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Comparison of factors that inhibit the adoption of Cellphone banking between low and high income groups in South Africa

Seelan Govender

10665464

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Abstract

In South Africa, the penetration rate of Cellphones is greater than 100 percent. South African banks are leveraging off this technology by providing a bouquet of financial services via the Cellphone – Cellphone banking. However, the adoption of Cellphone banking has been much slower when compared to other electronic banking channels, such as internet banking.

The objective of this research was to compare factors that inhibit adoption of Cellphone banking between the low and high income groups. Based on existing innovation adoption theory, there were five factors of adoption identified: Trialability, Perceived Complexity, Perceived Value, Perceived Credibility and Perceived Risk. A telephonic survey was administered. The survey questionnaire contained a series of closed-ended questions relating to the five factors of adoption and a single open-ended question to identify factors not being researched.

The results of the survey found that the greatest inhibitor to Cellphone banking was Trialability, followed by Perceived Complexity and Perceived Risk (regardless of income levels). The results of the open-ended questions were grouped in two themes; Personal Preference and Banking Perception. The comparison of results between the open-ended themes found that personal preferences have a significant impact between the low and high income groups. The majority of the high income respondents preferred Internet banking to Cellphone banking. However, banking perceptions had a higher impact on the low income respondents when comparing the two themes.

The study establishes that financial institutions should provide a demonstration and give the customers the opportunity to test Cellphone banking in an effort to increase adoption; as this should reduce the perceived complexity and risk associated with this service.

Keywords

Cellphone banking, adoption, low income group, high income group, inhibitors

Declaration

I declare that this research project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University. I have obtained the necessary authorisation and consent to carry out this research.

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1 Introduction

Antoine W van Agtmael, an employee of the World Bank's International Finance Corporation, is credited with coining the term "Emerging Markets" in 1981. Mishra (2007) broadly defined these emerging markets as countries that are making an effort to improve their current economy to that of highly developed countries. In 2009, The Economist, identified Brazil, Russia, India and China as the big four emerging countries and Vietnam and South Africa as second tier emerging countries. However, there is a high degree of inequality in terms of distribution of income and wealth in some of these emerging markets.

Leibbrandt, Woolard, Finn, and Argent (2010) found that the Gini coefficient in South Africa rose from 0.66 in 1993 to 0.68 in 2000 and to a further 0.70 in 2008. Datamonitor (2011) posted South Africa's Gini coefficient at 0.65 in 2005; well above comparable emerging economies such as Brazil and Vietnam, for which the Gini coefficient was recorded at 0.56 in 2005 and 0.37 in 2004 for both countries. Malikane (2010) found that between 1970 and 2005, growth stagnation and persistent unemployment were correlated to the worsening income inequality. This makes income inequality an important consideration when formulating development strategies as understanding this income disparity is essential in achieving a more inclusive growth.

Mookerjee and Kalipioni (2010) conducted a study in developed and emerging countries to gauge the impact of access to financial services and income inequality. The study showed that as the access to financial services in a country increased, there was a corresponding decrease in income inequality. Thus, this research is aimed at identifying and understanding factors that inhibit adoption of financial services between the low and high income consumers. Understanding these factors is essential in making advances in access to financial services between these income groups.

In 2004, the Financial Services Charter (FSC) became effective in South Africa. The dominant theme of the charter is to ensure that the financial sector provides financial services for the previously disadvantaged (Coetzee, 2009). Financial institutions found it difficult and costly to provide access to financial services for the previously disadvantaged due to the Group Areas Act of 1950. The impact of this act was racial segregation and dispersion of racial groups away from economically developed urban areas (Oxford Analytica, 1991).

Kaplinsky et al. (2009) discussed a series of emerging and outlier trends that offer the possibility for developing economies to leverage, in an effort to meet the needs of the poor. One of the emerging trends identified was the Cellphone. In 2009, the International Telecommunications Union reported that South Africa broke the 100 percent mark in Cellphone penetration. Although there is high income disparity within South Africa, there are more Cellphones than people within this emerging economy.

Figure 1 : South Africa Mobile – Historical data and forecasts

	2008	2009	2010f	2011f	2012f	2013f	2014f	2015f
No of Mobile Phone Subscribers ('000)	50,475	50,549	50,372	51,093	51,501	51,812	52,012	52,369
No of Mobile Phone Subscribers/100 Inhabitants	103.7	102.8	101.4	101.9	101.7	101.3	100.6	100.3
No of Mobile Phone Subscribers/100 Fixed Line Subscribers	1,124.7	1,160.4	1,192.2	1,238.6	1,277.0	1,311.3	1,340.9	1,372.2
No of 3G Phone Subscribers ('000)	4,432	7,170	10,184	12,691	14,483	15,942	17,456	19,013
3G Market As % Of Entire Mobile Market	8.8	14.2	20.2	24.8	28.1	30.8	33.6	36.3

Source: Business Monitor International (2011)

Yao, Watanabe, and Li (2009) study found that development in emerging economies requires co-evolution between innovation and institutional systems. Lambeek (2009) believed that emerging technology, such as Cellphone banking can bring financial services within reach of billions of people in developing countries. In a response to

these trends, South African banks have been observed as leveraging off the Cellphone penetration rate by creating applications that allow their customers to access a bouquet of banking services via their Cellphone. The introduction of Cellphone banking has provided the customer with the convenience of a self-service channel while attempting to fulfil the requirements of the FSC.

1.1 Research Problem

With a Cellphone penetration rate greater than 100 percent in South Africa; Cellphone banking should theoretically be the ideal channel for access to financial services. However, adoption has been much slower than other electronic channels such as internet banking. In 2005, research by Finscope found that 42% of the respondents in their survey had never heard of Cellphone banking and a further 28% did not know what it meant (Finscope, 2006). Furthermore Searll (2009) found that 66% of respondents did not use Cellphone banking. A more recent study by van Heerden, Norris, and Richter (2010) conducted in South Africa, found that only 11.4% of the respondents between low and middle income regarded Cellphone banking as an important service provided by financial institutions. While their greatest barrier to Cellphone banking adoption was security.

1.2 Research Motivation

It is critical that banks understand the determining factors affecting customer‘s perception and attitude towards satisfaction with Cellphone banking; and implement this understanding into emerging market strategy formulation (Agarwal, Rastogi, & Mehrotra, 2009). Previous research on Cellphone banking adoption has shown that barriers to adoption are not universal, but rather they are dependent on the gender, age and social factors of users as well as on a country‘s economy and income level (Anderson, 2010; Cruz, Lineu Barretto, Muñoz-Gallego, & Laukkanen, 2010; Li & Yeh, 2010; Mahler & Rogers, 1999). Therefore, the aim of this research was to identify and compare the factors that inhibit adoption of Cellphone banking between low and high

income customers. In identifying and comparing those factors between low and high income customers; banks are more capable of building strategies to alleviate these barriers while increasing access to financial services to their consumers.

1.3 Research Objective

The objective of this research was to determine the differentiating factors that act as barriers to adoption of Cellphone banking between low and high income customers in South Africa. Additionally the study sought to provide comparative ranking of the factors affecting the low and high income groups, in an attempt to provide financial institutions with a more comprehensive understanding of the factors that inhibit the adoption of Cellphone banking. In understanding these factors, financial institutions are more capable of developing specific adoption strategies for each of these income groups as opposed to a generic adoption strategy. Ultimately the study sought to improve the rate of Cellphone banking adoption in South Africa, and in turn contribute towards improving access to financial services.

1.4 Research Scope

The scope of the research was limited to low and high income groups within South Africa that are not registered for Cellphone banking. The low income group was defined as any individual earning less than or equal to R118 000 per annum and the high income group as any individual earning more R118 000 per annum. The research used existing innovation adoption theories to identify constructs that has an impact on the low and high income groups. The constructs identified and applied in this research were:

- Trialability
- Perceived complexity
- Perceived value
- Perceived credibility; and
- Perceived risk

2 Literature Review

2.1 Introduction

This section describes South Africa in the context of an emerging market and the challenges of income equality. It further defines a salary bracket for low and high income groups and explores how the use of low end disruptive innovative technology (Cellphone banking) can increase access to financial services.

The factors of adoption and inhibition for Cellphone banking are discussed in relation to innovation adoption theory: the Theory of Planned Behaviour, Theory of Reasoned Action, Technology Acceptance Model and Innovation Diffusion Theory. These innovation adoption theories, combined with existing literature created an integrative framework of propositions were used to compare the factors that inhibit Cellphone banking adoption between the low and high income groups within South Africa.

2.2 Emerging Markets

In 2003, Goldman Sachs reported that four of the largest emerging economies collectively represented only 15% of the average gross national product of the six developed economies: the United States, Japan, Germany, Britain and Italy (Armijo, 2007). These large emerging economies were Brazil, Russia, India and China, and are characterised by rapid growth and industrialisation as well as represent two-thirds of the world population.

2.3 Income Inequality

Rapid growth has been the main driver of poverty reduction in the last decade. However it is noted that the greater the degree of income inequality that exists, the lower the impact of growth on poverty reduction (Thomas, 2009). Thus growth is most effective at reducing poverty in circumstances that have low degrees of income inequality. The Gini coefficient has been a popular measure for income inequality for many years (Okamoto, 2009). The Gini coefficient ranges from 0.0 to 1.0, where, 0.0 represents perfect equality and 1.0 represents perfect inequality. While the Gini

coefficient is widely used as a measure for income inequality; there is no universally accepted method for differentiating between the low and high income groups.

2.4 Low and High Income groups in South Africa

Anderson (2010) identified low income groups as those who earn less than $ 1500 per month. In South Africa, Martins (2007) used household expenditure to differentiate between low and high income groups. Household expenditure in South Africa is calculated on private household spend on goods and services, irrespective of their durability. The Living Standard Measure (LSM) is the segmentation of people based on demographics and living standards (SAARF, 2010). The FSC differentiates low income consumer as those between LSM 1-5. However, LSM 1-5 does not include the Cellphone as a variable (SAARF, 2010). Cellphones are only included in LSM 1-7, where the average household income is R 9827 per month. As a result, for the purposes of this study; low income constituted individuals that earned less than or equal to R118 000 per annum, while high income was defined as those who earned greater than R118 000 per annum in South Africa.

2.5 Innovation

Rogers (2002) defined Innovation as an idea, practice or object that is perceived as new by an individual or other units of adoption. Iyer, LaPlaca, and Sharma (2006) identified two types of innovation:

(1) Incremental innovation, which refers to a product line extension or modifications to existing platforms or products; and

(2) Radical innovation, which consist of two types of innovation; low end disruption and new market disruption.

New market disruption is focused on attaining new customers through the development of new products or services that provides greater simplicity and convenience. Whereas, low end disruptions are aimed at the least profitable customers at the lower end of the original value chain. Assink (2006) defined disruptive innovation as a successfully exploited product, process or concept that transforms the demand and need of the existing market. Chircu and Mahajan (2009) argued that Cellphone technology is a low cost form of disruptive technological infrastructure for new products or services in developing countries.

Technology innovation is recognised as being influenced by the countries market structure, laws and the fiscal incentive system (Mishra, 2007). For example, in developing countries such as India; Cellphone technology is used to increase efficiency and the competitive edge within the sales and management of the textile industry. Thus technology innovation serves the conditions in which it is used and developed.

Cellphone technology innovation is also recognised as being developed in varied cases, such as mobile TV (a radical innovation), email and instant messaging, as well as for educational purposes (Endre Grøtnes, 2009; Tinker, Horwitz, Bannasch, Staudt, and Vincent, 2007)

In the financial services industry, Hinson (2011) specifically argued that banks should offer banking services through Cellphone technology. This will increase access to financial services, predominantly to the low income group, and has the advantage of not being limited to a specific geographic boundary.

2.6 Cellphone banking and Adoption

Gu, Lee, and Suh (2009) defined mobile banking as, banks providing access to their customers to view their account balances, pay bills, transfer of funds via their Cellphone or mobile device. Luo, Li, Zhang, and Shim (2010) defined mobile banking as an innovative method of allowing customers to access financial services via their mobile device. Zhou, Lu, and Wang (2010) furthermore noted that mobile banking, also referred to as Cellphone banking, is accessing the banking network via the Wireless Application Protocol (WAP). In summation, Cellphone banking, also referred to as mobile banking, can be defined as the access to financial services; account balances, transaction history, bill payments and funds transfer via mobile devices such as Cellphones, Smartphones or Personal Digital Assistant (PDAs).

