DEVELOPING A TYPOLOGY OF REQUISITE SKILLS FOR FINANCIAL SERVICES EMPLOYEES TO ENHANCE SELF-SERVICE TECHNOLOGY USAGE: THE CASE OF THE SOUTH AFRICAN BANKING INDUSTRY

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Abstract— Financial services institutions invest in self–service technologies for various reasons. These include the demands to rationalise costs and to meet the channel preferences of a 'technology-savvy' client base. Some advantages of self–service technologies ("SSTs") include the optimisation of staff activities and faster and improved customer services. Retail banks experience various migration-related costs when migrating customers to an SST environment; in terms of both branch infrastructure and the development of employee skills. This study aims to both identify and classify the requisite skills needed by financial services professionals to enable them to migrate customers from physical to electronic service channels; including ATMs. A 'mixed method' approach was used to capture the data. LISREL and AMOS were used for checking of distributional assumptions, imputing data for missing observations and calculating summary statistics. The research concluded that employees need to be sensitive to possible resistance from clients to using new technologies and employees should be trained on how guide clients in non-judgemental ways. Special attention should be given to the customer's right to select the channel of their choice. Therefore, institutions should guard against any directive to 'force-migrate' customers to new digital platforms as a business policy.

Keywords— Self-service technology; electronic channels; up-skilled; customer experience; migration; adoption; Automated teller machine; prerequisite skills; usage; ease of use.

I. BACKGROUND

Self–service technologies have shown rapid expansion in recent years, thereby offering enhanced efficiency to businesses and improved convenience to clients. Eriksson and Nilsson, (2007) propose that the popularity of self-service technology is mainly due to its standardised service delivery and the expanded service options it offers. Diverse businesses from retail stores, airports and financial services have adopted self-service technologies ("SSTs"). SSTs assist companies to reduce the number of staff they require and remain functional beyond business hours. For banks, SSTs may assist in alleviating long queues in the banking hall, thereby improving the customer's overall service experience. A drawback is that some clients are apprehensive of new technology and so continue to favour human intervention. It is therefore, vital for companies introducing SSTs to be mindful of (a) customers' varying degrees of technology exposure, and (b) the different propensity levels among customers to adopt new technology; and hence to offer the customer a choice between self-service and assisted-service in the initial migration stage.

II. INTRODUCTION

Financial services institutions deploy self-service devices such as ATMs (automated teller machines) to facilitate value-added transactions over and above the traditional use of cash withdrawals and balance enquiries. ATMs offer two primary service functionalities, which relates to transaction- and enquiry-based services. The former deals with account payments and transfers, while the latter relates to activities such as account balances and mini statements. Financial services institutions are continuously adding to their range of features on these platforms; however customers need to be educated on the full usage and benefits of these options. Digital banking can be described as an electronic connection between clients and financial services institutions in order to set up administer and control transactions (Salehi and Zhila, 2008). Many businesses, such as banks and retail stores, are incorporating various SSTs into their product offerings to encourage clients to perform services themselves (Castro, Atkinson & Ezell, 2010). Notwithstanding the huge capital investment by financial services institutions to improve their digital presence, numerous clients are inactive or only use this channel on a partial basis (Sarel and Marmorstein, 2003). According to Meuter, Bitner, Ostrom& Brown, (2005) clients may embrace services by simply using additional channels, while Bitner, Zeithaml&Gremler, (2010), suggest that self-service technologies are fundamentally instrumental in the way services are developed and implemented.

III. PROBLEM STATEMENT

Customers' lack of understanding with reference to self-service technology and support has resulted in them paying higher transactional fees and experiencing unnecessary inconvenience at physical

channels. Overall, this slow adoption of new self-service technology has resulted in lower levels of self-service usage, as highlighted in the research of McKinsey and Efma of European financial banks (McKinsey and Efma, 2011). Financial services institutions invest in self–service technologies for various reasons, including the demands to rationalise costs and to meet the channel preferences of a technology-literate client base. Banks have utilised various strategies to move transactions from physical to digital channels, including pricing motivations and forced migration, yet often without fully realising the desired positive results and sustained customer adoption of self–service channels.

IV. RESEARCH QUESTIONS

Based on the problem statement and upcoming review of the literature, the following primary research questions were developed:

RQ_1: Does Procedural knowledge influence the perceived ease of use of new technology?

RQ_2: Does Declarative knowledge influence the perceived ease of use of new technology?

RQ_3:Does staff motivational skills influence the perceived ease of use of new technology?

RQ_4:Does Procedural knowledge influence the perceived usefulness of new technology?

RQ_5:Does Declarative knowledge influence the perceived usefulness of new technology?

RQ_6:Does staff motivational skills influence the perceived usefulness of new technology?

In addition, the primary research objectives were as follows:

1. Evaluation and ranking of staff skills in terms of how they may enable (or hinder) self-service usage by customers and;
2. Identification and analysis of staff skills required to enhance the use of self-service technology ("SST") among customers.

