of customers thus gaining their loyalty and lifetime value are some of the drivers of the increased usage of

information technologies in the business of banking (Masocha, Chiliya & Zindiye 2011).

The strategic importance of technology to the banks is even more pronounced when taking into account the competition that banking industries throughout the world are facing from non-bank financial services providers, such as retailers (Porteous 2007). South Africa, like many economies, is gradually experiencing the proliferation of non-bank service providers that are providing traditional banking services to customers, particularly retailers. The non-bank service providers generally have advantages such as large geographic footprints. Also, by their nature, retailers enjoy relationships with their customers and have the benefit of customer loyalty as a result of the closeness in relations between services providers and customers associated with this industry.

Self-service Banking Technologies

Technology based self-service channels are changing the way in which service firms and their customers interact (Ombati *et al.* 2010). Self-service technologies are technologies that allow a customer to produce a service through an interaction with the technology and without the direct involvement of the service provider. Technology innovations have extensively aided the usage of self-service channels in banking. The centrality of processing information to the business of the banks and other financial intermediaries has made self-service technologies viable for them (Sannes 2001). Self-service banking channels include channels such as ATM's, telephone banking, Internet banking, EFTPOS (Electronic Funds Transfer at Point Of Sale) terminals and other interactive kiosks.

The banking industry in South Africa relies on self-service technologies to deliver services to its customers and enhance customer experiences. There are five key self-service technology based channels used by the South African banks and these are ATM's, Internet, Cellphone, landline telephone and EFTPOS. South Africa also has non-bank institutions that provide payments systems to their customers such as American Express and Dinner's Club which issue travel cards and a number of retailers that issue private label payment cards (BankServeAfrica 2010).

Cell Phone Banking (M-Banking)

Cell phone or mobile phone banking (M-banking) refers to financial services delivered via cell phone networks using a cell phone phone, which typically include services such as depositing, withdrawing, sending and saving money, as well as making payments (Porteous 2006). Banking literature earmarks cellphone banking for possessing the ability to significantly allow the provision of banking services to the unbanked given the exponential growth in the access to cell phones globally (Bandyopadhyay 2010; Raleting & Nel 2010; Bångens & Söderberg 2008).

In South Africa, most physical bank branches are not within the reach of many poor and rural members of the community. It is for this reason that cell phone banking is often seen as a potential transformational tool to the unbanked livelihoods (Bangens & Söderberg 2008). Porteous (2007) explains the transformational potential of cell phone banking in two ways. First, cell phone banking is said to have the potential of facilitating the economic activities of the poor and people living without access to formal banking services. Secondly, the experiences of banking through cell phone banking for the unbanked present opportunities to eventually draw them to the mainstream financial services.

Internet Banking

Internet banking is another one of the latest in a sequence of technology-based banking services that the banks are providing to their customers (Safeena, Abdullah & Date 2010). Typically, an internet banking customer performs any one of the transactions (Sadeghi & Farokhiani 2011):

- Check account balance and transaction history;
- Make payments;
- Transfer funds;
- Requests credit advances, such as overdrafts or the increasing of credit limits;
- Manage investments; and
- International payments.

The need for customers to have connection to the Internet to use this self-service channel remains a challenge for its widespread diffusion, especially in developing countries where Internet coverage is still limited.

ATM Banking

Automated Teller Machine (ATM) banking is one of the first technology based self-service banking channels introduced by the banks. The ATM allows the banks to offer customers a 24-hours convenience to make cash withdrawals, transfer funds, and even make cash deposits. While the ATM arguable remains one of the most prominent technology based self-service channels provided by the banks, especially in environments that are predominantly cash driven such as in developing countries, their infrastructural and maintenance costs are astronomic to the banks when compared to the costs of other self-service channels such as cellphone banking (Porteous 2006; 2007).

Central Questions of the Study

Since the prospects of the new technologies that are introduced by the banks to provide banking services are dependent on the customers accepting them, this research seeks to understand the technology readiness of senior citizen bank customers for banking services technologies. The research study poses the following key questions:

1. Are senior citizen bank customers who currently have access to technology based banking products and services more accepting of, and technologically ready for, technology based banking services?
2. Does senior citizen bank customers who have access to technology based banking services and products have a higher perceived desirability of using technology based banking services?
3. Are senior citizen bank customers who are currently using technological banking services more technologically ready?

