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Leveraging digital technology for employee engagement in the banking sector in South Africa

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Leveraging digital technology for employee engagement in the banking sector in South Africa

Precious Vamisile Mavundla

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A research article submitted to the Faculty of Commerce, Law and Management, University of the Witwatersrand, in partial fulfilment of the requirements for the degree of Master of Business Administration

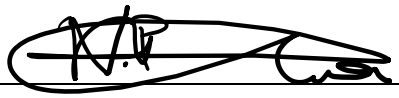
Johannesburg, 2023

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February 2023

DECLARATION

I, Precious Vamisile Mavundla, declare that this research article is my own work except as indicated in the references and acknowledgements. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration in the Graduate School of Business Administration, University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this or any other university.

Precious Vamisile Mavundla 

(Type your name in full here, and sign in the space above)

Signed at …**Brakpan**……

On the ……**28**…… day of ……**February**…… **2023**.

DEDICATION

To my husband Don and my lovely daughter Uligugu.

ACKNOWLEDGEMENTS

First, I thank the Almighty God for the unceasing blessings in my life. Second, I would also like to express my sincere gratitude to my supervisor Dr Erasmus Kofi Appiah, for his support and guidance in writing this research paper. A special thanks goes to all research participants for providing data which made this research project a possibility.

Lastly, to my husband and my daughter for their continual encouragement, support, and love.

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Appendix 1: Clearance Certificate from Wits Business School Ethics Committee

Appendix 2: Permission Letter from the University of Witwatersrand Deputy Registrar

Appendix 3: Sample size calculation

Appendix 4: Participant information sheet and consent form

Appendix 5: Online survey

Appendix 6: Data analysis syntax

ABSTRACT

Employee engagement in the context of the fourth industrial revolution has already become topical in many workplaces. However, the industrial revolution brings uncertainties that may affect employees' engagement in their jobs. Therefore, new research and evidence may be required to accurately understand what factors are essential for employee engagement in the new world of work and the importance of leveraging digital technology as a critical element in promoting employee engagement.

The study followed a quantitative design to understand the association between training and development, communication, and pay and benefits with employee engagement in the context of the fourth industrial revolution. An online questionnaire was used to collect data from participants. The banking sector was chosen as a sampling frame to get the participants. 5-point Likert scale questions will be used. Data will be analysed in Stata Software. The analysis used a non-parametric test because Likert scale data is ordinal. The results were then compiled into a research report.

Training and development showed the strongest correlation with employee engagement. Compensation and communication were also correlated with employee engagement but to a lesser extent than training. Different authors point to the importance of these factors, such as efficient communication in the face of a rapidly changing workplace where employees are hungry for new information as it comes and also for training opportunities to prepare and make them ready for a new world of work. In the mix of all this, pay and benefits remain relevant for engaging employees. Therefore, companies seeking to keep their employees engaged must leverage digital technology as a critical element in promoting employee engagement.

Keywords: employee engagement; communication; technology; training; remuneration; banking; South Africa

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1 Introduction

1.1 Overview

Whether failing to grow or achieving its growth projections, any economy and industry must have engaged employees in their workforce. Employees can realise and appreciate the dire situation of failing economies and join in with a total commitment to resolving the problems. Similarly, a thriving economy with engaged employees lets them realise other creative potential avenues, even extending outputs and profits. Moreover, because of the fundamental tenet of employee engagement, unison can be achieved between employee and employer for the common good of either party (Kompaso & Sridevi, 2010). Therefore, it is unsurprising that thriving companies have engaged employees (Kelly, 2020). For developed countries, it may be possible to draw links between their effective employee engagement and advanced economies.

The 2022 Q1 Quarterly Labour Force Survey (QLFS) by Statistics South Africa (StatsSA) found that South Africa has 14.9 million employed people out of a labour force of 22.8 million (Stats SA, 2022). This 2022 Q1 working population has nearly 2 million fewer employed people compared to statistics reported before 2019 when more than 16,4 million were employed (Stats SA, 2020). These sharp employment declines are partly due to the technical recession in the third quarter of 2019 (Stats SA, 2020) and the economic collapse during the COVID-19 pandemic, which manifested in 2020. Due to COVID-19, some sectors of the economy, such as tourism, faced total closures, while others had to deal with a new reality of working on virtual platforms or working from home. Although affected by the pandemic, the banking sector had already begun modernising its systems, and many of the functions were increasingly done virtually or automated, leading to employee lay-offs. COVID-19, therefore only further accelerated this move towards modernisation, with digitisation topping the list of the five priorities for the banking section post-COVID (BankSeta, 2021). While further modernisation, in the long run, is assumed to reduce unemployment in the banking sector (BankSeta, 2021), the current evidence from BankSeta shows that the short-term effects of modernisation have been the reduction of headcount in some institutions (BankSeta, 2020). Therefore, in the short-term, further

digitisation threatens the jobs in the sector, and for some workers, it may lead them to be disengaged from their jobs.