V. LITERATURE REVIEW

The review is provided within the framework of the Theory of Performance and Technology Acceptance Model, which are, in turn, underpinned by the philosophy and principles of Treating Customer Fairly.So-called "self-service" activities offer the customer the option of serving him or herself without the immediate face-to-face support of a service assistant (e.g. a bank teller), either in the process of executing a purchase or realising service functionality. Examples of self-service devices permeate almost all sectors of the economy, including financial service institutions, retail stores and public service facilitates. Financial services institutions already deploy ATM kiosks, Internet-based services and cell phone services (Castro, Atkinson & Ezell, 2010). Advantages of SSTs include flexible time options and a wider range of service channels (Meuter *et al*., 2005). In addition, businesses embrace SST devices as these have been shown to increase their overall operational effectiveness and efficiency (Bitner *et al*., 2010).

The review of the literature pertaining to the factors relating to the usage of self-service technologies depicted in Figure 1 below will now be discussed.

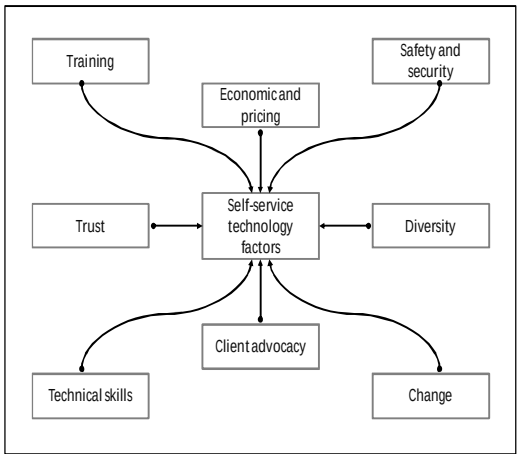


Figure 1: Self–Service Technology ("SST") factors

Training – A key factor driving SST usage is the education of customers, not only in terms of price savings but also in terms of the expanded service value-add of these devices. It is crucial that the same personal banking experience delivered within the branch is also experienced by customers outside of the branch when using SSTs. Financial services institutions can build a repository of customer insights by evaluating channel usage, behaviour patterns and analysing customer complaints. Such a database of client information can also be used to offer solutions to clients based on their unique preferences, both from a sales and channel usage perspective, and to predict future trends and behaviour patterns. Importantly, such a repository can greatly assist in matching customers' SST practices to staff training needs. Earlier research argues that client training (education) is required to prevail against the major barriers associated with SST (McKee, Simmers & Licata, 2006).

Therefore, educating customers as well as branch staff on the pricing of high volume low value transactions is imperative in promoting optimal channel usage. Informed customers may be more likely to utilise SSTs, hence branch employees also need to be fully skilled in terms of all pricing, technical, and process knowledge. Further, line management need to be appropriately skilled to ensure branch employees are efficiently deployed and that the quality of staff-client interaction is improved. Ideally, staff should be encouraged to personally make use of SSTs when they themselves need to use banking services.

Cost factors - Most business entities are embracing technological enablers to drive long-term, profitable relationships (Baran, Galka & Strunk, 2008). ATMs

provide a huge cost reduction for financial services compared to branch banking. Vesala, (2000) argues that the proximity of ATMs to customers and, therefore, their 'foot-print' can establish the pricing power for banks. The two largest cost drivers for financial services institutions are *maintenance* and the overhead costs of *branch networks* and *staff* (Durkin, 2004). The greater the use of electronic channels, including SSTs, the better these costs can be managed and ultimately reduced. Research by Dahlberg, Mallat, Ondrus & Zmijewska, (2008) proposes that there are three cost facets relating to an adoption of technology. These are *the: direct cost, the indirect cost and the psychological cost.*

(Demchak, 2012) in his capacity as Group President of PNC Financial Services Group Inc, launched a strong drive to migrate transactions from the teller to the ATM within his company. His primary motive for doing so was that the transactional cost at the branch was approximately $4, compared to 59 cents at the ATM and a staggering 10 cents at a contact centre. Employees need to be familiar with price options and have the necessary conversational knowledge to communicate this so that customers could be fully equipped to make an informed choice. Furthermore, cost comparisons across each channel should be readily available to both staff and customers. Financial services institutions are creating increasingly innovative operating models to drive costs down. This said, the technology interface in digital channels will become increasingly critical in maintaining efficiency and productivity, particularly in view of the fact that SST transactions form part of a 'lights-out service', not subject to time or geographical constraints.

Safety and security factors - ATMs are often stationed onsite at financial services institutions or at key business points to facilitate transactions at the client's convenience. ATMs not only offer the traditional service functions but also sales opportunities, such as ATM loans; and they do so in a safe and secure manner. To protect the customer, financial institutions provide clients with transaction receipts that may be used to obtain compensation at times of disputes (Lee, 2009). Research by Amtul, (2010) identifies four critical stages of security that financial institutions need to embed to mitigate against vulnerabilities such as a) Identification and authentication, b) digital certification, c) encryption and d) biometrics. Whilst these factors relate to electronic banking ("e-banking"), SSTs can be enhanced from lessons learnt from e-banking platforms, especially from an authentication and identification perspective. The main motivation for banking customers to adopt Internet banking appears to be the ability to perform banking transactions quickly, from anywhere, at any time.