Agarwal et al. (2009) found that for financial institutions to increase market share, they need to supply low cost, technologically innovative and sophisticated products and services such as Cellphone banking and Internet banking. Doern and Fey (2006) findings supported this in that the key value drivers of a commerce model were found to be accessibility, ease of use and trust. Accessibility of cell phone banking is high due to its inherent ‗anytime' functionality (Singh, Srivastava, & Srivastava, 2010) .

Adoption of Cellphone banking technology has been found to be affected by a multitude of factors. Gu et al. (2009) found that the users' belief of their ability in executing a particular task or behaviour affected their intention to adopt Cellphone banking. While Dong-Hee Shin (2010) found that perceived risk, trust and security are the main inhibitors to Cellphone banking. Koenig-Lewis, Palmer, and Moll (2010) confirmed Dong-Hee Shin (2010) findings and noted that risks, trust, and credibility are a predictive model of intention to adopt new technology.

Trialabiltity and perceived complexity have also been noted as critical factors for Cellphone banking adoption (Pueschel, Mazzon, & Hernandez, 2010). While Cruz et al. (2010) found that in Brazil the perception of cost, the perception of risk and the complexity of using Cellphone banking were inhibitors to adoption. Conversely in China the perceived ease of use of the Cellphone banking product was found not to have a significant impact on a customer‘s intention to adopt Cellphone banking.

Thus it is accepted from the literature reviewed that the adoption of Cellphone banking fluctuates and is dependent on factors. The factors however are found to impact adoption differently and the impact of factors are noted as differing from region to region.

2.7 Theoretical background of Innovation Adoption

Different theoretical models have been used to explain consumer innovation adoption. Typically, these theoretical models include:

(1) Theory of Planned Behaviour (TPB) (Ajzen, 1991) or Theory of Reasoned Action (TRA) (Fishbein & Ajzen, 1975);

(2) Technology Acceptance Model (TAM) (Davis, 1989a)

(3) Innovation Diffusion Theory (Rogers, 2002)

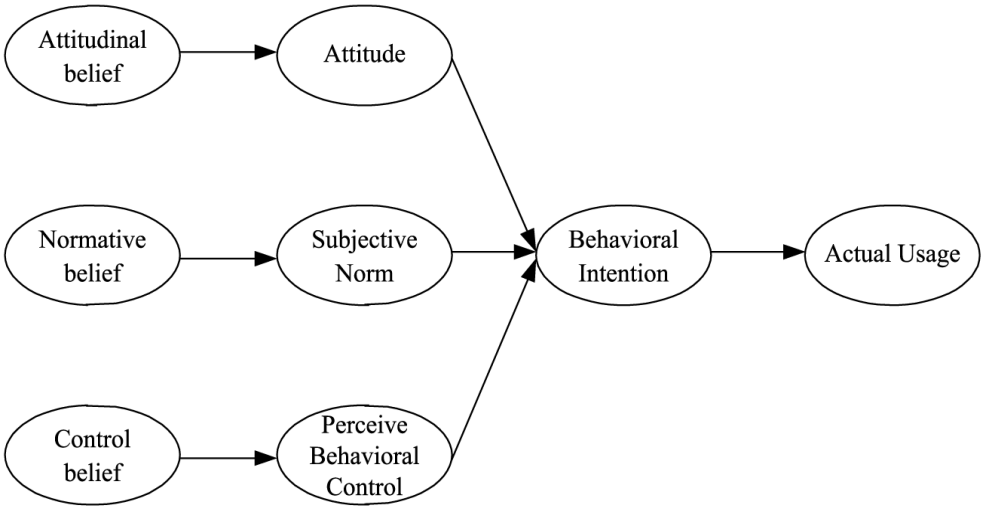
Many studies have used a combination of these innovation adoption models to understand factors that enable or inhibit innovation adoption Authors such as Grandón, Nasco, and Mykytyn Jr (2011), Crespo and del Bosque (2008) and Lee (2009) used both TRA and TPB to explain Cellphone banking adoption. While Beiginia, Besheli, Soluklu, and Ahmadi (2011), Hong, Thong, Moon, and Tam (2008), Khalifa and Kathy (2008) and Pedersen (2005) used the Decomposed Theory of Planned Behaviour to understand Cellphone banking adoption. This study used the Decomposed Theory of

Planned Behaviour (Taylor & Todd, 1995) to further understand the inhibitors of Cellphone banking.

2.7.1 Decomposed Theory of Planned Behaviour

Taylor and Todd (1995) built on the TRA (Fishbein & Ajzen, 1975) and TPB (Ajzen, 1991) to develop a Decomposed Theory of Planned Behaviour. According to TRA, a person‘s attitude towards the technology and subjective norms influences technology adoption. Ajzen (1991) developed the TPB as an extension of the well-known TRA (Fishbein & Ajzen, 1975). However, an additional construct, Perceived Behavioural Control was added to TPB to understand factors that increase or decrease difficulty of performing the behaviour (Ajzen, 1991).

Figure 2 : Theory of Planned Behaviour

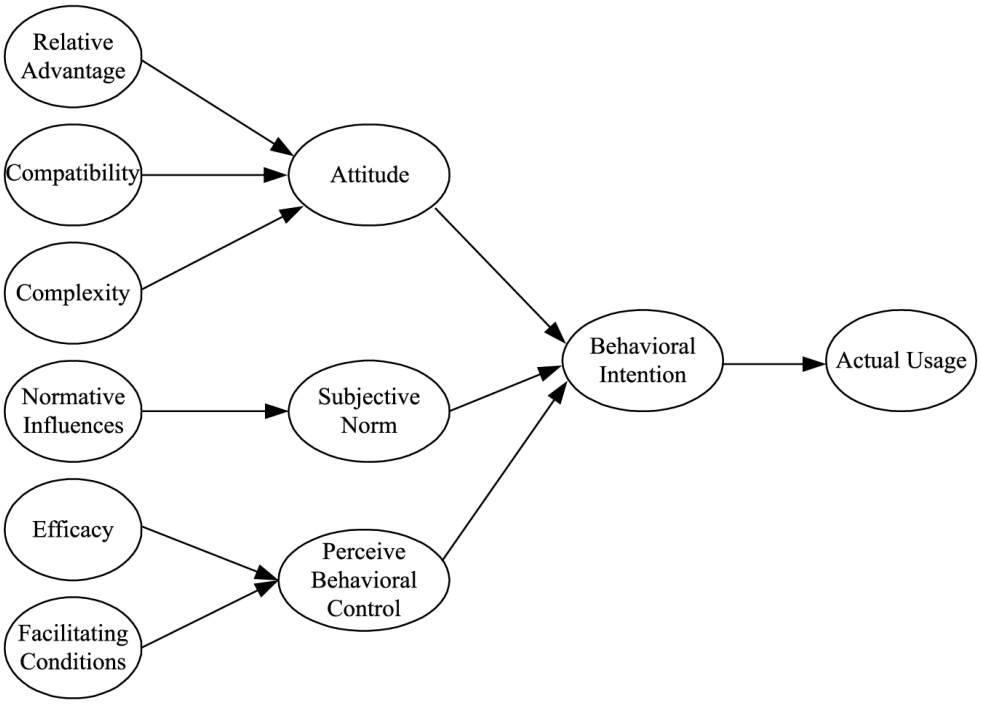


Source: Ajzen (1991)

Taylor and Todd (1995) decomposed each construct of the TPB; attitude, subjective norms and behavioural control to develop the Decomposed Theory of Planned Behaviour. Decomposing the beliefs structure into multidimensional constructs improves the understanding between belief structures and determinants of intention

(Taylor & Todd, 1995). The figure below shows the integration of the TRA and TPB model with an extension into multidimensional constructs to form the Decomposed Theory of Planned Behaviour.

Figure 3 : Decomposed Theory of Planned Behaviour



Source: Taylor & Todd (1995)

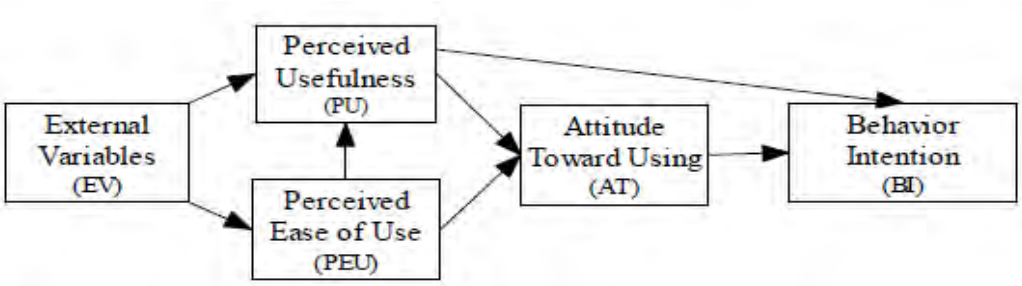
2.7.2 Technology Acceptance Model

Davis (1989a) used TRA as its foundation to develop a technology adoption framework known as Technology Acceptance Model (TAM). TAM states that behavioural intention to adopt technology is based on two beliefs:

(1) Perceived usefulness, defined as expectation that the technology will enhance one‘s job performance; and

(2) Perceived ease of use, defined as the belief that using the technology will be free of effort.

Figure 4 : Technology Acceptance Model



Source: Davis (1989a)

Venkatesh and Davis (2000) developed a theoretical extension to TAM. The extended model, referred to as TAM2 included the following constructs social influence processes (subjective norm, voluntariness and image), and cognitive instrumental process (job relevance, output quality, result demonstrability and perceived ease of use).

Legris, Ingham, and Collerette (2003) found that significant factors are excluded from the TAM model and needs to be integrated into a broader model that would include determinants related to the both the human and social change processes to technology adoption.

Since 2003, many researchers have extended the TAM to incorporate constructs that are more applicable to specific technology adoption (Al-Gahtani, 2011; Qiu & Li, 2008; Wang, Lin, & Luarn, 2006; Yu, Ha, Choi, & Rho, 2005)

2.7.3 Innovation Diffusion theory

The Innovation Diffusion Theory was proposed by Rogers (1995). The framework has proved to be an effective tool in explaining consumer behaviour in adopting a new product and provides a foundation for research on innovation acceptance and adoption.

The acceptance and adoption processes are described below.

(1) The diffusion of the process, defined as, spread of the innovation from the source to the public through the four main elements of diffusion; the innovation, communication channel, time and social context; and

(2) the adoption process, defined, as the stages the individual go through when deciding to accept or reject the innovation.

Rogers (1995) identified five general perceived characteristics that determine an innovation‘s rate of adoption. They are:

(1) Relative Advantage – the degree to which an innovation is perceived as being better than its precursor;
(2) Compatibility – the degree to which an innovation is perceived consistent to be consistent with existing values, needs and past experience of adopters;
(3) Complexity – the degree to which an innovation is perceived as being difficult to use;
(4) Observability - the degree to which the results of an innovation are desirable to others; and
(5) Trialability – the degree to which an innovation may be experimented with before adoption.

However, Rogers (1995) model is not without limitations when applied as a framework for adoption of mobile environments or established telecommunications service (Carlsson, Walden, & Bouwman, 2006). Carlsson et al. (2006) found that perceived benefits were critical for technology adoption; however this is omitted from the model. Bouwman, Carlsson, Molina-Castillo, and Walden (2007) analysis revealed that

differences in mobile services must be taken into account when understanding current and future adoption.

2.8 Constructs of Innovation Adoption

2.8.1 Trialability

Rogers (1995) defined trialability as the degree to which technology can be trialed before adopted. The Model of Innovation Resistance by Ram (1987) suggests; that an entirely new product should be trialed by the consumer prior to purchase. The option to trial a product will potentially reduce the customer‘s perceived risk associated with the product.

Furthermore it is argued that technological innovations do not provide immediate apparent benefit to consumers, but rather motivation needs to be driven by offering trialablilty of the innovation (Johnson, 2008). Furthermore Chung and Kwon (2009b) note that trialability influences pre-adoption attitude and is perceived to be more important for the earlier adopters. With regard to the mobile experience Chung and Kwon, (2009a) found that the interactive effect of the mobile experience, positively impacted the consumers intention to use Cellphone banking.

Furthermore the testability of technology or a product is noted as impacting attitudes towards technology adoption. Specifically in the case where consumers are able to test a technology and find compatibility with their immediate tasks, there is significant impact on the attitude to adopt (Chen, Yen, & Chen, 2009). A study within South Africa found that trialability is barrier to Cellphone banking adoption (Brown, Cajee, Davies, & Stroebel, 2003).

Proposition 1

Trialability has a positive effect on customer‘s behavioural intention to adopt Cellphone banking.