Research Methodology

A quantitative research methodology was adopted for this exploratory

research study. As such, quantitative research is aimed at employing mathematical models and theories to the issue being researched (Onwuegbuzie & Leech 2005), thereby making this research method a more scientific approach to social research (Tewkbury 2009).

Senior citizen bank customers were the study's research population. The researcher conveniently chose three old age centres in Gauteng (2) and the North West (1) provinces as the study's population sites given that it is not possible to obtain a list of senior bank customers from which to draw a random sample. In addition, the probability of independence from the regular assistance of family members by senior citizens living in old age centres in activities such as banking informed the selection of these population sites.

A convenience sampling method was used for the study, and given that study population was senior bank customers, three old age centres and several senior citizens living in their private homes were conveniently selected as the study population bases. The sampling scheme was convenient because it was a non-probability sampling method. The questionnaire was administered with 70 respondents, and the table below presents the participants' spread.

Table 1: Spread of the Study Population

Research Site	Number of Participants
1. Abbey Cross Frail And Old Age Care Centre	6
2. Summerfield Park	32
3. Lapa La Bothle	27
4. Private Homes	5
TOTAL	70

The questionnaire that was developed for this study adopted the Technology Readiness Index (TRI) (Parasuraman 2000) with minor adaptations to suit the objectives of the study (Opara *et al.* 2010; Berndt *et al.* 2010; Lin & Hsieh 2007). A benefit of this measure to the study is that the scales in the TRI have been validated as a means of assessing people's propensity to use technology. The data collection instrument used in this study was divided into five main parts:

- The first part of the data collection instrument focused on the respondents' main demographics.
- The focus of the second part of the instrument had questions on the respondents' access to various types of technologies.
- The third part of the research instrument contained questions about the respondents' usage of certain banking technology products.
- The fourth part of the questionnaire contained statements in the TRI scale that measures technology acceptance and readiness.
- The fifth and final section of the data collection instrument contained a 12-statement scale.

Data Discussion

The information collected during the study was analysed through quantitative data analysis means. A total of 70 questionnaires were issued to the study's population and there was a 100 percent response rate. The data collected from the questionnaires was coded and analysed using SPSS.

Demographic Profiles of Respondents

Table 2: Demographic Profiles of Respondents

Characteristic	Distribution	Fr	%
Age	60 - 70 years	12	17
	71- 80 years	0	0
	81-90 years	14	20
	Over 90 years	0	0
	No Answer	44	63
Gender	Male	25	36
	Female	45	64
Education	Diploma	50	71
	Degree	8	12
	Postgraduate Degree	12	17

Race	African	12	18
	Coloured	4	5
	White	54	77
Career	Academic and Pensioner	12	17
	Pensioner	58	83
Grew up	Countryside	9	13
	City	61	87

The table above shows that female respondents represented the largest percentage (64%) of the study's respondents, while 34% were males. In addition, 87% of the study's population grew up in the city. The importance of the respondent's origins relates to the disparity in access to numerous services between rural and urban areas in South Africa, and the impact that these differences have on a person's exposure. While senior citizen bank customers (60 years and older) were the study's population, a component of the demographic section of the questionnaire sought to segment this population into various age categories as it focused on their ages. However, a significant portion of the respondents (63%) did not reveal their age (Table 2). Only 26 respondents indicated their age, and of this 20% were between the ages of 81 and 90 while 12% fell in the 60 to 70 years age category.