Trust factors - In his research of low cost services at ATMs, Al Sawalqa (2012) has noted that security and privacy are significant factors in the client's need for service satisfaction. In this respect, to foster a climate of trust, in-branch employees need to communicate the relevant protocols to customers. Banks should ensure that their policies allow for the periodic 'sacrifice of profits' so as to satisfy clients' needs. For instance, if a client wants to reverse or correct a transaction, either at the branch or when using an SST, s/he should be permitted to do so without related administration fees. Wong, Rexha & Phau, (2008) adopt the thinking that both digital and traditional banking channels should be scrutinised as complimentary entities. The authors argue that the client's trust in digital banking is an outcome of his or her experience and has a paramount impact in future usage and adoption.

Technical skills - There is a shift from traditional banking channels to a digital environment, the main drivers being the intensity of competition in the banking sector as cited by Ganguli and Roy (2010). It is of paramount importance that companies simplify the client experience, as complexity may be described as "the degree to which an innovation is perceived as difficult to use" (Cheung, Chang & Lai, 2000) It is, therefore, imperative that banking employees have expertise to educate customers.

Factors that generate anxiety in customers include time consuming delays and poor navigational options, as well as critical incidents, such as a lack of assistance by staff when required (Shariq, 2006). Contemporary clients are therefore less tolerant of financial services, especially when instant gratification is required. The latter has been fuelled by the technological era, which has cascaded into the banking world through digital banking (Ismail and Panni, 2009). Clients, rather than service organisations, are the primary beneficiaries of innovation and technology, as noted by Grant, (2010).

Diversity sensitivity - Cultural factors play an important role in an individual's adoption of new technology. It is, therefore, important to explore cultural factors such as access to technology and digital literacy – when promoting SST platforms for services traditionally facilitated through 'walk-in' channels. This view is supported by authors Erumban and Jong, (2006); and Twati, (2006), who highlight the impact and importance of culture in the adoption of technology. Erumban and Jong, (2006) further stress the critical relationship between adoption decisions and cultural factors across regions. Al-Gahtani & Hubona, (2010), also reference the importance of cultural effects in technology acceptance behaviours. Lee et al., (2003) differentiate between individualistic and collective cultures. The study highlights that, in individualistic cultures, people acquire information from formal and direct sources. This is contrasted with collectivistic cultures, where greater dependence is placed on other like-minded individuals, who may be early adopters of an innovation.

Client advocacy - Chiu, Hsieh & Lee, (2005) suggest that client loyalty may be described as a "repurchase pledge to a favoured service or product in the future" (Chiu, et al., 2005). Given that there is a marginal gap between local financial services competitors, the requirement for a differentiated service becomes decisive in influencing customer satisfaction and loyalty (Ganguli and Roy, 2010). However, this can only be achieved by an unambiguous consideration of clients' priorities and an appreciation of the key drivers that influence adoption. Furthermore, Casala, Flavian & Guinaliu, (2008) argue that organisations can influence loyalty by offering standardised services. Wai-Ching, (2008) notes that the survival of banks in the age of e-banking depends on their ability to attract customer advocacy. This, in turn, depends on their ability to offer service excellence and value-added product features.

Change factors - Beer, (2009) maintains that the majority of organisational change management programmes do not succeed. This is mainly due to their failure to engage and alter employees' conduct. Supporting employees and equipping them with the relevant tools and skills during the change process is vital in ensuring seamless change integration.Patsiosis, Hughes & Webber, (2012) and Joseph, (2010) classify resistance to an innovation or change as either passive or active resistance. While passive resistance relates to an unwillingness to engage in the adoption process, (Joseph, 2010), active resistance is a conscious decision that convinces the user that the innovation is unsuitable (Laukkanen, Sinkaunen & Laukkanen, 2009). Financial institutions, like all other organisations, need to factor in rewards and recognition into their change programmes to ensure greater buy-in from employees. When training banking staff in the context of the customer oriented self-service environment, certain sensitivities need to prevail. For instance, any job losses that may result from customers migrating to SSTs and using less of the branch network should be fully contextualised and sensitively communicated. The benefits of employee skills training and a targeted change-management strategy cannot be underestimated in helping banking staff to transition into the new self-service business environment. A smooth transition for employees means they have the ability to migrate customers smoothly into this new digital environment as well. This will ultimately result in greater self-service channel utilisation by customers. The staff-training component includes the identification of training needs; the up-skilling and multi-skilling of employees on different processes; clarification of pricing options and cost comparisons; direction on channel features; access to information on evolving service benefits; and knowledge of the risk issues relating to all self-service channels.