2.8.2 Perceived Complexity

The Decomposed Theory of Panned behaviour suggests that complexity and the behavioural intention to adopt technology are inversely related (Taylor & Todd, 1995). Rogers (1995) defined complexity as the degree to which the technology can be perceived as being difficult to use. Wakeland (2007b) believed that complexity in technological innovations have two frames of reference;

(1) Complexity with regards to interaction amongst the components within the technological system; and

(2) Complexity between the interactions of the human agent with the technology system.

Many authors however note that a variety of methodical tools are used in the study of complexity study, with no single theory able to account for complexity in its entirety (Vasileiadou & Safarzyńska, 2010; Wakeland, 2007a; Yang, 2009).

Complexity is however noted as having a negative impact in the level of consumer satisfaction. This observation has been found to have a similar impact on Cellphone banking (Yang, 1999). Furthermore Arts, Frambach, and Bijmolt (2010) found that the perceived complexity of an innovation inhibited behaviour rather than the intention to adopt. A study within South Africa also found complexity as a barrier to Cellphone banking adoption (Brown, Cajee, Davies, & Stroebel, 2003).

In the same light, ease of use has been found to be positively related to customer‘s willingness to use technology. In this regard Lin (2011a) noted that the easier Cellphone banking is to use the more willing customers are to conduct Cellphone banking transactions. As a result firms should focus on designing useful and easy to use applications to increase adoption of Cellphone banking.

Greifeneder, Scheibehenne, and Kleber (2010) also explored Wakeland (2007b) second frame of reference - complexity between the interactions of the human agent with the technology system. The results showed that by adding different products to Cellphone banking is likely to increase complexity. An increase in complexity reduces customer's satisfaction.

Proposition 2

Perceived complexity has a negative effect on customer's behavioural intention to adopt Cellphone banking.

2.8.3 Perceived Value

Thaler (1985) found that previous gains and losses in adoption of a service or product have a significant influence in the customer's behaviour. Therefore, customer's value perception can be viewed as a combination of the customer's transactional and acquisitioned value of the goods or services. According to Zeithaml (1988) perceived value is defined as the customer's overall assessment of the utility of a product (or service). In other words, the customer's perceived value comes from all the relevant benefits received and the cost paid.

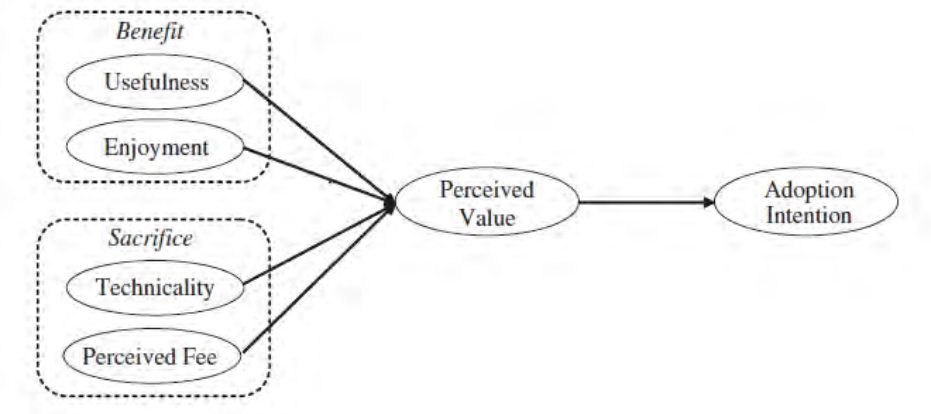
TAM explains adoption behaviour with two factors: usefulness and ease of use. However, TAM has no construct which represents the overall perceived value of the innovation about to be adopted (Kim, Chan, & Gupta, 2007; Lin, 2011a). Kim et al. (2007) and Lin (2011a) developed Value-based Adoption Model (VAM) and included a small number of factors that account for the variance in adoption intentions.

VAM states that value perception is derived by the following two factors:

(1) Perceived Benefit; are the intrinsic and extrinsic factors that are found to influence perceived value (Rogers, 1995). Extrinsic motivation refers to achievement of a specific goal (e.g. rewards) while intrinsic motivation refers to no apparent reinforcement other than performing the activity. Kim et al. (2007) and Lin (2011a) proposed usefulness and enjoyment as the benefit components of perceived value.

(2) Perceived Sacrifice; refers to both monetary and non-monetary loss by the consumer. Monetary loss is the actual price of the product or service, while non-monetary loss usually includes the time and effort wasted in consumption of the product or service.

Figure 5 : Value-based Adoption Model



Source: Kim et al. (2007) and Lin (2011a)

Kim et al. (2007) and Lin (2011a) applied the VAM to study on mobile internet adoption by individual customers. The study found that the higher the perceived value indicates a greater willingness to adopt the technology. However, perceived sacrifice had a greater impact than perceived benefit on perceived value. Previous work by Kleijnen, Lee, and Wetzels (2009) found that the biggest driver of innovation resistance was perceived risk (physical, economic, functional and social risk). Featherman and Wells

(2010) also found that the perceived risk (monetary and non-monetary loss) was a significant variable in user acceptance of technology. Lee, Park, Chung, and Blakeney (2011) suggested that greatest accelerator to adoption of Cellphone banking is perceived usefulness, which is made up of the monetary value gained by utilising the service and the extent that the service fits well with the customer's tasks.

Proposition 3

Perceived value has a positive effect on the customer's behavioural intention to adopt Cellphone banking.

2.8.4 Perceived Credibility

Perceived credibility is argued by Davis (1989b) as having a stronger influence on behavioural intention than the traditional TAM variables. Perceived usefulness analyses suggest that trust is built on a reciprocal relationship between the consumer and the firm which leads to product loyalty. However product loyalty is governed by customer's perception of trustworthiness of the institution. Quan, Hao, and Jianxin, (2010) found that trust is directly related to credibility and an important factor for Cellphone banking adoption. As credibility in the financial institution increases, the behavioural intention to adopt Cellphone banking also increases.

Trust is recognised as playing a crucial intervening role in the relationship between perceived value and customer satisfaction (Gu et al., 2009). Customers with low levels of trust are less likely to adopt Cellphone banking services, whereas, those with higher levels of trust levels display more satisfaction to Cellphone banking.

Alhabeeb (2007) believed that this trust relationship value between the consumer and financial service provider appears to be significantly important in early stages when uncertainty and risk are present. Luo et al. (2010) furthermore found that when a Cellphone banking service gains the users' trust, users will be generally satisfied with

their service. Alternatively, reduced trust can result in user dissatisfaction in the Cellphone banking Service. The consequences of reduced trust and low satisfaction levels, is a potential loss of customers, while increased trust and satisfaction can generate repeated Cellphone banking usage.

Proposition 4

Perceived credibility has a positive effect on the customer‘s behavioural intention to adopt Cellphone banking.

2.8.5 Perceived Risk

Perceived risk is regarded as the possibility of negative consequences of using a product or service. Yiu, Grant, and Edgar (2007) defined perceived risk as the customer‘s subjective expectation of suffering a loss in performing a specific task. Risk affects individual decision-making when the decision may have adverse consequences over which the individual has no control (Featherman & Wells, 2010).

Furthermore perceived risk is defined by Natarajan, Balasubramanian, and Manickavasagam (2010) as having a two dimensional structure; namely, adverse consequences and uncertainty. Natarajan et al. (2010) definition of perceived risk is similar in that it sighted the seriousness of the outcome and uncertainty as the dimensions of perceived risks.

Luo et al. (2010) noted that multi-faceted risk perceptions are an important construct of innovation adoption. Therefore, perceived risk has been explored in a multidimensional construct with six facets.

Table 1 : Description and dimensions of Perceived Risk Facet

Perceived Risk Facets	Definition
Financial Risk	The potential financial loss of using the product or service
Performance Risk	The possibility of product or service not performing as expected
Privacy Risk	Potential loss of consumer personal information
Psychological Risk	The consumer assessment of potential loss to consumer piece of mind or self perception
Social Risk	The consumer potential loss of status in their social group as a resulting of purchasing the product or utilising the service
Time Risk	The consumers assessment of potential loss to time, effort and convenience

Source: Natarajan et al. (2010)

Even though risk is present in every choice, the risk varies amongst the different risk facets depending on the product or service under consideration. Services are seen to be riskier than purchasing of goods, specifically in the social, physical and psychological dementias (Natarajan et al., 2010). Natarajan et al. (2010) study of adoption of self-service channels; namely, Automatic Teller Machine (ATM), Cellphone banking and Internet Banking found that on the whole; the ATM is the most preferred channel followed by Internet banking and Cellphone banking. As the benefits amongst these channels were perceived to be equal, it was found that the adoption for either Internet Banking or Cellphone banking can be improved if risk perception is reduced.

Proposition 5

Perceived risk towards Cellphone banking has a negative effect on customer‘s behavioural intention to adopt Cellphone banking.

2.8.6 Conclusion

The table below summarises the five propositions in relation to the innovation adoption theory and current literature

Table 2 : Propositions in relation to literature and adoption models

Proposition	Literature Review	Innovation Adoption Model
Trialability will have a positive effect on customer's behavioural intention to adopt Cellphone banking	(Rogers, 1995) (Ram, 1987) (Johnson, 2008) (Chung & Kwon, 2009b) (Chen et al., 2009) (Brown, Cajee, Davies, & Stroebel, 2003)	• Innovation rate of adoption • The Model of Innovation Resistance • Technology Adoption Model • Decomposed Theory of Planned Behaviour
Perceived complexity will have a negative effect on customer's behavioural intention to adopt Cellphone banking	(Taylor & Todd, 1995) (Rogers, 1995) (Wakeland, 2007b) (Yang, 2009) (Arts, Frambach, & Bijmolt, 2010) (Lin, 2011a) (Greifeneder et al., 2010) (Brown, Cajee, Davies, & Stroebel, 2003)	• Innovation rate of adoption • Decomposed Theory of Planned Behaviour
Perceived value will have a positive effect on the customer's behavioural intention to adopt Cellphone banking	(Thaler, 1985) (Zeithaml, 1988) (Rogers, 1995). (Kleijnen et al., 2009) (Featherman & Wells, 2010) (Kim et al., 2007; Lin, 2011a)	• Value-based Adoption Model

Perceived credibility will have a positive effect on the customer's behavioural intention to adopt Cellphone banking	(Davis, 1989b) (Quan et al., 2010) (Gu et al., 2009) (Alhabeeb, 2007) (Luo et al., 2010)	• Theory of Reasoned Action • Extension of the Technology Acceptance Model
Perceived risk towards Cellphone banking will have a negative effect on customer's behavioural intention to adopt Cellphone banking	(Yiu et al., 2007) (Featherman & Wells, 2010) (Natarajan et al., 2010) (Luo et al., 2010)	• Decomposed Theory of Planned Behaviour • Extension of the Technology Acceptance Model

Global research has used integrative innovation adoption models to further understand the factors that influence Cellphone banking adoption. Most of the findings indicated that security, risk and complexity to be the greatest inhibitors to Cellphone banking adoption. However, this research aims to compare and contrast the factors that inhibit Cellphone banking between the low and high income groups. There is an expectation that there will be significant difference between the factors that inhibit adoption between the two groups.

3 Research Propositions

The main objective of this research was to compare factors that inhibit the adoption of Cellphone banking between low and high income groups within South Africa. The literature in the previous chapter identified five constructs that are regarded as key inhibitors to the adoption of Cellphone banking. The five constructs are as follows:

- Trialability
- Perceived complexity
- Perceived value
- Perceived credibility; and
- Perceived risk

Based on the above constructs, the following propositions were investigated.

3.1 Propositions

- **Trialability** has a positive effect on customer's behavioural intention to adopt Cellphone banking
- **Perceived complexity** has a negative effect on customer's behavioural intention to adopt Cellphone banking
- **Perceived value** has a positive effect on the customer's behavioural intention to adopt Cellphone banking
- **Perceived credibility** has a positive effect on the customer's behavioural intention to adopt Cellphone banking
- **Perceived risk** towards Cellphone banking has a negative effect on customer's behavioural intention to adopt Cellphone banking

4 Research Methodology

4.1 Introduction

The previous chapter identified five propositions that were regarded as key inhibitors to Cellphone banking adoption. These propositions were based on existing innovation adoption theories and literature. This chapter describes the data collection and statistical techniques that were used to answer the research question. This research grouped the survey responses between the low and high income groups. By understanding the different factors of inhibition within each group, financial institutions are able to create specific Cellphone banking adoption strategies for each of the income groups.