Banking is one of the key service sectors in South Africa and has witnessed significant growth and expansion. The BankSeta Workplace Skills Plan for the Fiscal year 2020-2025 stated that the sector currently employs 197288 employees in South Africa, and 36% of their employers are found in Gauteng (BankSeta, 2020). The big five banks (Standard Bank, FNB, Nedbank, ABSA, and Capitec Bank) employ more than 90% of these employees (BankSeta, 2020).

1.2 Background of the Study

Employee engagement is poorly studied and consequently misunderstood, and the shortage exemplifies these scholarly articles and proper independent research on employee engagement (Saks & Rotman, 2006). For example, a simple search on Google scholar using the following strict but specific search string “Employee engagement” AND “South Africa” reveal a top result of a study conducted in 2010 (Rothmann & Rothmann Jr, 2010) and the second being a student dissertation from the year 2006 (Silitonga & Sadeli, 2020). Of course, there is a possibility that the search terms might have restricted the inclusion of other related scholarly articles. However, the fact that the top scholarly result is now ten years represents the industry’s lack of emphasis on employee engagement despite its importance. Instead, there is a plethora of commissioned information on websites that are not peer-reviewed to substantiate them.

Several factors influencing employee engagement are usually called antecedents (Rothmann & Rothmann Jr, 2010; Witemeyer, 2013; Xu & Thomas, 2011). They are antecedents because they precede or come before engagement and must be maintained for engagement to persist in the organisation. For example, a study by (Rothmann & Rothmann Jr, 2010) conducted in South Africa found the following factors as antecedents to employee engagement; “role clarity, good relationships with supervisors, communication, information and participation in decision-making” and advancement opportunities, which they defined as made up of remuneration, promotion, and training. Different authors who have studied employee engagement have found similar antecedents even in settings outside South Africa. Factors identified in these settings include training, development

and career, management, performance appraisals, communication, fairness and equal opportunities, pay and benefits, health and safety, cooperation, family friendliness, and job satisfaction (Robinson et al., 2004).

These studies concluded that all these factors must be met for organisational employee engagement (Robinson et al., 2004; Rothmann & Rothmann Jr, 2010). However, in the context of the fourth industrial revolution (4IR), these factors are possibly not equally important and relevant. The World economic forum identifies the training and reskilling of workers as a prominent factor in preparing the current workforce for future jobs in the 4IR (Gordon, 2009). In addition, a global report by Deloitte on the preparedness of the workforce also explicitly outlines that organisations have to prepare their workforce with skills that match the needs of the dynamic 4IR environment (Deloitte, 2018). Training and development are particularly important in South Africa because a recent study found that only 8% of organisations can be considered ready for 4IR (Maisiri & van Dyk, 2019). This factor was also considered the most important antecedent of employee engagement; hence it was essential to consider for the 4IR(Robinson et al., 2004)

Since 4IR introduces a rapid change to the organisation, employers must also consider and involve all organisational stakeholders throughout the transformation through communication so that no one is left out. The world economic forum identifies open communication as one of the critical factors that enhance the preparedness of industries for 4IR (World Economic Forum, 2019). Communicating helps employees identify the “upskilling and reskilling pathways” to prepare them for 4IR (World Economic Forum, 2019). Companies benefit from business performance if employees utilise these communicated pathways (World Economic Forum, 2019). When leaders include employees in decision-making and problem-solving and foster participation during transformation, this leads to happily engaged employees (Mayer & Oosthuizen, 2020). Therefore, communication is vital for both employee engagement and 4IR.

Rothmann & Rothmann Jr (2010), in their study of employee engagement in South Africa, included pay and benefits in training and development. Concerning 4IR, however, pay and benefits can be considered standalone factors because of their prominence in the discussion of the changing work environment. The 4IR introduces disparities where those with lower skills get less pay and benefits than

those with higher skills (Schwab, 2016). However, the emergence of new higher-paying opportunities and job skills may also influence the motivation of workers to be engaged in their jobs while mediating readiness for 4IR (Schwab, 2016).

1.3 Research Context

1.3.1 South African Banking Sector

The Banking sector is categorised by Statistics South Africa as the "financial and business services" industry and forms part of the Financial Service Sector (Statistics South Africa, 2012). The banking sector comprises banking, credit unions, and microfinanciers (Isett seta, 2010). Bankseta reports that eighteen listed banks are in South Africa (Isett seta, 2010).