Models used in this research - Theoretical models are helpful in understanding user acceptance, adoption and usage of new technology. Oliveira and Martins, (2011) reference various studies used in information systems ("IS") research. These are founded on either intention-based or diffusion-based models. These models have been positioned to better appreciate and describe individual behaviours toward information technology and include the following two which was used in this study i.e. The Technology Acceptance Model ("TAM2") Venkatesh and Davis (2000); and The Theory of Performance (Campbell, 1990). The reason for selecting the Technology Acceptance Model to support this research is its vigour and robustness compared to other theories in predicting behavioural outcomes in the adoption of new technology (Yousafzai, Foxall & Pallister, 2010). Additionally, the TAM framework offers an improved clarification and enhanced predictive capability with reference to user intention compared to TRA and TPB (Riemenschneider, Harrison & Mykytyn, 2003). The application of the TAM model in this study was considered vital in appreciating the more subtle conceptual issues relating to the enhancement of banking employees' competencies in the context of an SST environment. The Theory of Performance (Campbell, 1990), encompasses three key determinants of performance, namely; (1) Declarative knowledge; (2) Procedural knowledge, skill; and (3) Motivation. Declarative knowledge relates to knowledge about facts, principles and objects. It represents the knowledge of a given task's requirements. Procedural knowledge and skill, relates to knowing how something is done, which would include cognitive skill, perceptual skill, and interpersonal skill. Motivation combines the following factors such as: (a) the choice to expend effort, (b) the choice of the level of effort to expend and (c) the choice to persist in the expenditure of that level of effort. While these two theories have been broadly investigated and cited, no effort has been made to integrate the two streams of research to better understand a) what skills are required by employees in the banking sector to support customers' usage of self-service devices and b) how these skills can be best imparted to staff in an ever-changing work environment, so that their output does not simply comply with organisational standards, but continually exceed them. Based on the constructs of the Theory of Acceptance Model and the Theory of Performance Model, the following conceptual framework is proposed for this study: By overlaying the three determinants of job performance, that is declarative knowledge, procedural knowledge and motivation with the two constructs of TAM, namely perceived usefulness and perceived ease of use, the researchers aims to determine which of the requisite skills are of primary importance to support customers in increasing SST usage and subsequently to increase customer satisfaction of these devices. Hence, Figure 2 below depicts the integration of the Theory of Performance Model and the Technology Acceptance

Model, and their combined alignment with TCF principles.

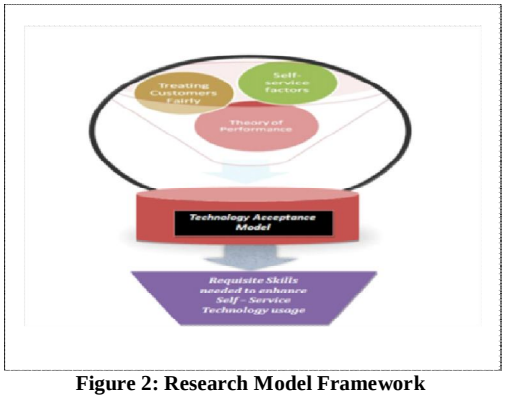


Figure 2: Research Model Framework

Research design and methodology

A "positivist approach" was adopted for this study, which emphasises the application of exploratory research in reaching conclusions which can be generalised for the entire population. The propositions below are gleaned from the above research objectives and outline the sequential flow of the research approach. Table 1 represents the (Null and Alternative) hypothesis:

Table 1: List of the (H0) Null and (H1) Alternative hypotheses

Item	Null Hypothesis:	Description
1.	H_0 1	Declarative knowledge has no influence on the perceived ease of use of new technology
2.	H_0 2	Procedural knowledge has no influence on the perceived ease of use of new technology
3.	H_0 3	Staff motivational skills have no influence on the perceived ease of use of new technology
4.	H_0 4	Declarative knowledge has no influence on the perceived usefulness of new technology
5.	H_0 5	Procedural knowledge has no influence on the perceived usefulness of new technology
6.	H_0 6	Staff motivational skills have no influence on the perceived usefulness of new technology
7.	H_0 7	There is no significant difference in the rating of Declarative Knowledge , motivation and Procedural Knowledge by gender
8.	H_0 8	There is no significant difference in the rating of Declarative Knowledge , motivation and Procedural Knowledge in the role of the teller and enquiries staff
9.	H_0 9	There is no significant difference in the rating of Declarative Knowledge , motivation and Procedural Knowledge across all age groups
10.	H_0 10	There is no significant difference in the rating of Declarative Knowledge , motivation and Procedural Knowledge across the levels of education in staff

This research will follow a 'mixed method' approach, using both qualitative and quantitative methods. Mixed methods designs merge a range of data analytic techniques for a seamless transfer of evidence (Castro, Kellison, Boyd & Kopak, 2010: 342). The qualitative approach only involves 'non-quantitative' methods of data collection which entailed sourcing secondary literature relating to self-service usage and adoption. This was done to improve the conceptual understanding of issues relating to SSTs. In addition, it assisted the researchers to identify various sources of data for analysis. In the Primary data analysis, whilst interviewing customers, the researchers captured their ideas about important issues relating to SSTs verbatim. The Clara Bridge analyst tool was used for text-mining. In the quantitative research, key variables were identified. The quantitative approach was based on scientific outcomes through statistical analysis, hence the researchers endeavoured to establish whether there was a relationship between dependant and independent variables, and if so, to determine the strength of the relationship. (Tustin et al, 2010: 89) adds that while the purpose of the quantitative approach is to generalise about a specific population, its benefits include the forecasting of future results under either similar or different conditions.