4.2 Research Design

To achieve the objectives of this research, both a quantitative and qualitative research methodology was followed. A survey questionnaire containing a series of closed-ended and a single open-ended question was adopted. Closed-ended questions were used for the propositions laid out in the previous chapter while the single open-ended question was used to identify constructs that are not related to the propositions. The semi-structured interview was conducted via telephone by a specialist surveying company.

Díaz (2011) suggested that telephonic surveying has numerous advantages when compared to face-to face surveys. Some of the advantages are:

(1) Representativeness; the telephone survey offers easy accessibility to the target; and

(2) Quality of information collected; the greater sense of anonymity afforded by telephonic surveys usually translates into increased sincerity in the response.

Additional surveys provide a versatile data collection approach, however are unable to explore and clarify responses and the responses are limited too (Blumberg, Cooper, & Schindler, 2008)

4.3 Population

Zikmund (1994) defined a population as all objects of interest for the research. This may be people, banks or any group that share particular characteristics. The population for this research was defined to be any person who has a Cellphone that holds at least one transactional banking account within South Africa

4.4 Unit of Analysis

Zikmund (1994) defined the unit of analysis as a single element or a group of elements subject to selection in the sample. The unit of analysis was defined as any customer with a Cellphone, that holds at least one transactional account and was not registered for Cellphone banking at Standard Bank, First National Bank, Nedbank or ABSA Bank (known as the big four banks).

4.5 Sampling and Size of Sample

Zikmund (1994) defined a sample as the representative subset of the population. For the purpose of this research, a random sample of 200 customers that are not registered for Cellphone banking were requested from the big four banks. The sample was made up 100 customers that earned less than or equal to R118 000 per annum and 100 customers that earned more than R118 000.

The data on each of the customers needed to include the following demographic information; age, gender, salary, location, education level and two contact numbers (if

available). Only one of the big four banks agreed to provide 200 customers with the necessary data.

4.6 The Research Instrument

The research instrument chosen for this study was a questionnaire. The questionnaire contained three sections, namely;

Section A (Demographic Profile) – Information of the respondent; age, gender, salary, location and education level. This information was pre-populated based on information provided by the bank.

Section B (Inhibitors to adoption of Cellphone banking) – This section addresses the propositions identified in the previous chapter. The respondents replied to fourteen close-end questions relating to each of the propositions outlined in Chapter 3. A five point Likert scale with end points of ‗strongly disagree' and ‗strongly agree' was used to measure the response of the respondents. The aim of this section was to identify those factors that were the greatest inhibitors to Cellphone banking adoption between low and high income group. B. Blumberg, Cooper, Schindler, and Moizer (2007) defined external validity as the ability to generalise the research to a larger population. This questionnaire was validated against previously used questions pertaining to each of the propositions.

Table 3 : External validity of propositions

Propositions Questions	Literature Review
Trialability	(Brown et al., 2003)
Complexity	(Lin, 2011a) (Brown et al., 2003)
Perceived Value	(Kim et al., 2007)
Perceived Credibility	(Quan et al., 2010)
Perceived Risk	(Featherman & Wells, 2010)

Section C (Other reasons for not registering for Cellphone banking) – This section tried to identify constructs not addressed by the propositions. The respondent was given an opportunity to provide a reason of why they chose not to register for Cellphone banking.

4.7 Data Collection

The telephonic survey was administered by a survey company based in Cape Town – PureSurvey. A senior team of multi-lingual staff at PureSurvey conducted the survey over a period of 3 weeks. Prior to commencement of the survey, the management team was sent the data in spreadsheet. The spreadsheet did not include salary and education level to reduce interviewer bias. PureSurvey was requested to gain the respondents consent prior to commencing the surveyor. On consent from the respondent, the surveyor administered **section B** and **section C** of the questionnaire. The surveyors were briefed on each of the questions should they require an explanation from the respondents. The spreadsheet was updated according to the response of each of the respondent.

4.8 Statistical Methodology

The objective of this research was to compare the factors that inhibit adoption of Cellphone banking between low and high income groups. A non-probability sampling method was employed and the following statistical techniques were used:

(1) Reliability Analysis, to identify the statements or variables that provided the most reliable scale. A scale with a Cronbach Alpha greater than 0.7 was considered a reliable scale

(2) Frequency Tables, that contained counts of observations in each of the categories

(3) Cross Tabulation, a pivot table with counts of various categories

(4) One-way Analysis of Variance (one way ANOVA), was used to discover whether there was any significant difference amongst each of the factors and between the two income groups; and

(5) Grouping of customer responses to the open-ended question into themes to understand if there was any other factor that inhibited adoption of Cellphone banking

4.9 Limitations of the Study

- The major limitation of this study was the lack of previous studies around barriers to adoption of Cellphone banking in South Africa
- Due to the sample size, the ANOVA test was not completely accurate because the assumption of homogeneity of variance was violated
- A sample was provided by only one of the big four banks which results in a biased sample. As respondents from the remaining banks were not objectively represented

5 Research Results

5.1 Introduction

The previous chapter described the data collection and statistical techniques that were used to measure response in relation to each of the propositions identified in the third chapter. The first section of this chapter provides descriptive statistic results of the responses received. The second section illustrates the descriptive data and ANOVA results of all the propositions based on the Likert scale responses. The third section groups the responses to the open-ended question into themes. The objective of this section was to tabulate the research and statistical analysis findings. The subsequent chapter will draw conclusions and interpretations based on the results presented in this chapter.

5.2 Response Rate

There were a total of 200 telephonic interviews conducted. A total of 60 responses (33% response rate) were received. Below is the breakdown of the non-respondents:

- 57 people could not be reached on phone – the call was not answered
- 2 people moved to other banks and did not want to participate
- 60 people did not want to participate, this includes 3 people that were overseas at the time; and
- 21 people could not be reached on the phone – either incorrect contact number/s or the contact number did not exist

5.3 Reliability Analysis

A five point Likert scale with end points of ‗strongly disagree' and ‗strongly agree' was used to measure the responses. The Cronbach alpha is a popular way of measuring reliability. Christmann and Van Aelst (2006) defined the Cronbach alpha as summary of several items in the questionnaire into a quantifiable score. A Cronbach alpha greater than 0.7 shows good reliability on the scale.

The reliability of all the constructs is summarised in the table below.

Table 4 : Reliability of results

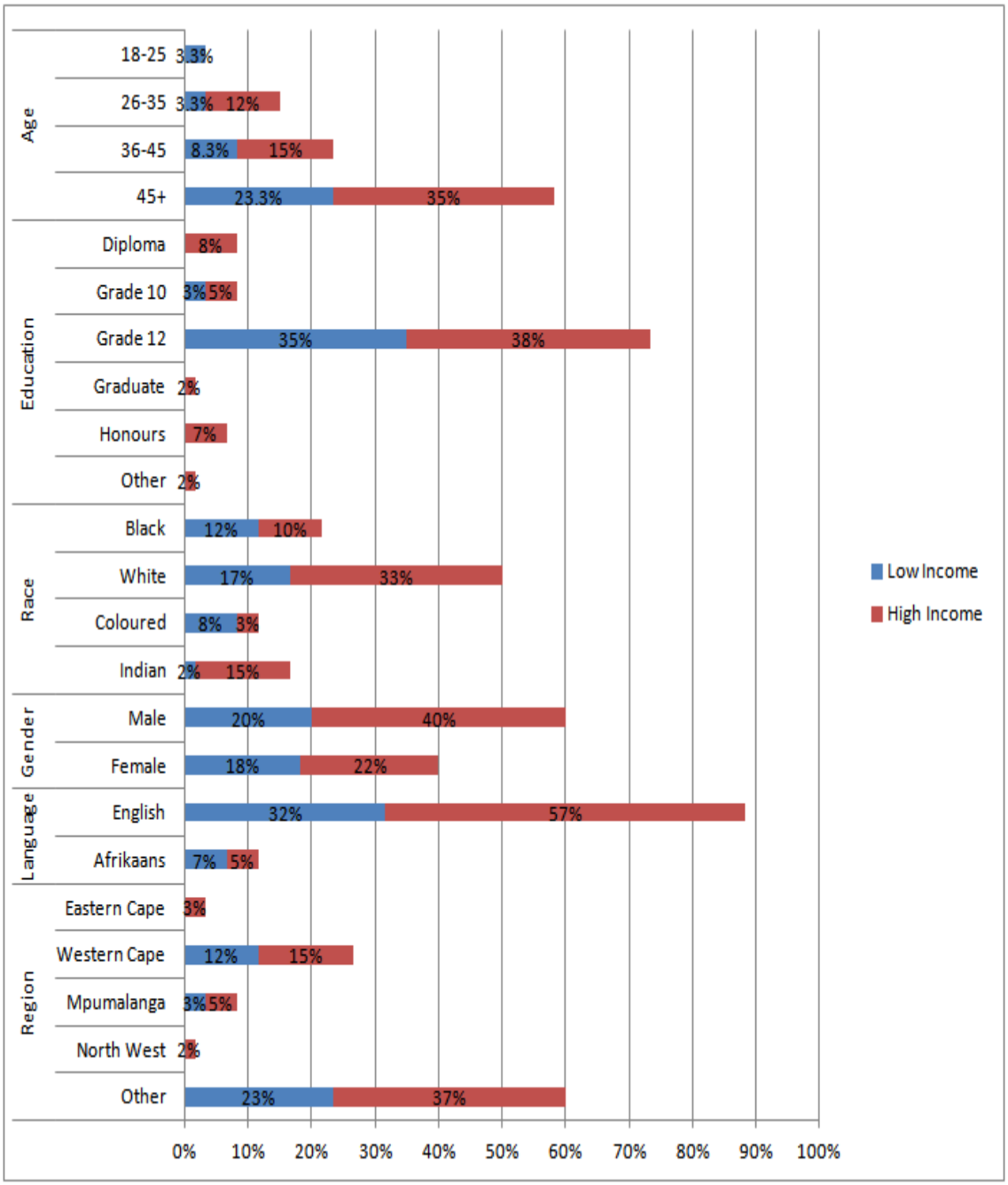
Construct	Cronbach's Alpha	Item	Alpha if deleted
Trialability	0.808	Trialabilty 1	N/A
		Trialabilty 2	N/A
Complexity	0.545	Perceived Complexity 1	0.005
		Perceived Complexity 2	0.000
		Perceived Complexity 3	0.933
Perceived Value	0.774	Perceived Value 1	0.791
		Perceived Value 2	0.499
		Perceived Value 3	0.771
Perceived Credibility	0.401	Perceived Credibility 1	-0.007
		Perceived Credibility 2	0.183
		Perceived Credibility 3	0.609
Perceived Risk	0.706	Perceived Risk 1	0.373
		Perceived Risk 2	0.533
		Perceived Risk 3	0.851

The reliability of results for Triability, Perceived Value and Perceived Risk constructs was greater than 0.7 and were regarded as good. If the question for Perceived Complexity 3 was removed; it will improve the Cronbach Alpha from 0.545 to 0.933 and would make the Perceived Complexity construct reliability stronger. Similarly, if the question for Perceived Credibility 3 was removed, it will make the Perceived Complexity construct stronger and increase the Cronbach alpha from 0.401 to 0.609. These questions were not removed because they were individually compared between the two income groups. Overall, the reliability result proved that the survey results were useful for analysis.

5.4 Descriptive Statistics

This section describes the demographic characteristic of the 60 respondents. The demographic characteristics used were age, education, race and region. This information was provided by the bank.

Figure 6 : Demographic results of the respondents



The majority of the respondents (58%) were over the age of 45 years. The second largest group (23%) was between 36 and 45 years old. The third largest group (15%) was between 26 and 35 years old.

The majority of the respondents (73%) had a grade 12 qualification. The second largest group (8%) had either grade 10 or received a Diploma. The third largest group (7%) had honours level education.

The majority of the respondents (50%) were white and second largest group (22%) were black. The third largest group (17%) were Indian. There was 60% female and 40% male respondents. The majority of the respondent (80%) language preference was English while the remainder of the respondents (20%) preferred Afrikaans. Most of the respondents (60%) were classified as being from region ‗other'. The bank classifies region ‗other' as customers that prefer not to disclose their province of residence within South Africa. The second largest group (27%) of respondents were from the Western Cape. The income split for the respondents were 38% within the low income group and 62% within the high income group.

5.4.1 Low Income Respondents

38% of the respondents were from the low income group. Of these respondents, 83% of the respondents were older than of 36 years. 92% of the respondents had a grade 12 qualifications while the remaining 8% had grade 10 qualifications. There were 44% white and 32% black respondents. The majority of the respondent (84%) language preference was English while the remainder of the respondents (16%) preferred Afrikaans. Most of the respondents (60%) were classified as being from region ‗other', while 32% were from Western Cape and the remaining 8% from Mpumalanga.