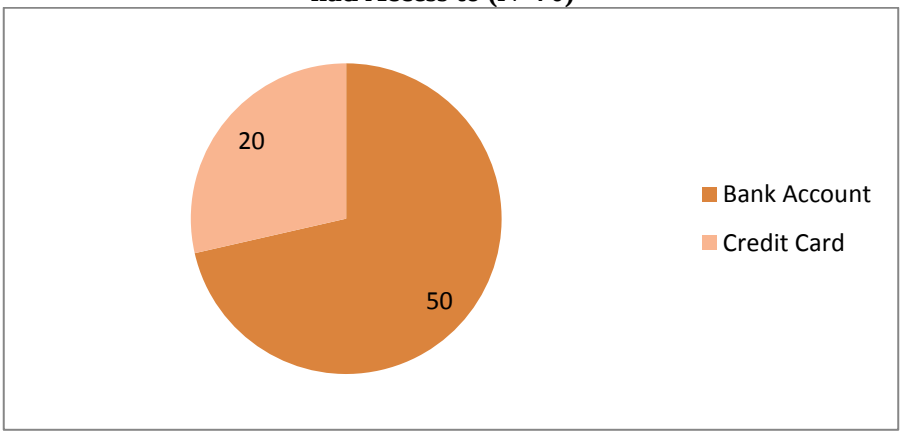
A component of the demographic section of the questionnaire focused on the respondents' race. Table 2 (above) shows that White participants constituted 77% of the study's population, while 18% of the respondents were of African descent. The education level of the respondents was another component of the demographic section of the study's questionnaire. As shown above (Table 2), a portion (71%) of the respondents has a college diploma, while 17% have a postgraduate University qualification. Education levels play a significant role in people's adopting new technologies.

Findings Relating to Technology-based Banking Services and Products

As a result, this section of the questionnaire focused on the respondent's access to various banking technologies and technology based products and services such as ATM banking, Internet banking and bank cards. The aim of

the section was to establish whether access to these technologies and technology based banking products and services impacted senior citizen bank customer's acceptance of banking services technologies and their readiness for technology based banking services. A number of the respondents (71%) indicated that they had a bank account and 29% of respondents had a credit card.

Figure 1: Banking Technology Services and Products that Respondents had Access to (N=70)



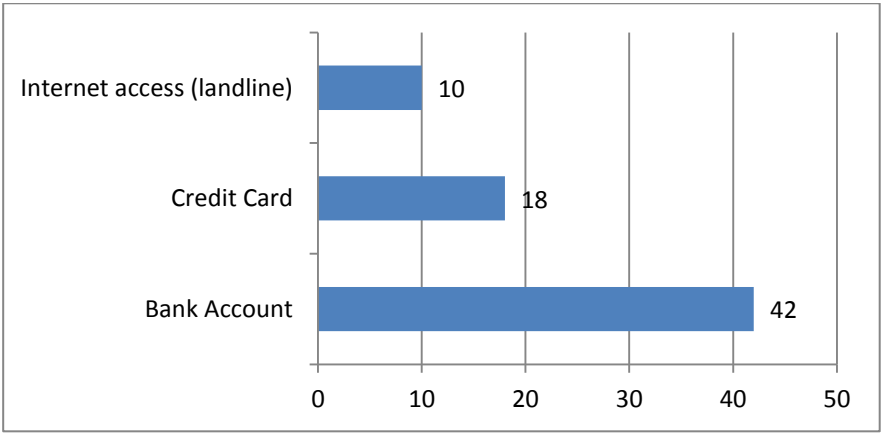
While the levels of the respondents' access to a bank account compare favourably with Berendt *et al.* (2010) the findings of this study demonstrates that senior citizens' access to bank accounts is low. Further, the lower levels of access to land line Internet by the respondents is consistent with literature indications of low rates of diffusion of the Internet services in many developing countries such as South Africa, a factor often attributable to the low levels of Internet banking adoption.

Findings Relating to Banking Products and Services Respondents Intended to Acquire

The largest number of the respondents (60%) was planning to acquire a bank account (Figure 2 below). Figure 2 demonstrates that the respondents had no

desire to acquire technology based banking services for the next year such as cellphone, landline telephone and Internet banking although many had access to banking services.