For this study, the stratified sampling method was adopted where the population is divided into strata based on one or a number of attributes. A stratified sample will always achieve greater precision than a simple random sample. The measuring instrument used for this study took the form of questionnaires provided to employees in the financial services industry. The goal was to capture and collate their thoughts and opinions on the required staff skills to enhance SST adoption and usage among banking customers. The questionnaire used the five–point Likert scale, lasting approximately 20 minutes. The Cronbach Alpha test was used in signifying reliability. In addition, content and construct validity were used in this research. SEM was used to assess the

relationship among observed variables ("ease of use", "perceived usefulness" and "motivation") as well as latent variables ("declarative knowledge" and "procedural knowledge"). Exogenous variables are causes not included in the model while endogenous variables are represented as effects of other variables as cited by (Castro, Atkinson & Ezell, 2010). SEM was used to evaluate the validity of substantive theories with empirical data. A total of 550 questionnaires were distributed to the branch staff. 403 responses were received but only 393 were deemed usable which supported the confidence in the goodness-of-fit test (Bentler & Chou (1987), hence this number is seen as a goal for SEM research. The independent sample t-test was used to compare two means of two independent random samples. The samples are independent in the sense that they were drawn from different populations as per the stratified sampling method. One-way analysis of variance (ANOVA) was performed to assess whether there was a significant difference in the average rating of "declarative knowledge", "motivation", and "procedural knowledge" in terms of the differences in respondents' skills, age groups, genders, job functions and also in terms of highest level of education.

VI. FINDINGS AND DISCUSSIONS

The study investigated the comparison of gender preferences to each of the research constructs. From the 393 respondents 74.8% were female and the remaining 25.2 % (99 staff) were male. The research investigated the comparison of age classifications to each of the research constructs. From the 393 respondents, the largest category of staff was in the 18-year to 25-year category. This is in line with the job role, which is often seen as an entrance-level role. The second highest ranking is the 26-year to 35-year age group, while the lowest age ranking, at 8%, is the 46-year to 55-year age group. The final descriptive analysis performed in the study was for job functions. ABSA Barclays (South Africa) employs 13 200 staff members in their bank network, with 34% (13 400) representing frontline staff. Survey respondents were 'ring-fenced' in terms of consultant roles relating specifically to the teller and enquiries functions as professionals in these functions primarily handle customers' queries and advice on SST channels. From a sample perspective, the teller role was the largest category chosen with 57% selections. Both these functions play a significant role in handling SST-related queries. Discussion on research question one: Does "declarative knowledge" influence perceived "ease of use" of new technology? The correlations for the attributes below are moderately strong and the p-values < 0.05. According to Cohen, (1988), Pearson correlation coefficients are said to be moderate if between (0.3 and 0.49). This implies that the relationship is statistically significant, with the following values: (0.256); 0.209); and (0.187). A positive correlation means that, as one variable is increasing the other variable will be increasing as well. Hence, declarative knowledge has a positive influence on the perceived "ease of use" of new technology. HO may be there for rejected. Discussion on research question two: Does "procedural knowledge" influence the perceived "ease of use" of new technology? Procedural knowledge" attributes had an insignificant correlation to "ease of use", since the p-values were > 0.05. According to Cohen, (1988), the Pearson correlation coefficient is said to be weak if between 0 and 0.29). The p-values > 0.05, with the following values: (0.033); (- 0.046); and (- 0.058). A negative correlation coefficient implies that one variable increases as the other one decreases and vice versa. Hence, "procedural knowledge" has no influence on the perceived "ease of use" of new technology. HO may therefore be accepted. Discussions on research question three: Do staff motivational skills have an impact on the perceived "ease of use" of new technology? The correlations for the attributes below are moderately strong and the p-values < 0.05.This implies that the relationship is statistically significant, with the following values: (0.152); and (0.129). Staff motivational skills have a positive correlation to the perceived "ease of use" of new technology. HO may be there for rejected. Discussion on research question four: Does "declarative knowledge" influence perceived "usefulness" of new technology? The correlations for the attributes for this hypothesis are moderately strong. The p-values were < 0.05, since Pearson correlation coefficients for this attributes are: (0.361); (0.282); and (0.181). Hence, "declarative knowledge" has a positive influence on the perceived "usefulness" of new technology. HO may be therefor rejected. Discussion on research question five: Does "procedural knowledge" influence the "perceived usefulness" of new technology? A review of the "procedural knowledge" attributes reflected an insignificant correlation to the perceived "usefulness" of new technology since the p-values > 0.05 with the following values (0.073); and (0.031). This implies that "procedural knowledge" has a positive influence on the perceived "usefulness" of new technology. HO may therefore be accepted. Discussion on research question six: Do staff motivational skills influence the "perceived usefulness" of new technology? The attributes are moderately strong. This implies that the relationship is statistically significant, with the following values: (0.204); and (0.161). Hence we can conclude that staff motivational skills have a positive correlation to the perceived "usefulness" of new technology. HO may be there for rejected. Discussion on research question seven: Is there a difference in rating by staff of Declarative Knowledge and Knowledge Procedural Knowledge and Skill by gender? To assess the above research question, an independent sample t-test was conducted around each question. The null hypothesis was that the mean rating

by male respondents is not different for the mean rating by female respondents (μ_F=μ_M) and the alternative hypothesis was that the rating differs. (μ_F≠μ_M or μ_F-μ_M≠0). The test was conducted at 5% significance level and the test was two-sided. The results are shown in the Table 2 below.