5.4.2 High Income Respondents

62% of the respondents were from the high income group. Of these respondents, 80% of the respondents were older than 36 years while the remaining 20% were between 26 and 35 years. 61% of the respondents had a grade 12 qualifications, 8% had grade 10 qualifications and 11% had honours level qualification. 53% of the respondents were white and 16% were black. The majority of the respondents (92%) language preference was English while the remainder of the respondents (8%) preferred Afrikaans. Most of the respondents (60%) were classified as being from region ‗other', while 24% were from Western Cape and 8% from Mpumalanga.

5.5 Proposition Results

A five point Likert scale with end points of ‗strongly disagree' and ‗strongly agree' was used to measure the responses around adoption factors. The respondents that agreed to the questions should have a positive effect on their behavioural intention to adopt Cellphone banking. Conversely, those respondents that disagreed with the questions should have a negative effect on their behavioural intention to adopt Cellphone banking. The ANOVA results are used to compare and contrast the results between the low and high income groups.

5.5.1 Trialability

5.5.1.1 Descriptive Results

Table 5 : Trialability 1 – Descriptive Results

Trialability 1 Survey Question: My bank gives me a demonstration of Cellphone banking

Trialabilty 1	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Average
Low Income	13.04%	47.83%	4.35%	30.43%	4.35%	2.65
High Income	10.81%	86.49%	0.00%	2.70%	0.00%	1.95
Overall	11.67%	71.67%	1.67%	13.33%	1.67%	2.22

60.87% of the low income respondents disagreed with the statement ―My bank gives me a demonstration of Cellphone banking". While 34.78% of low income respondents agreed with this statement. 97.30% of the high income respondents also disagreed with the statement. Overall, 83.34% of the respondent disagreed with the statement ―My bank gives me a demonstration of Cellphone banking" regardless of their income.

Table 6 : Trialability 2 – Descriptive Results

Trialability 2 Survey Question: My bank allowed me to test Cellphone banking

Trialabilty 2	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Average
Low Income	13.04%	47.83%	8.70%	26.09%	4.35%	2.61
High Income	2.70%	89.19%	2.70%	5.41%	0.00%	2.11
Overall	6.67%	73.33%	5.00%	13.33%	1.67%	2.30

60.87% of the low income respondents disagreed with the statement ―My bank allowed me to test Cellphone banking". While 30.44% of low income respondents agreed with this statement. 91.89% of the high income respondents also disagreed with the statement. Overall, 80% of all respondents disagreed with the statement ―My bank allowed me to test Cellphone banking" regardless of their income.

5.5.1.2 ANOVA Results

Table 7 : Trialability– ANOVA Results

Low Income Versus High Income	Levene's Test		ANOVA	Degrees of Freedom		Significance
Item	Statistic	p-value	F-Statistic	df1	df2	p-value
Trialabilty 1	49.685	0.000	10.491	1	58	0.002
Trialabilty 2	33.959	0.000	5.279	1	58	0.025

The ANOVA results for Trialability were not accurate as the assumption of homogeneity of variance was violated since the p-value was equal to 0. As a result we cannot make any statistically significant conclusions relating to the difference in agreement to these statements between low and high income respondents.

5.5.2 Perceived Complexity

5.5.2.1 Descriptive Results

Table 8 : Perceived Complexity 1 – Descriptive Results

Perceived Complexity 1 Survey Question: Cellphone banking is easy to use

Perceived Complexity 1	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Average
Low Income	4.35%	26.09%	34.78%	34.78%	0.00%	3.00
High Income	0.00%	5.41%	89.19%	5.41%	0.00%	3.00
Overall	1.67%	13.33%	68.33%	16.67%	0.00%	3.00

34.78% of the low income respondents agreed with the statement ―Cellphone banking is easy to use". Similarly, 34.78% of these low income respondents are neutral to the statement. While 30.44% of the low income respondents disagreed with this statement. 89.19% of the high income respondents were neutral towards this statement. Overall, 68.33% of all the respondents were neutral towards the statement ―Cellphone banking is easy to use" regardless of their income. However, 16.67% of the respondents agreed to the statement while 15% disagreed with this statement regardless of their income.

Table 9 : Perceived Complexity 2 – Descriptive Results

Perceived Complexity 2 Survey Question: Learning to operate Cellphone banking is easy for me

Perceived Complexity 2	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Average
Low Income	4.35%	26.09%	52.17%	17.39%	0.00%	2.83
High Income	0.00%	2.70%	91.89%	5.41%	0.00%	3.03
Overall	1.67%	11.67%	76.67%	10.00%	0.00%	2.95

30.44% of the low income respondents disagreed with the statement ―Learning to operate Cellphone banking is easy for me". 52.17% were neutral, while 17.39% agreed with the statement. The majority of high income customers (91.89%) were neutral towards this statement. Overall, 76.67% of all respondents were neutral towards the

statement –Learning to operate Cellphone banking is easy for me" regardless of their income.

Table 10 : Perceived Complexity 3 – Descriptive Results

Perceived Complexity 3 Survey Question: Cellphone banking requires lot of mental effort

Perceived Complexity 3	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Average
Low Income	0.00%	34.78%	26.09%	39.13%	0.00%	3.04
High Income	0.00%	5.41%	89.19%	5.41%	0.00%	3.00
Overall	0.00%	16.67%	65.00%	18.33%	0.00%	3.02

34.78% of the low income respondents disagreed with the statement –Cellphone banking requires lot of mental effort". While 26.09% of the low income respondents were neutral, and 39.13% agreed with the statement. The majority of high income customers (89.19%) were neutral towards the statement. Overall, 65% of all respondents were neutral towards the statement –Cellphone banking requires lot of mental effort" regardless of their income. Overall, 16.67% disagreed and 18.33% agreed with statement.

5.5.2.2 ANOVA Results

Table 11 : Perceived Complexity – ANOVA Results

Low Income Versus High Income	Levene's Test		ANOVA	Degrees of Freedom		Significance
Item	Statistic	p-value	F-Statistic	df1	df2	p-value
Perceived Complexity 1	27.209	0.000	0.000	1	58	1.000
Perceived Complexity 2	24.556	0.000	2.041	1	58	0.159
Perceived Complexity 3	44.195	0.000	0.074	1	58	0.786

The ANOVA results for Complexity were not accurate as the assumption of homogeneity of variance was violated since the p-value was equal to 0. As a result we

cannot make any statistically significant conclusions relating to the difference in agreement to these statements between low and high income respondents.

5.5.3 Perceived Value

5.5.3.1 Descriptive Results

Table 12 : Perceived Value 1 – Descriptive Results

Perceived Value 1 Survey Question: Compared to the fee I need to pay, the use of Cellphone banking is beneficial to me

Perceived Value 1	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Average
Low Income	0.00%	17.39%	30.43%	47.83%	4.35%	3.39
High Income	0.00%	0.00%	91.89%	8.11%	0.00%	3.08
Overall	0.00%	6.67%	68.33%	23.33%	1.67%	3.20

17.39% of the low income respondents disagreed with the statement ―Compared to the fee I need to pay, the use of Cellphone banking is beneficial to me". 30.43% were neutral, while 52.18% agreed with the statement. The majority of high income customers (91.89%) were neutral towards this statement. Overall, 68.33% of all respondents were neutral towards the statement ―Compared to the fee I need to pay, the use of Cellphone banking is beneficial to me" regardless of their income. 25% of the respondents agreed to this statement regardless of their income.

Table 13 : Perceived Value 2 – Descriptive Results

Perceived Value 2 Survey Question: Compared to the time I need to spend, the use of Cellphone banking is beneficial to me

Perceived Value 2	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Average
Low Income	0.00%	4.35%	34.78%	60.87%	0.00%	3.57
High Income	0.00%	0.00%	89.19%	10.81%	0.00%	3.11
Overall	0.00%	1.67%	68.33%	30.00%	0.00%	3.28

60.87% of the low income respondents agreed with the statement "Compared to the time I need to spend, the use of Cellphone banking is beneficial to me". 34.78% of the low income respondents were neutral towards the statement. The majority of high income customers (89.19%) are neutral towards the statement. While the remainder of these high income respondents (10.81%) agree to the statement. Overall, 68.33% of all respondents were neutral towards the statement "Compared to the time I need to spend, the use of Cellphone banking is beneficial to me" regardless of their income. 30% of the respondents agreed to this statement regardless of their income.

Table 14 : Perceived Value 3 – Descriptive Results

Perceived Value 3 Survey Question: I find benefit in using Cellphone banking

Perceived Value 3	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Average
Low Income	0.00%	4.35%	56.52%	39.13%	0.00%	3.35
High Income	0.00%	2.70%	91.89%	5.41%	0.00%	3.03
Overall	0.00%	3.33%	78.33%	18.33%	0.00%	3.15

56.52% of the low income respondents were neutral towards the statement "I find benefit in using Cellphone banking". While 39.13% of the low income respondents agreed to this statement. The majority of high income customers (91.89%) were neutral to this statement. Overall, 78.33% of all respondents were neutral towards the statement "I find benefit in using Cellphone banking" regardless of their income. 18.33% of the respondents agreed to this statement regardless of their income.

5.5.3.2 ANOVA Results

Table 15 : Perceived Value – ANOVA Results

Low Income Versus High Income	Levene's Test		ANOVA	Degrees of Freedom		Significance
Perceived Value 1	49.851	0.000	4.342	1	58	0.042
Perceived Value 2	27.389	0.000	15.320	1	58	0.000
Perceived Value 3	35.645	0.000	8.308	1	58	0.006

The ANOVA results for Perceived Value were not accurate as the assumption of homogeneity of variance was violated since the p-value was equal to 0. As a result we cannot make any statistically significant conclusions relating to the difference in agreement to these statements between low and high income respondents.

5.5.4 Perceived Credibility

5.5.4.1 Descriptive Results

Table 16 : Perceived Credibility 1 – Descriptive Results

Perceived Credibility 1 Survey Question: I believe my bank is trustworthy

Perceived Credibility 1	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Average
Low Income	0.00%	4.35%	8.70%	82.61%	4.35%	3.83
High Income	0.00%	5.41%	2.70%	72.97%	18.92%	3.95
Overall	0.00%	5.00%	5.00%	76.67%	13.33%	3.90

86.96% of the low income respondents agreed with the statement ―believe my bank is trustworthy". While 91.89% of the high income respondents agreed to this statement. Overall, 90% of all respondents agreed to the statement ―believe my bank is trustworthy" regardless of their income.

Table 17 : Perceived Credibility 2 – Descriptive Results

Perceived Credibility 2 Survey Question: I believe my bank keeps its promises and commitment

Perceived Credibility 2	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Average
Low Income	4.35%	0.00%	4.35%	91.30%	0.00%	3.83
High Income	0.00%	8.11%	8.11%	64.86%	18.92%	3.95
Overall	1.67%	5.00%	6.67%	75.00%	11.67%	3.90

91.30% of the low income respondents agreed with the statement ―believe my bank keeps its promises and commitment". While 83.78% of the high income respondents that agreed to this statement. Overall, 86.67% of all respondents agreed to the

statement –I believe my bank keeps its promises and commitment" regardless of their income.

Table 18 : Perceived Credibility 3 – Descriptive Results

Perceived Credibility 3 Survey Question: Cellphone banking will not divulge my personal information

Perceived Credibility 3	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Average
Low Income	0.00%	17.39%	43.48%	39.13%	0.00%	3.22
High Income	0.00%	2.70%	56.76%	40.54%	0.00%	3.38
Overall	0.00%	8.33%	53.33%	40.00%	0.00%	3.32

43.48% of the low income respondents were neutral towards the statement –Cellphone banking will not divulge my personal information". While 39.13% of these low income respondents agreed to the statement. 56.76% high income respondents were neutral toward this statement. A further 40.54% of the high income respondents agreed to the statement. Overall, 53.33% of all respondents were neutral towards the statement –Cellphone banking will not divulge my personal information" regardless of their income. 40% agreed to the statement regardless of their income.

5.5.4.2 ANOVA Results

Table 19 : Perceived Credibility – ANOVA Results

Low Income Versus High Income	Levene's Test		ANOVA	Degrees of Freedom		Significance
Item	Statistic	p-value	F-Statistic	df1	df2	p-value
Perceived Credibility 1	0.103	0.749	1.244	1	58	0.269
Perceived Credibility 2	0.909	0.344	0.379	1	58	0.541
Perceived Credibility 3	2.109	0.152	0.943	1	58	0.336

The ANOVA results for Perceived Credibility indicated no significant difference between low and high income respondents with regards to their average levels of agreement towards the statements.