Figure 2: Banking Technology Services and Products that Respondents Intended to Acquire in the Next 12 Months (N=70)



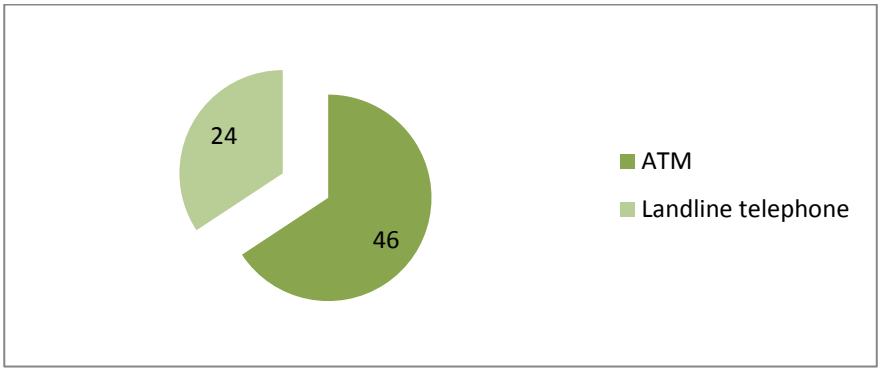
Findings Relating to Banking Technology Products and Services Respondents have Used

With regard to the technology based banking products and services that the respondents used in the last 12 months, as can be seen (Figure 3) ATM banking was indicated as the most predominantly used technology based banking services by a significant portion of the respondents (66%). The predominance of ATM banking as the most widely used technology based banking platform correlates literature regarding this service method in SA (Metcalf 2009; BankServeAfrica 2010).

ATM use was also found to be extremely prevalent among respondents that participated in a similar study by Berendt *et al.* (2010), although the latter's findings demonstrated a significantly higher respondent's usage of ATM's (87.4%) when compared to the findings of this study. A challenge for the banks in this regard is that ATM banking is

relatively more expensive a platform when compared to other technology based banking services such as Internet and cellphone banking. Landline telephone banking usage by the respondents in this study (34%) was however higher than that of the respondents by the respondents that participated in the study by Berendt *et al.* (2010) which demonstrated a landline telephone banking usage of only 14.4%.

Figure 3: Banking Technology Based Services and Products that Respondents have Used in the last 12 months (N=70)

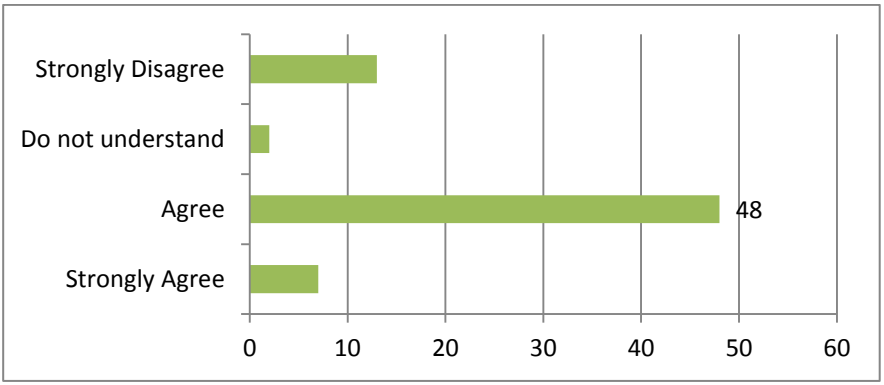


Findings Relating to Technology Acceptance and Readiness

The four statements in this section relate to the perceptions of the technology acceptance antecedents of benefit in so far as the use of banking technologies is concerned (perceived usefulness), and the respondents' perceived comfort around these technologies (perceived ease of use) (Im *et al.* 2011; Ayo *et al.* 2010).

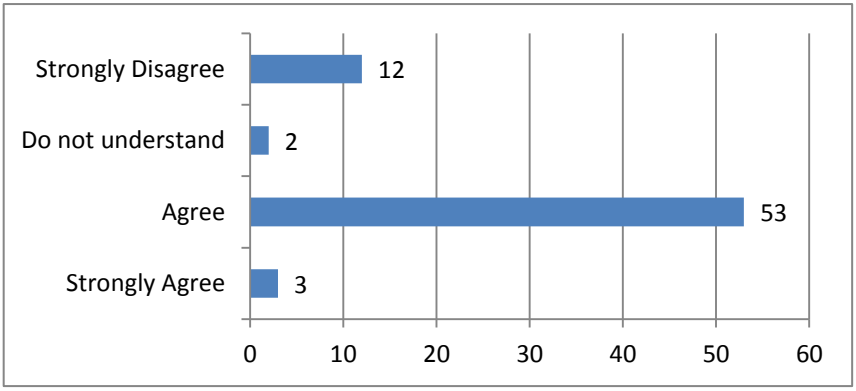
The first statement related to the perceptions of the respondents on whether technology gave them better control and power over their lives or made them powerless. A number of the respondents (79%) indicated that they agree or strongly agree that technology gives them more control of their lives. This demonstrates that senior bank customers participating in the study perceived technology may be useful in their lives.