Table 2: Independent sample T-test between Factors by Gender

Group Statistics						Independent Samples Test	
Gender		N	Mean	Std. Deviation	Std. Error Mean	t	P-Value
Declarative knowledge	Female	294	4.25	0.961	0.056	1.841	0.068
	Male	99	4.03	1.069	0.107		
Procedural knowledge	Female	294	2.94	1.298	0.076	-0.174	0.862
	Male	99	2.96	1.276	0.128		

There was no significant difference in the rating of "declarative knowledge" and "procedural knowledge" by gender since the p-values of the t-test were greater than 0.05. HO may be there for is accepted. The standard deviation (SD) ranges from 0.961 to 1.298 (SD) approximates the average distance of individual scores from the mean. Discussion on research question eight: Is there a difference in rating by staff of Motivation, Declarative Knowledge, and Procedural Knowledge in the role of the teller and enquiries staff? What is the influence of job functions of tellers and enquiries staff on "declarative knowledge" (DK), "motivation" and "procedural knowledge" (PK)?The results are shown in the Table 3 below. To assess the above research question, an independent sample t-test was conducted for the question. The null hypothesis was that the mean rating by tellers is not different for the mean rating by enquiries staff (μ_T=μ_E) and the alternative hypothesis was that the rating differs (μ_T≠μ_E or μ_T-μ_E≠0). The test was conducted at 5% significance level and the test was two-sided.

Table 3: Independent sample T-test between factors by role

Group Statistics						**Independent Samples Test**	
Role		N	Mean	Std. Deviation	Std. Error Mean	t	P-Value
Motivation	Teller	225	4.68	0.545	0.036	1.327	0.185
	Enquiries	168	4.61	0.590	0.045		
Declarative knowledge	Teller	225	4.20	0.986	0.066	0.098	0.922
	Enquiries	168	4.19	1.004	0.077		
Procedural knowledge	Teller	225	2.89	1.282	0.085	-1.042	0.298
	Enquiries	168	3.02	1.302	0.100		

There was no significant difference in the rating of all three factors in terms of respondents' roles since the p-values of the t-test were all > 0.05. Thus HO may be therefor not rejected, implying that there was no difference in the ratings of "motivation", "declarative knowledge", and "procedural knowledge" in terms of the roles of the teller and enquiries staff. The standard deviation (SD) ranges from 0.545 to 1.302 (SD) approximates the average distance of individual scores from the mean. Discussion on research question nine: Is there a difference in rating by staff of Motivation, Declarative Knowledge and Procedural Knowledge across all age groups? To assess the above research question, one-way analysis of variance (ANOVA) was used to assess whether the ratings of "motivation", "declarative knowledge", and "procedural knowledge" differ depending on respondents' age groups. AVOVA was used because the categories for age were more than two. The null hypothesis was that the average rating of each factor is the same across all age groups against the alternative hypothesis that the average rating of each factor differs with age group. The results are shown in the Table 4 below.

Table 4: Descriptive statistics for factor means by age group

Descriptive					
		N	Mean	Std. Deviation	Std. Error
Declarative knowledge	18 years to 25 years	151	4.334	0.948	0.077
	26 years to 35 years	123	4.098	1.014	0.091
	36 years to 45 years	88	4.148	0.950	0.101
	46 years to 55 years	31	4.032	1.188	0.213
	Total	393	4.195	0.992	0.050
Procedural knowledge	18 years to 25 years	151	3.017	1.331	0.108
	26 years to 35 years	123	2.911	1.296	0.117
	36 years to 45 years	88	2.864	1.231	0.131
	46 years to 55 years	31	2.968	1.278	0.229
	Total	393	2.945	1.291	0.065
Motivation	18 years to 25 years	151	4.781	0.430	0.035
	26 years to 35 years	123	4.537	0.644	0.058
	36 years to 45 years	88	4.580	0.601	0.064
	46 years to 55 years	31	4.677	0.599	0.108
	Total	393	4.651	0.565	0.029

The standard deviation (SD) ranges from 0.430 to 1.331 (SD) approximates the average distance of individual scores from the mean. "Declarative knowledge" and "motivation" had high ratings across all age groups while those for "procedural knowledge" were low. The 18 – 25 years age group had the highest means on all three factors. The standard error is indicative of how approximately the observed value of the statistic is from the mean and the amount of uncertainty in a summary number representing the entire sample. The standard error for this sample ranges between 0.029 to 0.229.

Table 5 shows the results of the analysis of whether the differences in ratings by age group were significant or not. The p-values (Sig) for "motivation" (0.002) < 0.05 (the significance level) and thus the null hypothesis is rejected and it is concluded that the rating for "motivation" differs with the respondents' age groups. On the other hand, the p-values for "declarative knowledge" (0.158), and "procedural knowledge" (0.824) were > 0.05, implying that the HO may be there for cannot be rejected for the two factors and thus, the rating for "declarative knowledge" and "procedural knowledge" do not depend on the respondent's age group.

Table 6 shows where the differences for "Motivation" are.