5.5.5 Perceived Risk

5.5.5.1 Descriptive Results

Table 20 : Perceived Risk 1 – Descriptive Results

Perceived Risk 1 Survey Question: I could lose money using Cellphone banking

Perceived Risk 1	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Average
Low Income	13.04%	26.09%	34.78%	26.09%	0.00%	2.74
High Income	10.81%	21.62%	62.16%	5.41%	0.00%	2.62
Overall	11.67%	23.33%	51.67%	13.33%	0.00%	2.67

34.78% of the low income respondents were neutral towards the statement "I could lose money using Cellphone banking". While 26.09% of the low income respondents agreed to this statement, only 5.41% of the high income respondents agreed with the statement. 62.16% of the high income respondents were neutral towards the statement. A further 32.43% of these high income respondents disagreed with the statement. Overall, 51.67% of all respondents were neutral towards the statement "I could lose money using Cellphone banking" regardless of their income. 35% of the respondents disagreed to this statement regardless of their income.

Table 21 : Perceived Risk 2 – Descriptive Results

Perceived Risk 2 Survey Question: My information can be used against my knowledge in Cellphone banking

Perceived Risk 2	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Average
Low Income	13.04%	17.39%	47.83%	21.74%	0.00%	2.78
High Income	10.81%	24.32%	59.46%	5.41%	0.00%	2.59
Overall	11.67%	21.67%	55.00%	11.67%	0.00%	2.67

47.83% of the low income respondents were neutral towards the statement "My information can be used against my knowledge in Cellphone banking". There was 21.74% of the low income respondents agreed with the statement and 30.43% disagreed with the statement. 59.46% of the high income respondents were neutral towards this statement. A further 35.13% of these high income respondents disagreed

with the statement. Overall, 55% of all respondents were neutral towards the statement –My information can be used against my knowledge in Cellphone banking" regardless of their income. 33.34% of the respondents disagreed with this statement regardless of their income.

Table 22 : Perceived Risk 3 – Descriptive Results

Perceived Risk 3 Survey Question: Overall, Cellphone banking is very risky

Perceived Risk 3	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Average
Low Income	0.00%	30.43%	26.09%	39.13%	4.35%	3.17
High Income	0.00%	24.32%	43.24%	29.73%	2.70%	3.11
Overall	0.00%	26.67%	36.67%	33.33%	3.33%	3.13

26.09% of the low income respondents were neutral towards the statement –Overall, Cellphone banking is very risky". While 43.48% of the low income respondents agreed with this statement, and only 30.43% of the low income respondents disagreed with the statement. 43.24% of the high income respondents were neutral towards this statement. A further 32.43% of these high income respondents agreed with the statement, while 24.32% disagreed with this statement. Overall, 36.67% of all respondents were neutral towards the statement –Overall, Cellphone banking is very risky" regardless of their income. 36.66% of the respondents agreed to this statement, while 26.67% disagreed with the statement regardless of their income.

5.5.5.2 ANOVA Results

Table 23 : Perceived Risk – ANOVA Results

Low Income Versus High Income	Levene's Test		ANOVA	Degrees of Freedom		Significance
Item	Statistic	p-value	F-Statistic	df1	df2	p-value
Perceived Risk 1	3.123	0.082	0.263	1	58	0.610
Perceived Risk 2	0.651	0.423	0.712	1	58	0.402
Perceived Risk 3	1.866	0.177	0.083	1	58	0.774

The ANOVA results for Perceived Risk indicated no significant difference between low and high income respondents with regards to their average levels of agreement towards the statements.

5.6 Results from open-ended question

There was an 85% response rate to the open-ended question –Any other reason/s why you choose NOT to register for Cellphone banking?" These responses were broken into specific areas in order to identify the themes. The two themes identified were customer's Personal Preferences and Banking Perceptions. Some of the respondents mentioned more than one reason for not registering for Cellphone banking and that was apportioned into both themes. 68.62% of the respondents that identified –Personal Preference" as their main reason for not registering for Cellphone banking. While 33.33% of the respondents stated their –Banking Perceptions" as their main reason for not registering for Cellphone banking. The table below summarises their actual responses into these two themes.

Table 24 : Results from open-ended questions

Theme	Specifics	Example
Personal Preferences (N = 39)	Already registered (N = 1)	"I have registered for Cellphone banking i have just not used it."
	Have not found the chance to register yet (N = 2)	"I do not have enough time to register for cell phone banking"
	Prefer to bank in person (N = 1)	"She only likes to do banking via the banks."
	Issue with cellphone (N = 2)	"I don't keep my cell phone with me all the time."
		"Would love to use cell phone banking but her cell phone doesn't do that."
	Not interested (N = 6)	"Not interested in cell phone banking"
		"don't want Cellphone banking"
	No reason (N = 4)	"No reason"
	Prefers Internet banking (N = 23)	"I am currently using Internet banking and would think it is easier."
		"I am using Internet banking and am very happy."
		"I use the internet am happy and don't want to change"
Banking	Not well informed (N = 7)	"Don't know enough about cell phone

Perceptions (N = 17)		banking."
		"Have not had any information on cell phone banking."
	Too risky (N = 5)	"High risk involved."
		"I do not trust Cellphone banking."
	Perceived difficulty (N = 5)	"If it was costly I would not use it as I am a pensioner"
		"Not confident enough to use it."
		"The screen on the cellphone is too small to see anything."

5.6.1 Open-ended results for Low Income Respondents

69.56% of the low income respondents responded to the open-ended question. Of those low income respondents; 62.50% mentioned ‗Personal Preferences' as an inhibitor to Cellphone banking while 43.75% citied ―Banking Perceptions" as their inhibitors to Cellphone banking. There were few respondents that had more than one reasons as to not registering for Cellphone banking and that was apportioned in both themes.

For those respondents that citied ―Personal Preferences" as an inhibitor to Cellphone banking; 30% had no particular reason for not registering for Cellphone banking while 20% either have not found a chance to register or have issues with their Cellphone.

For those respondents that citied ―Banking Perceptions" as an inhibitor to Cellphone banking; 42.85% were not well informed on Cellphone banking while 28.57% either perceived this service as being too risky or too difficult.

Table 25 : Open-ended results for Low Income Respondents

Theme	Specifics	Example
Personal Preferences (N = 10)	Already registered (N = 1)	"I have registered for Cellphone banking i have just not used it."
	Have not found the chance to register yet (N = 2)	"Very interested in cell phone banking even got a new phone (blackberry) so i can do cell phone banking just have not had a chance yet to do it."
	Issue with cellphone (N = 2)	"I don't keep my cell phone with me all the time."
		"Would love to use cell phone

		banking but her cell phone doesn't do that."
	No reason (N = 3)	"No reasons"
	Prefer to bank in person (N = 1)	"She only likes to do banking via the banks."
	Prefers Internet banking (N = 1)	"Will be getting Internet banking in the next month."
Banking Perceptions (N = 7)	Not well informed (N = 3)	"Don't know how to use it"
	Too risky (N = 2)	"High risk involved."
	Perceived difficulty (N = 2)	"Not enough information, not easy."

5.6.2 Open-ended results for High Income Respondents

94.59% of the high income respondents responded to the open-ended question. Of those low income respondents; 82.85% mentioned ‗Personal Preferences' as an inhibitor to Cellphone banking while 28.57% citied ―Banking Perceptions" as their inhibitors to Cellphone banking. There were few respondents that had more than one reasons as to not registering for Cellphone banking and that was apportioned in both themes.

For those respondents that citied ―Personal Preferences" as an inhibitor to Cellphone banking; 75.86% preferred Internet banking to Cellphone banking while 20.68% were not interested in Cellphone banking.

For those respondents that citied ―Banking Perceptions" as an inhibitor to Cellphone banking; 40% were not well informed on Cellphone banking while 30% either perceived this service as being too risky or too difficult.

Table 26 : Open-ended results for High Income Respondents

Theme	Specifics	Example
Personal Preferences (N = 29)	Not interested (N = 6)	"Not interested in cell phone banking"
		"don't want Cellphone banking"
	No reason (N = 1)	"No reasons"

	Prefers Internet banking (N = 22)	"I am currently using Internet banking and would think it is easier."
		"I am using Internet banking and am very happy."
		"I use the internet am happy and don't want to change"
Banking Perceptions (N = 10)	Not well informed (N = 4)	"Don't know enough about cell phone banking."
		"have not had any information on cell phone banking."
	Too risky (N = 3)	"I do not trust Cellphone banking."
	Perceived difficulty (N = 3)	"Not confident enough to use it."
		"The screen on the cellphone is to small to see anything."

5.7 Summary of Results

The table below summarise the finding of the results for the close-ended questions.

Table 27 : Summary of close-ended questions

Item	Low Income (N = 23)	High Income (N = 37)	Overall (N = 60)
Trialability 1	2.65	1.95	**2.22**
Trialability 2	2.61	2.11	**2.30**
Perceived Complexity 1	3.00	3.00	**3.00**
Perceived Complexity 2	2.83	3.03	**2.95**
Perceived Complexity 3	3.04	3.00	**3.02**
Perceived Value 1	3.39	3.08	**3.20**
Perceived Value 2	3.57	3.11	**3.28**
Perceived Value 3	3.35	3.03	**3.15**
Perceived Credibility 1	3.87	4.05	**3.98**
Perceived Credibility 2	3.83	3.95	**3.90**
Perceived Credibility 3	3.22	3.38	**3.32**
Perceived Risk 1	2.74	2.62	**2.67**
Perceived Risk 2	2.78	2.59	**2.67**
Perceived Risk 3	3.17	3.11	**3.13**

The average responses to the questionnaire from the 23 low income respondents were 3.14; and 3 from the 37 high income respondents. The results show that the 60 respondents were fairly neutral towards the 14 close-ended questions. However, both the low and high income respondents identified Trialibity, Perceived Complexity, and Perceived Risk as their highest inhibitor to adoption of Cellphone banking. The table

below ranks these constructs for each of the income groups with their average response rate.

Table 28 : Highest factors of inhibition to Cellphone banking

Item	Ranking	Low Income (N = 23)	High Income (N = 37)	Overall (N = 60)
Trialability	1st	2.63	2.03	**2.22**
Perceived Complexity	2nd	2.90	2.77	**2.30**
Perceived Risk	3rd	3.44	3.73	**3.00**

The table below summarises the finding of the results for the open-ended questions.

Table 29 : Summary of open-ended questions

Theme	Specifics	Low Income Respondents	High Income Respondents
Personal Preferences	Not interested	-	20.68%
	Issue with Cellphone	20%	-
	Have not found the chance to register yet	20%	-
	Prefer Internet banking	10%	75.86%
Banking Perceptions	Not well informed	42.85%	40%
	Too risky	28.57%	30%
	Perceived difficulty	28.57%	30%

The majority of the high income respondents that citied personal preferences as a reason for not registering for Cellphone banking had a preference for Internet banking. While 20% of low income respondents in this theme citied an issue with their Cellphone or not having had the chance to register as yet. On average, there was a fairly even split between those respondents that citied banking perceptions as a reason or not registering for Cellphone banking regardless of income levels.

5.8 Conclusion

There was no significant difference between low and high income respondents for this survey. The reliability results showed that Trialibility, Perceived Value and Perceived Risk constructs was good as it is greater than 0.7. Most of the respondents disagreed with the questions for Trialability, Perceived Complexity and Perceived Risk regardless of their income. These respondents were fairly neutral towards the questions on Complexity but they agreed to the questions on Perceived Value. The low income respondents tended to agree with the questions on Perceived Value whereas majority of the high income respondents were neutral towards these questions. The top three factors that inhibit adoption for either low or high income groups were Trialability, Perceived Complexity and Perceived Risk.

There was an 85% response rate to the open-ended question. These responses were grouped into two themes: Personal Preferences and Banking Perceptions. The personal preference theme had majority of the high income respondents preferring Internet banking to Cellphone banking. The low income respondent in this theme citied issue with their Cellphone and not having a chance to register as their reason for not registering for Cellphone banking. The banking perception theme had almost an even split amongst the three specifics regardless of their income level. The three specifics were the respondent not being well informed of Cellphone banking or either finding the service to be too risky or too difficult.