Figure 4: Technology Gives me More Control of my Life (N=70)



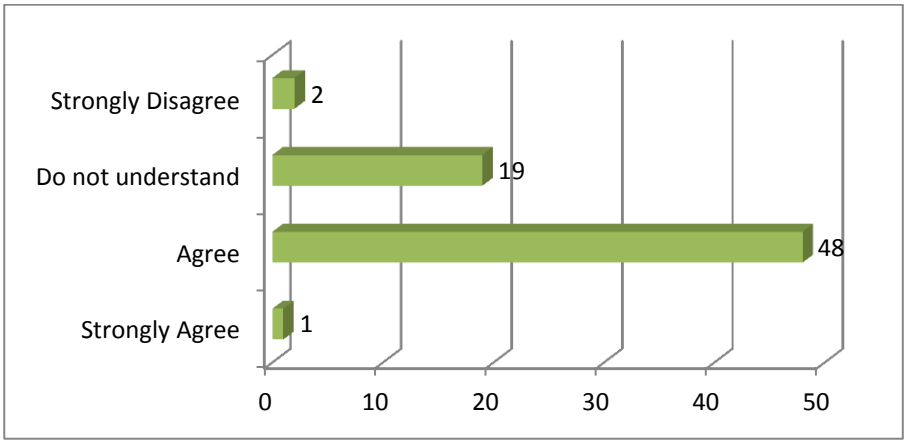
The second statement also related to whether the respondents saw any usefulness of technology in their lives. In this regard, the respondents were asked to indicate whether they viewed technology as offering them convenience when used to provide banking services and products (Figure 5). Eighty percent of the respondents indicated that banking services and products that use new technology offer them convenience, and therefore perceived as useful, while 20% of respondents indicated that these services and products were not useful to them.

Figure 5: Banking Services and Products that Use New Technology are Much more Convenient to Use (N=70)



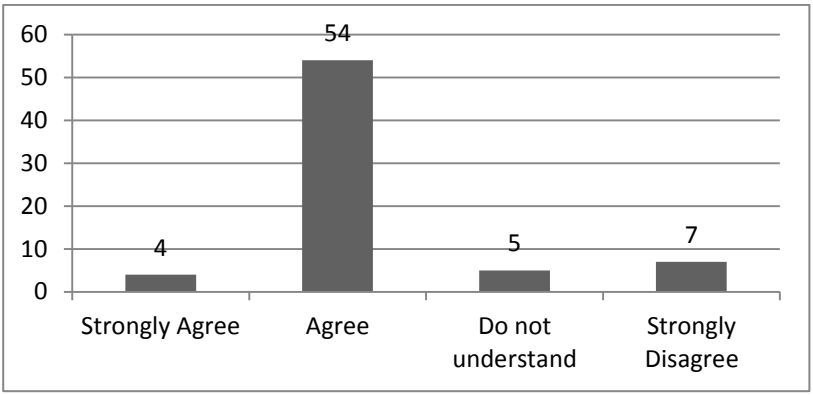
The third statement in this section also focused on the respondents' perceptions of the benefits of technology banking services and whether this was something that they valued. Figure 6 (below) presents the findings, and as can be seen, a significant percentage of respondents (70%) indicated that the convenience associated with Internet banking that allowed all-hour access to banking was something that they liked, while 30% of the respondents indicated that they did not understand the statement or strongly disagreed with it. This finding demonstrates that the respondents see value and benefit of technology based banking services and products in their lives.