Table 5: ANOVA Table for Factor Means by Age Group

ANOVA						
		Sum of Squares	Df	Mean Square	F	Sig.
Declarative knowledge	Between groups	5.121	3	1.707	1.744	.158
	Within groups	380.862	389	.979		
	Total	385.984	392			
Procedural knowledge	Between groups	1.518	3	.506	.302	.824
	Within groups	651.556	389	1.675		
	Total	653.074	392			
Motivation	Between groups	4.651	3	1.550	5.001	.002
	Within groups	120.591	389	.310		
	Total	125.242	392			

Table 6: Multiple comparisons for "motivation" by age

LSD					
Dependent Variable			Mean Difference (I-J)	Std. Error	Sig.
Motivation	18 years to 25 years	26 years to 35 years	0.245	0.068	0.000
		36 years to 45 years	0.202	0.075	0.007
		46 years to 55 years	0.104	0.110	0.344
	26 years to 35 years	18 years to 25 years	-0.245	0.068	0.000
		36 years to 45 years	-0.043	0.078	0.581
		46 years to 55 years	-0.141	0.112	0.209
	36 years to 45 years	18 years to 25 years	-0.202	0.075	0.007
		26 years to 35 years	0.043	0.078	0.581
		46 years to 55 years	-0.098	0.116	0.400
	46 years to 55 years	18 years to 25 years	-0.104	0.110	0.344
		26 years to 35 years	0.141	0.112	0.209
		36 years to 45 years	0.098	0.116	0.400

The p-values for the multiple comparison, which shows individual differences among the different pair of age groups, shows that respondents that are aged between 18 and 25 years rated "motivation" significantly higher than the age groups 26 to 36 years (P-value =0.000<0.05) and also significantly higher than those aged 36 to 45 years. There were no significant differences among the rest of the age groups. The standard error is indicative of how approximately the observed value of the statistic is from the mean and the amount of uncertainty in a summary number representing the entire sample. The standard error for this sample ranges between 0.075 to 0.116.Discussion on research question ten: Is there a difference in rating by staff of Motivation, Declarative Knowledge, andProcedural Knowledge across the levels of education in staff? To assess the above question, one-way analysis of variance (ANOVA) was performed. The null hypothesis was that the average rating of each factor is the same across all levels of education against the alternative hypothesis that the average rating of each factor differs with highest level of education attained. The results are shown in Table 7.

Table 7: Descriptive statistics for factor means by highest level of education

	N	Mean	Std. Deviation	Std. Error	
Declarative knowledge	Did not complete high school	20	4.74	0.497	0.111
	Completed high school	242	4.11	1.011	0.065
	Degree / diploma / post undergraduate	131	4.28	0.986	0.086
	Total	393	4.19	0.992	0.050
Procedural knowledge	Did not complete high school	20	2.53	1.070	0.239
	Completed high school	242	3.05	1.280	0.082
	Degree / diploma / post undergraduate	131	2.81	1.325	0.116
	Total	393	2.95	1.291	0.065
Motivation	Did not complete high school	20	4.75	0.550	0.123
	Completed high school	242	4.65	0.557	0.036
	Degree / diploma / post undergraduate	131	4.63	0.584	0.051
	Total	393	4.65	0.565	0.029

The results reveal that respondents who did not complete high school had the highest "declarative knowledge", and "motivation". On the other hand those who completed high school had the highest rating of "procedural knowledge". The standard deviation (SD) ranges from 2.81 to 4.75 (SD) approximates the average distance of individual scores from the mean.

The F – distribution is used when comparing statistical models. The standard error for this sample ranges between 0.497 to 1.325. Table 8 shows results of the analysis of whether the differences in ratings by highest level of education were significant or not.

Table 8: Descriptive statistics for factor means by highest level of education

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Declarative Knowledge	Between Groups	8.705	2	4.352	4.499	.012
	Within Groups	377.279	390	.967		
	Total	385.984	392			
Procedural knowledge	Between Groups	8.561	2	4.282	2.591	.076
	Within Groups	644.510	390	1.653		
	Total	653.074	392			
Motivation	Between Groups	.237	2	.118	.369	.692
	Within Groups	125.005	390	.321		
	Total	125.242	392			

The p-values (Sig) for "declarative knowledge" (0.012) is < 0.05 (the significance level) and thus null hypothesis is rejected and it is concluded that the rating for "declarative knowledge" differs with the respondent's highest level of education. On the other hand the p-values for "procedural knowledge" (0.076), and "motivation" (0.692) were greater than 0.05, implying that HO may be there for cannot be rejected for the two factors and thus, the rating for "procedural knowledge" and "motivation" do not depend on the respondent's level of education.

Table 9 shows where the differences for "declarative knowledge" are.

Table 9: Multiple comparisons for "motivation" by highest level of education

Multiple Comparisons LSD					
Dependent Variable	(I) Education	(J) Education	Mean Difference (I-J)	Std. Error	Sig.
Declarative Knowledge	Did not complete high school	Completed high school	.63213*	.22884	.006
		Degree / diploma / post undergraduate	.46078	.23612	.052
	Completed high school	Did not complete high school	-.63213*	.22884	.006
		Degree / diploma / post undergraduate	-.17135	.10669	.109
	Degree / diploma / post undergraduate	Did not complete high school	-.46078	.23612	.052
		Completed high school	.17135	.10669	.109
*. The mean difference is significant at the 0.05 level.					

The p-values (Sig) for multiple comparisons, which illustrates individual differences among the different pair of levels of education, shows that respondents who did not complete high school had significantly higher ratings for "declarative knowledge" compared to those that had completed high school. The standard error for this sample ranges between .10669 to .22884. There was, however, no significant difference

between those respondents that had degrees / diplomas / post undergraduate qualifications and the other two groups. The next section will detail the resultant model and will incorporate the analysis of the hypotheses above.