6 Discussion of results

6.1 Introduction

The first chapter introduced the need for innovative technologies like Cellphone banking within the emerging market to increase access to financial services for the previously disadvantaged. It was found that in South Africa, with more than 100% Cellphone penetration rate – the adoption of Cellphone banking is slow compared to other banking channels. The second chapter then used innovation adoption theories combined with existing literature to identify constructs that formed the basis of this research. There were five propositions around Trialabilty, Perceived Complexity, Perceived Value, Perceived Credibility and Perceived Risk identified. In the fourth chapter, the research method used to administer this survey was described. The fifth chapter stated the results of this survey against the five propositions. The objective of this chapter is to verify these results against the literature in chapter two and draw conclusions or interpretations based on these results.

6.2 Discussion of Propositions

6.2.1 Trialability

The first proposition stated that **Trialability** has a positive effect on customer's behavioural intention to adopt Cellphone banking.

Both Rogers (1995) and Ram (1987) Model of innovation Resistance suggested that successful trialabilty of a product will reduce perceived risk associated with the product. In 2008, Johnson found that motivation is needed to be driven by offering trialablilty of the innovation. Brown et al. (2003), Davies and Stroebel (2003), Chung and Kwon (2009a) and Chen, Yen, and Chen (2009) found that customers that were given the ability to test the innovation had had a significant effect on their attitude to adopt the technology.

Table 30 : Trialability as a factor of inhibition to Cellphone banking

Item	Low Income Response	High Income Response	Overall Response
Trialability 1	2.65	1.95	**2.22**
Trialability 2	2.61	2.11	**2.30**

Overall, 83.34% of the customers disagreed with the statement of the bank providing a demonstration of Cellphone banking regardless of their income. However, 34.78% of the low income customers agreed with this statement. While 83% of the low income respondents were older than 36 years old. It can be assumed that they either requested a demonstration from the branch staff or the staff felt obliged to provide a demonstration due the age of the customer. Overall, 80% of all respondents disagreed to the statement that the bank allows them to test Cellphone banking. 30.44% of low income respondents agreed to the bank allowing them to test Cellphone banking. In this instance, the branch staff could have assisted the low income respondents in completing a simple task. The respondents could have regarded this as the bank allowing them to test Cellphone banking. Overall, the results reinforce the current literature. This proposition was ranked as the highest inhibitor to Cellphone banking regardless of income levels. The existing literature and current findings supported the proposition.

6.2.2 Perceived Complexity

The second proposition stated that **Perceived complexity** has a negative effect on customer‘s behavioural intention to adopt Cellphone banking.

Taylor and Todd (1995) suggested an inverse relation between perceived complexity and behavioural intentions to adopt. Arts, Frambach, and Bijmolt (2010) found perceived complexity to strongly inhibit behaviour rather than intention to adopt the innovation. Yang (2009) found that tasks that were difficult to accomplish (complex)

decreased customer satisfaction, which in turn reduces the intention to adopt Cellphone banking. Brown et al. (2003) also found that complexity decreases the behavioural intention to adopt Cellphone banking within South Africa. Lin (2011a) used the TAM construct of ease of use and found customers that found Cellphone banking easy to use; became more willing to use Cellphone banking when conducting banking transactions.

Table 31 : Perceived Complexity as a factor of inhibition to Cellphone banking

Item	Low Income Response	High Income Response	Overall Response
Perceived Complexity 1	3.00	3.00	**3.00**
Perceived Complexity 2	2.83	3.03	**2.95**
Perceived Complexity 3	3.04	3.00	**3.02**

Rogers (1995) defined complexity as the degree to which the technology is perceived as being difficult to use. 26.08% of the low income respondents perceived Cellphone banking as being easy to use and learning to operate. This could be as a result of 17% of the low income respondents between the age of 18 and 36 years and 21.84% between 36 and 45 years. The highest level of qualification for low income respondent is grade 12. The low income respondents have a lower educational background and tend to be overconfident in term of their perceived ease of use of Cellphone banking. The results showed that 5.41% of high income respondents agree with all the statements for Complexity. A possible reason is that these 5.41% of high income respondents have higher educational background perceive Cellphone banking to be easy to use. 27.41% of high income respondents had a higher level education than the low income respondents. Overall, both of the income groups were fairly neutral with regards to the questions around complexity. It can be assumed that most respondent choices were neutral because it was difficult to quantify when not being compared to another self service banking channel. Even though there wasn‘t conclusive evidence

that Complexity was a huge factor in inhibiting adoption, it was the second highest inhibitor to Cellphone banking regardless of income level.

6.2.3 Perceived Value

The third proposition stated that **Perceived value** has a positive effect on the customer's behavioural intention to adopt Cellphone banking.

According to Thaler (1985)and Zeithaml (1988) the customer's perceived value comes from all the relevant benefits received and the cost paid given the consumers overall assessment of the utility of a product or service. Kim et al. (2007) and Lin (2011a) developed the VAM to understand factors of adoption. Their model was based on the two constructs; perceived benefit and perceived sacrifice. Perceived sacrifice has a greater impact than perceived benefit (Kim et al., 2007; Lin, 2011).

Table 32 : Perceived Value as a factor of inhibition to Cellphone banking

Item	Low Income Response	High Income Response	Overall Response
Perceived Value 1	3.39	3.08	**3.20**
Perceived Value 2	3.57	3.11	**3.28**
Perceived Value 3	3.35	3.03	**3.15**

Overall, 71.66% of all respondent were neutral and 24.4% agreed to the questions for perceived value regardless of income. However, a significant finding in this proposition was that 90.99% of the high income respondents were neutral towards this statement. 50.72% of the low income respondents agreed to these statements. The table below summarises the questions in relation to VAM.

Table 33 : Perceived Value in relation to VAM

Proposition	Question	Perceived Benefit	Perceived Sacrifice
Perceived Value 1	Compared to the fee I need to pay, the use of Cellphone banking is beneficial to me		✓
Perceived Value 2	Compared to the time I need to spend, the use of Cellphone banking is beneficial to me	✓	
Perceived Value 3	I find benefit in using Cellphone banking	✓	

52.18% of the low income respondents agreed to the question of perceived value 1 (average low income response - 3.39); while 91.89% of the high income respondent were neutral toward this question (average high income response -3.08). This could be because low income respondents are more cost sensitive then the high income respondents. The low income respondents tended to find greater benefit (average low income response - 3.57) in comparison to high income respondents (average high income response -3.11) in using Cellphone banking compared to the time spent. This could be because low income customers are comparing the time spent standing in lines at the branch to fulfil their transaction then to complete transactions on Cellphone banking. The low income respondents also find greater intrinsic benefit (average low income response -3.35) than the high income respondents (average high income response -3.03). The intrinsic value could be the convenience of doing their banking at any time. The high income respondents have access to on-line banking and may not see much benefit in Cellphone banking. Kim et al. (2007) and Lin (2011a) found that perceived sacrifice has a greater impact than perceived value. This was true for the high income respondents; however 52.18% of the low income respondents felt that perceived benefit has a greater impact than perceived sacrifice. This suggest that time is a contributing factor to intrinsic benefit. Some of the actual responses from the

low income respondents are within the Personal Preference theme: —I do not have enough time in the day to go to the bank and find out about cell phone banking as I go to school" and the Banking Perception theme: —If it was costly I would not use it as I am a pensioner". Therefore, the results do not convincingly support the theory as most of the responses were neutral.

6.2.4 Perceived Credibility

The fourth proposition stated that **Perceived credibility** has a positive effect on the customer's behavioural intention to adopt Cellphone banking.

Davis (1989b) concluded that product loyalty is governed by customer's perception of trustworthiness of the institution. The study by Gu et al. (2009) indicated that trust has an inverse relationship with customer satisfaction. Those customers with low levels of trust level had less experience in Cellphone banking services and quality, whereas, those with higher levels of trust levels showed more satisfaction with Cellphone banking. Luo et al. (2010) found that when the Cellphone banking service gains the users' trust, users will be generally satisfied with their service. As trust levels increase, so to does perceived credibility which has a positive impact on the customer's behavioural intention to adopt Cellphone banking (Quan et al., 2010).

Table 34 : Perceived Credibility as a factor of inhibition to Cellphone banking

Item	Low Income Response	High Income Response	Overall Response
Perceived Credibility 1	3.87	4.05	**3.98**
Perceived Credibility 2	3.83	3.95	**3.90**
Perceived Credibility 3	3.22	3.38	**3.32**

The results showed that there was no significant difference in Perceived Credibility between the two income groups. 72.22% of all the respondents agreed with the questions for Perceived Credibility regardless of their income level. The highest responses received were an average of 86.89% from both income groups on their

belief that their bank was trustworthy and kept their promises and commitment. Overall, lowest response was to the question on whether Cellphone banking will divulge their personal information (8.33%). The highest disagreement came from 17.39% of the low income respondents. This showed high trust in the respondents towards their bank regardless of their income level. However, the respondents were not fully convinced that Cellphone banking would not divulge their personal information; indicating a low level of trust. The results verified Gu et al. (2009) findings that those customers with low levels of trust had less experience in Cellphone banking services. This could be mainly due to the fact that they may view the bank and Cellphone banking as two separate entities and trust the bank more then Cellphone banking. Those low income respondents that agreed to the questions on credibility identified Personal Preferences as other factors of inhibition to Cellphone banking.

Some of the actual responses from the low income respondents were ―Very interested in cell phone banking even got a new phone (blackberry) so I can do cell phone banking just have not had a chance yet to do it." and ―Would love to use cell phone banking but my cell phone doesn't do that". The low income respondents with high levels of trust were generally interested in using this service. This supported the proposition that perceived credibility has a positive effect on the customer's behavioural intention to adopt Cellphone banking.

6.2.5 Perceived Risk

The fifth proposition stated **Perceived risk** towards Cellphone banking will have a negative effect on customer's behavioural intention to adopt Cellphone banking.

Yiu, Grant, and Edgar (2007) defined risk as the customer's subjective expectation of suffering a loss in performing a specific task. Luo et al. (2010) believed that multi-faceted risk perceptions are an important construct of innovation adoption. Therefore,

perceived risk has been explored in a multidimensional construct with six facets. The six facets are performance, financial, time, psychological, social and privacy Risk.

Natarajan et al. (2010) study of adoption of self service channels; namely, Automatic Teller Machine (ATM), Cellphone banking and Internet banking found that on the whole; the ATM is the most preferred channel followed by Internet banking and Cellphone banking.

Table 35 : Perceived Risk as a factor of inhibition to Cellphone banking

Item	Risk Facet	Low Income Response	High Income Response	Overall Response
Perceived Risk 1	Financial	2.74	2.62	**2.67**
Perceived Risk 2	Privacy	2.78	2.59	**2.67**
Perceived Risk 3	Psychological	3.17	3.11	**3.13**

The three questions were constructed around the following risk facets: financial, privacy and psychological. On average 26.09% of the low income respondents agreed to the question on financial risk compared to only 5.41% of the high income respondents. In terms of the privacy risk, 21.74% of the low income respondents agreed to the question when compared to 5.41% of the high income earners. The reason for the difference with each of the income groups could be that low income earners are more risk averse than high income earners. The final question on Perceived Risk was constructed around the psychological risk. 43.48% of the low income respondents agreed with the statement as compared to 32.43% of the high income respondents. The low income respondents mentioned ―High risk involved"; while the high income respondent stated ―I do not trust Cellphone banking". The results show, of the three facets of risk, Psychological risk was ranked the highest followed by Financial and Privacy risk.

With regards to the open-ended questions 75.86% of the high income respondents perceived Internet banking to be a much better, quicker and a safer banking channel as opposed to Cellphone banking. This verified Natarajan et al. (2010) finding that Internet banking is preferred to Cellphone banking. The results of this research verify the literature support the proposition. This proposition was ranked third highest regardless of income level.

6.3 Discussion of open-end results

The responses to the open-ended question fell into two themes: Personal preference and Banking Perception. These themes are discussed with regard to the two income groups. This discussion is based on the 85% response rate to the open-ended question ~~–~~Any other reason/s why you choose NOT to register for Cellphone banking?"

6.3.1 Personal Preferences

Table 36 : Summary of Personal Preference

Theme	Specifics	Low Income Respondents	High Income Respondents
Personal Preferences	Not interested	-	20.68%
	Issue with Cellphone	20%	-
	Have not found the chance to register yet	20%	-
	Prefer Internet banking	10%	75.86%

Perceived value was defined by Zeithaml (1988) as all the relevant benefits received and the cost paid given the consumers overall assessment of the utility of a product or service. 20.68% of the high income respondents were not interested in Cellphone banking; while none of the low income response could be fitted into this specific. This suggests that high income respondents do not find any perceived benefit in using Cellphone banking. This response strengthens the argument in the closed-ended

questions on Perceived Value. The argument was that low income respondents found greater intrinsic benefit in Cellphone banking than the high income respondents.