Figure 6: I like the Idea of Banking with Computers because I am not Limited to Business Hours (N=70)



The respondents' perceived ease of use of technology and comfort in applying technologies was assessed. In this regard, the respondents were asked to indicate whether they were positive that they were able to manipulate technologies to do what they tell them to do. Figure 7 (below) shows a proportion of respondents (83%) in the study strongly agreed or agreed with this statement.

Figure 7: I can Make Technologies do what I Tell them to Do



In terms of the adoption continuum, innovators and early adopters have a propensity to use new technologies when compared with the early majority, late majority and laggards (Mattila *et al.* 2003). As a result, these first mover characteristics make them more technologically ready (Rose & Fogarty 2010; Walczuch *et al.* 2007).

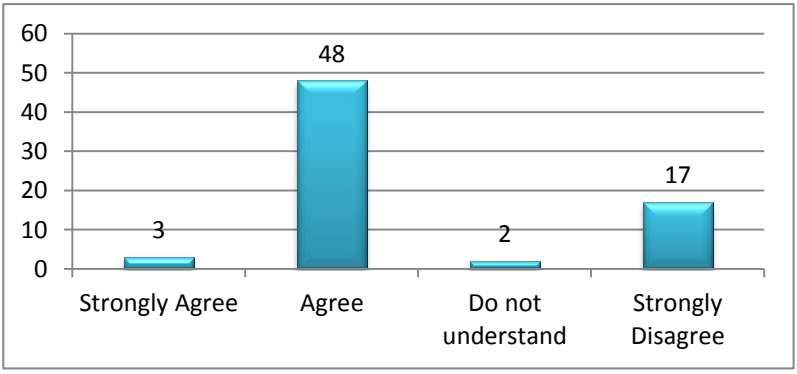
The first statement in this section required the respondents to indicate whether they agreed or disagreed with the statement that they were other people's referents when it comes to new technologies. A proportion of the respondents (69%) indicated that they were referents to others when it comes to technology, thus demonstrating tendencies of innovators.

Other supporting statements relating to the respondents' tendencies to be innovators and early adopters of new technologies corroborated the findings. A total of 65% of respondents indicated that they were first among their friends to learn about new technologies. The finding regarding the attitudes of the respondents regarding learning about new technologies was also similar as 69% of the respondents indicated that they found learning about technologies to be a rewarding experience. In addition, a significant proportion of the respondents (71%) indicated that they found it easy to configure new technologies on their own, while 70% of the respondents also indicated that they keep up with new technologies in their areas of interest with only 23% demonstrating tendencies associated with adoption.

People that generally have lower tendency to adopt technologies usually have concerns about its reliability, security, safety and show general mistrust towards technology innovations. The respondents were asked to indicate whether they agreed with the statement that technology always seem to fail at the worst possible times, as one of the measures of assessing their level of trust of the reliability of new technologies. A significant proportion of the respondents (70%) viewed technology as unreliable, while only 19% of the respondents were positive about the reliability of technology.

The safety of technology, as an antecedent of its adoption, is also closely linked to trust especially in trust driven industries such as banking. In this regard, this component of the questionnaire required the respondents to indicate whether they considered it safe to perform financial transactions via computers. As demonstrated by Figure 8, only 24% of respondents felt that is was safe to perform financial transactions via computers while the majority of respondents (73%) indicated that computers were not safe as medium for performing financial transactions.

Figure 8: It is not Safe to Do any Kind of Financial Transaction Over the Computer (N=70)



Safety as an antecedent of technology adoption is also considered by users from the point of view of the safety of the technology application itself (Termsnguanwong 2010). A proportion of respondents (73%) demonstrated concern about the safety of technology applications, while 16% of

respondents were content that technology applications were safe. The results in this section demonstrate that the respondents have interest in technologies, and also that they show interest in learning about it as they often demonstrate tendencies of innovators. The findings in this section demonstrate that senior citizens bank customers do not view it safe to perform financial transactions via computers. In addition, findings in this section demonstrate that respondents feel left out from technology information on technology innovations, thus pointing the need for marketing efforts of businesses such as the to ensure the dissemination of adequate information to this market segment.