Resultant model

A model was fitted that provided "ease of use" (EOU) dependent on the three factors namely; "declarative knowledge", "motivation", and "procedural knowledge". 'Perceived usefulness' was, in turn, dependent on "ease of use". The resultant model is illustrated in Figure 2. When PK goes up by 1 standard deviation, EOU goes up by 0.271 standard deviations. Regression Weights: (Group number 1 - Default model). The results in Figure 2 show that when "declarative knowledge" (DK) goes up by 1, "ease of use" (EOU) goes up by 0.301. The regression weight estimate, 0.301, has a standard error of approximately 0.064. A standard error (S.E.) of 4.674 implies that the regression weight estimate is 4.674 standard errors above zero. The probability of getting a critical ratio (C.R.) as large as 4.674 in absolute value is less than 0.001, which is also less than 0.05 (the significance level). Stated differently, the regression weight for "declarative knowledge" in the prediction of "ease of use" is significantly different from zero at the 0.001 level (two-tailed). When "procedural knowledge" goes up by 1, "ease of use" goes down by 0.032. The probability of getting a critical ratio as large as 0.92 in absolute value is 0.357. Stated differently, the regression weight for "procedural knowledge" in the prediction of "ease of use" is not significantly different from zero at the 0.05 level (two-tailed).

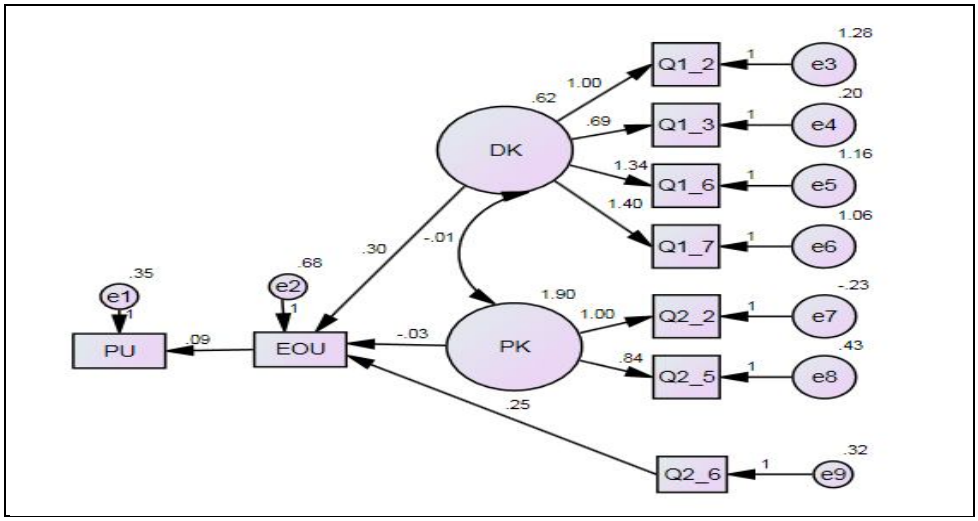


Figure 2: Resultant Model

When "motivation" (Q2_6) goes up by 1, "ease of use" goes up by 0.25. A standard error (S.E.) of 3.354 implies that the regression weight estimate is 3.354 standard errors above zero. The probability of getting a critical ratio as large as 3.354 in absolute value is 0.010, which is less than 0.05 (the significance level). Stated differently, the regression weight for "motivation" in the prediction of "ease of use" is significantly different from zero at the 0.05 level (two-tailed). Overall it can be noted that when "declarative knowledge" goes up by 1, Q1_3 goes up by 0.689.

CONCLUSIONS

By ensuring financial services branch staff members are adequately trained and up-skilled; the benefits will be two-fold: firstly, staff will assist customers by offering and explaining a choice of banking channels that are more convenient, lower in cost and of greater practical value to them. Secondly, a notable benefit to branch staff would be a reduction of queues and low value work, enabling them to engage more qualitatively with customers. Financial institutions, like all other organisations, need to factor in rewards and recognition into their change programmes to ensure greater buy-in from employees. When training banking staff in the context of the customer oriented self-service environment, certain sensitivities need to prevail. For instance, any job losses that may result from customers migrating to SSTs and using less of the branch network should be fully contextualised and sensitively communicated. In addition to being trained on the technical and functional aspects of digital platforms, as well as benefits and costs of new electronic service channels, employees need to be sensitive to possible resistance from clients to using new technologies. Employees should, therefore, also be trained on how to gauge possible reasons for such resistance and to guide clients in non-judgemental ways. Special attention should be given to the customer's right to select the channel of their choice. Therefore, institutions should guard against any directive to 'force-migrate' customers to new digital platforms as a business policy. From a SST adoption perspective, there was a glaring gap as South Africa

has lagged behind other countries in embracing digital banking, Furthermore with SSTs being adopted in most industries, the failure to ensure that staff were adequately equipped to converse with customers about the benefits and challenges of these new technology platforms will result in customers' continued reluctance to use new self-service channels. The benefits of skills training cannot be underestimated in helping banking staff to transition into the new self-service business environment. The better banking employees are equipped to educate and support customers, the more client acceptance and usage of SSTs will be enhanced.

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