20% of the low income respondents had issues with their Cellphones. An actual response received from these individuals was "Would love to use cell phone banking but her cell phone doesn't do that". The responses from the low income respondents that their Cellphone was not capable of performing Cellphone banking relates to Wakeland (2007b) second frame of reference to complexity. This was complexity between human agent (the respondent) and the technology system (Cellphone).

20% of the low income respondents didn't have time to register for Cellphone banking. An actual response received from these individuals was "Does not have enough time in the day to go to the bank". These low income respondents had assessed the perceived time risk as defined by Natarajan et al. (2010). Time risk is defined as the customer's assessment of potential loss to time, effort and convenience on the product or service under consideration. Also, these low income respondents believed that registration of Cellphone banking can only be done at the bank and not at other channels like the ATM or through Internet banking.

10% of the low income respondent noted that they "Will be getting Internet banking in the next month". Its appeared that these low income respondents were not aware that they can have both Cellphone banking and Internet banking. An assumption is that the respondent believes that Internet banking is the natural progression from Cellphone banking. This response also assumes that Internet banking is aspirational for the low income respondent. However, 75.86% of the high income respondents preferred Internet banking to Cellphone banking. Most of these high income respondents declared that they were currently using Internet banking and were impressed by the ease of use of this service. They also mentioned that Cellphone banking is too risky and they prefer Internet banking to Cellphone banking. This verified Natarajan et al.

(2010) finding that internet banking is preferred to Cellphone banking. These high income respondents have adopted Internet banking as they found greater intrinsic benefit in this service. It can be assumed that because these high income respondents with higher educational background and salary; have daily access to the Internet and had previously used Internet banking – prefer Internet banking to Cellphone banking.

6.3.2 Banking Perceptions

Table 37 : Summary of Banking Perceptions

Theme	Specifics	Low Income Respondents	High Income Respondents
Banking Perceptions	Not well informed	42.85%	40%
	Too risky	28.57%	30%
	Perceived difficulty	28.57%	30%

42.85% of the low income respondents were not informed about Cellphone banking. Some of the actual responses received from these individuals were –Don't know how to use it" and –Don't know much about it". 40% of the high income respondents also were not well informed about Cellphone banking. Some of their actual responses were –Don't know enough about cell phone banking" and –If I know more about it I could decide if I want to use it. But don't know enough about it". The responses showed that customers are aware of Cellphone banking, but the lack of information on this service is an inhibiting adoption. The assumption is there is not enough transactional marketing from the banks that focuses on attracting customer. It can be assumed that most banks are focussed on relational marketing for customer retention. It can also be assumed that trialability, could assist those respondents that mentioned –Don't know how to use it". Trialability was ranked as the highest inhibitor to Cellphone banking regardless of income level.

28.57% of the low income respondents perceived Cellphone banking as being risky. Some of their actual responses were "High risk involved" and "Too risky". While 30% of the high income respondents also perceived Cellphone banking as being risky. Some of their actual responses were "Cellphone banking is too risky" and "I don't trust Cellphone banking". These responses show that psychological risk was an inhibitor to adoption of Cellphone banking regardless of income. This proposition (perceived risk), was supported by the closed-ended questions and was ranked the third highest inhibitor regardless of income.

Some response from the 28.57% of low income respondents that perceived Cellphone banking as been difficult mentioned "Not enough information, not easy." This is some of the responses from 30% of the high income respondents, "The screen on the Cellphone is too small to see anything" or "Not confident enough to use it". The responses show that Cellphone banking was perceived as being difficult to use. The response from the low income respondent on the screen size relates to Wakeland (2007b) second frame of reference to complexity. This was complexity between human agent (the respondent) and the technology system (Cellphone). The assumption is also that if these respondents were given enough information on Cellphone banking, this will reduce anxiety, improve confidence and improve adoption of Cellphone banking. This proposition, complexity, was supported by the closed-ended questions and is ranked second highest inhibitor regardless of income.

6.4 Conclusion

The results of the five propositions in this research were verified against the literature. This study found that all the propositions were verified against the literature except for Perceived Value. Due to the fact the most of the responses were neutral towards the questions – the results could not comprehensively conclude that the proposition was supported by the results. However, Perceived Value had the most significant finding as Cellphone banking was perceived to have more intrinsic benefit for low income

respondents than high income respondents. Overall, there was not a single factor that differed between low and high income respondents. The results of the survey found that the top three factors that inhibit adoption were Trialability, Complexity and Perceived Risk regardless of income levels.

The comparison of results between the open-ended themes found that personal preferences have a significant impact between the low and high income groups. 75.86% of the high income respondents preferred Internet banking to Cellphone banking. These respondents were impressed with the ease of use of Internet banking. In the Banking Perception theme, there wasn‘t a significant difference between the low and high income respondents. However, banking perceptions had a higher impact on the low income respondents when comparing the two themes. The themes were ranked as follows:

Table 38 : Ranking of factors that inhibit adoption

Theme	Low Income	High Income
Personal Preference	2nd	1st
Banking Perception	1st	2nd

7 Conclusion

7.1 Introduction

The previous chapter verified the results of the survey against the literature in chapter two and drew conclusions and interpretations based on these results. The objective of this chapter is to review the research problem and objectives, outline the main findings from this research, provide recommendation to business based on these findings and propose recommendations for future research.

7.2 Research Problem

In South Africa, the Cellphone penetration rate is greater than 100 percent. In theory, Cellphone banking should be an ideal channel for access to financial services. However, adoption of Cellphone banking has been much slower than other electronic channels like Internet banking. Previous research on Cellphone banking adoption found that barriers to adoption are not universal; they are dependent on the country's economy, income level, gender, social factors and age (Anderson, 2010; Cruz, Lineu Barretto, Muñoz-Gallego, & Laukkanen, 2010; Li & Yeh, 2010; Mahler & Rogers, 1999). Therefore, the aim of this research was to identify and compare the factors that inhibit adoption of Cellphone banking between low and high income customers.

7.3 Research Objectives

The objective of this research was to determine the differentiating factors that act as barriers to adoption of Cellphone banking between low and high income customers in South Africa. These factors were then be compared between the low and high income groups and ranked accordingly within the group. The comparison and ranking of these factors is crucial for financial institutions to improve their understanding of the factors for the different income levels. This will assist banks in creating specific strategies to improve adoption of Cellphone banking. The five propositions identified using existing adoption literature were:

- **Trialability** will have a positive effect on customer's behavioural intention to adopt Cellphone banking
- **Perceived complexity** will have a negative effect on customer's behavioural intention to adopt Cellphone banking
- **Perceived value** will have a positive effect on the customer's behavioural intention to adopt Cellphone banking
- **Perceived credibility** will have a positive effect on the customer's behavioural intention to adopt Cellphone banking ; and
- **Perceived risk** towards Cellphone banking will have a negative effect on customer's behavioural intention to adopt Cellphone banking

7.4 Research Findings

The survey questionnaire contained a series of closed-ended questions relating to the propositions and a single opened question to identify constructs that were not related to the propositions. The open-ended responses were grouped into themes. All the responses were then compared between the low and high income groups.

The major finding from the closed-ended questions was that trialability, complexity and perceived risk were the greatest inhibitors of Cellphone banking **regardless of income level.**

The results for **Trialability** supported the current literature on innovation adoption and supported this proposition. Thus, banks that are capable of providing demonstrations and platforms for customers to test Cellphone banking are more likely to increase adoption regardless of the customer's income level. This proposition was ranked as the highest inhibitor to Cellphone banking.

The results for **Perceived Complexity** did not provide conclusive evidence that this proposition was a huge factor in inhibiting adoption. However, in term of customer's responses as compared to the other propositions; this was ranked the second highest inhibitor to Cellphone banking. As an opposition to Complexity, the TAM construct ease of use from TAM should be the main factor when banks are developing Cellphone banking solutions.

The results for **Perceived risk** verified the current literature on innovation adoption and supported this proposition. The results showed that Psychological risk was ranked the highest, followed by Financial and Privacy risk. Thus, banks need to provide Cellphone banking solutions that are capable of decreasing these risks.

The results showed that there was a significant difference between the low and high income group when comparing the themes. The high income respondents mentioned personal preference as a key inhibitor to Cellphone banking. 75.86% of the high income respondents preferred Internet banking to Cellphone banking. However, the low income respondents mentioned Banking Perception as a key inhibitor to Cellphone banking. Their perceptions around risk, difficulty and not being aware of Cellphone banking were key inhibitors to Cellphone banking.

7.5 Practical Implications for Stakeholders

The results showed that trialability, perceived complexity and perceived risk are key inhibitors of adoption of Cellphone banking. It is imperative that financial institutions provide a demonstration and the ability to test Cellphone banking to its customers. The demonstration may be done on many levels, by the customer service representative, on the internet, at an ATM or through Multimedia Message Service to name a few. However, financial institutions should be providing these demonstrations at areas were both high and low income groups can be influenced. The potential customers should be allowed the opportunity to test the service prior to full adoption. The financial

institutions should provide an intermediary solution that allows the customer to complete simple transactions on their Cellphone. This will improve customer's confidence in the service and allow them to upgrade to the full Cellphone banking solution at a later stage.

The Cellphone banking solution is simple, easy to use and independent of the Cellphone. Complexity can arise at two points; log-in and post log-in. At, log in for Cellphone banking, the financial institutions should require the least amount of information with minimum log in screens. At, post log in, there should only be critical banking transactions. A saturated menu option increases complexity of the service.

The risks associated with Cellphone banking should be minimised. The three risks identified in this research were psychological, financial and privacy risk. With providing trialabilty of Cellphone banking, the perceived complexity by the customer can be reduced and thus should minimise psychological risk. The financial risk can be minimised by institutions by providing a much lower daily or month limits. To reduce privacy risk, the least amount of personal information should be requested at log-in. This should give the customer the impression that least amount of information can be lost.

Some recommendations based on the response to the themes; financial institutions need to increase the number channels for registration of Cellphone banking. There should be more transactional marketing with the theme of convenience and ease of use of the service to attract new customers.

7.6 Recommendations for Future Research

The results showed that many of the respondents were neutral towards the closed-ended questions. A possible reason was that they did not fully understand the questions or the length of the survey discouraged responses. However, there was an

85% response rate to the open-ended question. Therefore, further studies should explore this element through a more qualitative approach.

The results showed trialabilty as the greatest inhibiting factor of adoption of Cellphone banking regardless of income. The results also showed that 75.86% of the high income respondents preferred Internet banking to Cellphone banking. A recommendation for future research could be to understand the impact of trialability on Cellphone banking for high income customers and their behavioural intention to adopt.

The results showed a significant number of low income respondents that agreed to the questions on perceived value with relation to Cellphone banking. The questions around perceived value were based on the VAM model. A recommendation for future research could be to investigate the value based adoption of Cellphone banking within South Africa. The research could use the VAM model as the basis of adoption.

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Annex A : Draft Questionnaire

Research on the *Comparison of factors that inhibit Cellphone banking between low and high income groups in South Africa*
Your participation is voluntary and you can withdraw at any time without penalty. Of course, all data will be kept confidential. By completing the survey, you indicate that you voluntarily participate in this research. If you have any concerns, please contact me. My details are provided below.

Researcher name *Seelan Govender*
Email sgovender@fnb.co.za
Phone 011-371 3573

Gender ○ Male ○ Female

Age ○ 18-25 years ○ 26-35years ○ 36-45years ○ +45 year

Location

Pre-populated based on random sample supplied

Please select your choice using a ☒ or ☑

Statement	Proposition	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
My bank gives me a demonstration of Cellphone banking	Trialability					
My bank allowed me to test Cellphone banking	Trialability					
Cellphone banking is easy to use	Perceived Complexity					
Learning to operate Cellphone banking is easy for me	Perceived Complexity					
Cellphone banking requires lot of mental effort	Perceived Complexity					
Compared to the fee I need to pay, the use of Cellphone banking is beneficial to me	Perceived Value					
Compared to the time I need to spend, the use of Cellphone banking is beneficial to me	Perceived Value					
I find benefit in using Cellphone banking	Perceived Value					
I believe my bank is trustworthy	Perceived Credibility					
I believe my bank keeps its promises and commitment	Perceived Credibility					
Cellphone banking will not divulge my personal	Perceived					

information	Credibility					
I could lose money using Cellphone banking	Perceived Risk					
My information can be used against my knowledge in Cellphone banking	Perceived Risk					
Overall, Cellphone banking is very risky	Perceived Risk					

Any other reason/s why you choose NOT to register for Cellphone banking?