Measures of Association

This section of the report presents findings on the association between the various antecedents of technology acceptance and readiness on the study's respondents. In this regard, correlation analysis was conducted on factors such as the access to certain banking technologies, level of education, gender of the respondents and the respondent's responses to the statements in the questionnaire measuring their technology acceptance and readiness. The first correlation analysis that was conducted was concerned with establishing whether there was a relationship between the education levels of the respondents, as an independent variable, and the three statements measuring their perceived ease of use of banking technologies.

A perfect negative correlation was found as regards the access to technology based banking services and products and the level of education of the respondents as they have a value of r = -0.542. Respondent's perceptions of technology as a source for control over their daily lives was also found to be negatively correlated to their education levels with a coefficient value of r = -0.466. As regards the convenience derived from using banking services and products and the respondent's levels of education, a positive correlation was found with a coefficient value of r = 0.211.

In addition, the benefit of all-hours access to banking that comes with technology was found to be positively correlated with the respondent's level of education (r =0.603). Further, there was also a positive correlation between the respondents' gender and their perceptions around the benefit of all-hours access to banking that is derived from technology services and products with

a coefficient value of r = 0.941.With regard to the relationship between ease of use and comfort of the respondents in using new technologies, and their levels of education, the statement relating to the respondents' confidence that machines easily respond to their instruction was used. A positive correlation was found between this statement and the respondent levels of education with a coefficient value of r =0.747. However, this statement was negatively correlated with the respondents' gender (-0.481).

Regarding the statements measuring the innovator tendencies of the respondents, one statement was elevated for measuring of association and it related whether the respondents felt that they were first among my circle of friends to acquire new technologies. A correlation analysis was conducted on whether there was any association between this and the level of education of the respondents. It was found that the levels of education and the respondents' innovator tendencies were positively correlated with a coefficient value of r = .689. However, the statement measuring the innovator tendencies of the respondents was found to be negatively correlated to gender with a value of r = -0.270.

The correlation analysis of relationship between the respondent's trust of technologies and their levels of education was also conducted. In this regard, the statement that when performing transactions via technology one has to make sure that the computer does not make a mistake was used. It was found that trust of technology is positively correlated with the respondents' level of education with a coefficient value of r = .482. Trust of technology was however, negatively correlated with the respondent's gender (r = -.333).

Main Findings and Recommendations

The South African banks are continuously investing significant resources in banking technologies with a view of maximising their operations and also increase their market shares. The usage banking technologies to provide services to customers is a common phenomenon throughout the world (Safeena *et al.* 2010). In addition, technology based banking services such as cellphone banking possesses the potential of assisting the banks to speedily extend banking services to people that previously had no access to banking – the previously unbanked (Porteous 2007; Ivatury & Pickens 2006). Further, technological banking has the effect of increasing customers' experience and

provides them control of their financial affairs (Raleting & Nel 2010). It is for these reasons that the banks should understand the readiness of customers for banking technologies.

The objective of this study was to determine the technological readiness of senior citizen bank customers and their banking technology adoption behaviours. In particular, the purpose of the study was to determine the relationship between technology readiness and age seniority as a moderator.

A quantitative research methodology was adopted for this study. In this regard, a survey was administered with a population of 70 senior citizen bank customers residing in three old age centres in Gauteng and North-West. Data collected through the survey was captured and analysed through the Statistical Package for Social Sciences and presented in frequency distributive tables.

1. *Are senior citizen bank customers who currently have access to technology based banking products and services more accepting of, and technologically ready for, technology based banking services?*

The data collected during the study demonstrates that senior citizen bank customers that have access to banking products and services are more accepting and technologically ready for technology based banking services. This is supported by data in Figure 8 which demonstrates that 69% of the respondents indicated that they like the idea of technology based banking because of the all-hour convenience that they provide. In addition, Figure 7 demonstrates that senior citizens perceive banking technologies as easy to use (76% of respondents), while Figure 6 demonstrates the respondent's positive perceptions of the usefulness of banking technologies in their lives which are requirements for technology acceptance. The study also revealed that the education levels of the respondents did not influence their acceptance and readiness of technology based banking products and services. Further, the technology readiness of senior citizens is demonstrated by the innovator characteristics that they demonstrate in the data. However, it is clear from the data collected in the study that senior citizen customers of the banks only have access to, and use, basic technology based banking services and products such as a bank accounts, landline telephone banking and ATM's.

2. *Does senior citizen bank customers who have access to technology based banking services and products have a higher perceived desirability of using technology based banking services?*

The study revealed that senior citizen bank customers who have access to technology based banking services and products have a higher desirability to use technology based banking services. This is supported by in the data which demonstrated that 70% of respondents were concerned that they were left behind by their fiends as regards learning about new technologies. This finding demonstrates inadequate dissemination of information on new banking technologies to senior citizen customers, a factor that results in the anxiety illustrated in in the data.

3. *Are senior citizen bank customers who are currently using technological banking services more technologically ready?*

The study revealed that senior citizen banking customers who have access to technology based banking services and products, while technologically ready, also espouse insecurity about technology based banking services. Senior bank customers are concerned about the safety of technology based banking services and products. This is supported by the data which demonstrates that a significant proportion of senior citizens (73%) felt that it is not safe to conduct financial transactions over the Internet. In addition to safety, 70% of senior citizen customers of who have access to technology based banking products and services demonstrate low trust levels towards technology based banking services and products. The research study findings also revealed that senior citizen customers of the banks were also concerned about the safety of the technology applications that were used in banking, as demonstrated by the data. Further, the study revealed that senior citizens customers of the banks have low levels of trust towards technology based banking services and the technology applications used for banking. This is demonstrated by the data which reveals that senior citizens believe that technology always seem to fail at the worst possible times. Technology users' trust of technology applications is linked to the quality of the applications in the delivery of services demonstrating that the need for improved service delivery of technology based banking services.

Summary of the Main Findings

This study's central objective was to determine the technological readiness and acceptance of banking technologies of senior citizen bank customers of the South African banks. Therefore, the following main findings were derived from the research:

- Senior citizen bank customers of the South African banks who have access to technology based banking services and products are ready for banking technologies, but currently only have access to, and use of, basic banking technology services and products that include a bank account, landline telephone banking and ATMs.

- Senior citizen bank customers of the South African Banks that have access to technology based banking services and products have higher desirability to learn more about technology banking products and services.

- Safety of technology-based banking services and products, including the safety of the technology applications are major concerns affecting the technology readiness and adoption of technology based banking services of senior citizen customers of the South African banks.

Recommendations

The findings of the study explained in this section guide the following recommendations for the benefit of the management of the banks:

- The marketing efforts of the banks should emphasise the promotion of other technology-based banking services and products, such as cell phone and Internet banking, among their senior citizen customers who have access to technology-based banking services and products. This is based on the study's finding that senior citizen bank customers of the South African banks who only have access to, and use of basic banking technology services and products that include a bank account, landline telephone banking and ATMs.

- The marketing and promotion information of technology-based banking services and products of the banks targeting senior customers should be tailored to the unique traits of the bank's customer segment. This recommendation is based on the study's finding that senior citizen bank customers of the South African Banks that have access to technology based banking services and products have higher desirability to learn more about technology banking products and services, but do not have adequate access to information on new banking technology innovations that is tailored to their unique traits.

- The banks' promotions of technology-based products and services should emphasise the safety of technology based banking services and products in order to increase their appeal to senior citizen customers.

- The technology divisions of the banks should continue to improve the quality of the technology-based platforms that the banks use for services provision to prevent service failures, a factor that will result in improved trust of the platforms by senior customers thus winning their loyalty towards the services platforms and the banks themselves.

Conclusion

Banking technologies are important for the growth of the market shares of the South African banks, positive customers' experience and also for the attainment of other social goals such as the speedy delivery of banking services to the previously unbanked. This study investigated the readiness of senior bank customers of the South African banks for banking technologies. In view of the study's findings that senior citizen customers of the South African banks possess positive characteristics towards banking technologies but do not receive adequate information about these technologies, it can be concluded that the banks' marketing efforts need to be improved in order to focus information about banking technologies on this customer segment. In addition, the findings indicate a high desirability for the banks to focus their

efforts on establishing customer confidence and trust on banking technologies in order to make these technologies attractive to their senior citizen customers.

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Readiness of South African Senior Citizens for Electronic Banking

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