South Africa's banking sector is considered the best in Africa and an arguably strong competitor worldwide. The country has five major banks: First National Bank, Nedbank, ABSA, Standard Bank, and Capitec. Reserve Bank of South Africa regulates the banking sector in South Africa. The Reserve Bank grants operating licences and acts as the lender to the banks' sets of informed repo rates at which banks borrow from the reserve bank (Padayachee & van Niekerk, 2019). However, the South African banking system is increasingly under severe financial and economic pressure. In addition, the politics in the country have continued to erode the trust that international lenders have in South African institutions. Over the years, therefore, the credit rating of most South African firms has declined drastically, including the sovereign rating, which is now considered "junk" by international agencies such as Moody's and S&P. Banks have not been spared either because, by standard practice, a bank cannot have a rating higher than the sovereign rating of the country (Moody's Investor Services, 2020).

Furthermore, the Banking sector report specified that the 4IR has led to significant challenges and innovative practices in the banking sector, from traditional services to virtual expansion (Isett seta, 2010). These challenges in the banking sector must be addressed to sustain an industry already facing grave profitability challenges. Most banks have therefore resorted to disruptive techniques of having costs by vigorously adopting digital tools and methods of banking.

Standard bank, the biggest lender on the African continent, retrenched more than one thousand employees in South Africa, and they blamed this on the growing

use of technology; hence humans become costly while their roles are primarily redundant (Reuters, 2019). This aggressive move to digital tools is part of the much-touted 4IR. However, it spells disaster for many employees because it signifies the end of their careers, never to return. To some, it also informs them of the imminent crisis that fell them as 4IR invades the professional spaces. These changes, therefore, cause disengagement and possible loss of productivity.

Therefore, it is necessary to understand that it is crucial to keep employees engaged even in the face of such threats of job losses because of technological advancement. In this study, the research focuses on factors deemed necessary for engagement and uses quantitative metrics to measure the magnitude of the effect.

1.4 Statement of the problem

South African companies and those worldwide are rapidly adopting technologies due to rapid technology advancements (4IR). However, with its often-misconstrued views, 4IR has left many employees disengaged from their jobs as they “wait to be replaced” by technologies. Inevitably, employee engagement may have become the most immediate casualty in this dilemma because of the persistent anxiety about job security. Therefore, human resources professionals have an essential role in finding ways to keep employees engaged and alert companies to the disadvantages of a disengaged workforce. At the same time, both parties adapt to the rapid advancements in technology. As a result, disengaged employees are unproductive (Turner, 2020). Therefore, companies must understand how to keep their employees engaged despite the dangers and uncertainties introduced by 4IR.

The banking sector in South Africa faces numerous challenges, which include a failing economy, unemployment that erodes the bankable population and rising operational costs. Of late, the sector has also been further affected by the COVID-19 pandemic. Although the sector has mainly been spared during the COVID-19 pandemic by offering critical services, employees in the sector have not enjoyed the same relief. As a result, banks have had to innovate their way out of the crises to survive the multiple challenges listed above, mainly through technological

advancement. These advancements have, however, not been immediately beneficial to some employees because they have led to reduced headcounts. Therefore, the future of banking in South Africa and the sector comes out of the threats of the pandemic, continues to pursue the technological pathway, and related job losses continue in the short term.

1.5 Research questions and objectives

1.5.1 Research question

To what extent does training and development, communication and compensation affect employee engagement in the context of 4IR?

1.5.2 Research objectives

- To determine the extent to which training, and development affects employee engagement in the context of the 4IR.
- To determine the extent to which communication affects employee engagement in the context of 4IR.
- To determine the extent to which compensation affects employee engagement in the context of 4IR.

1.6 Statements of hypotheses

Hypotheses (in the context of 4IR)

Hypothesis 1: Poor communication correlated with low employee engagement.

Hypothesis 2: Poor remuneration is correlated with low employee engagement.

Hypothesis 3: Poor training and development are correlated with low employee engagement.

1.7 Importance of the study

Although BankSeta (2021) claims that technological advancement improves employment opportunities, little is said about the job losses in the current workforce, which may not fit in the new world of work. From a human resources perspective, employee engagement for a workforce uncertain about their immediate future can easily affect the bank`s performance. BankSeta (2020) identifies new skills that were required and relevant for the future but are still

inapplicable to the immediate consequences of a disengaged workforce that constantly perceives those technologies are pushing them out of employment.

Banks seem more focused on pushing the technological agenda faster than their employees can adapt, thus leaving many behind. Other companies have erroneously sought to hastily exploit the potential cost-savings and consequent profits that 4IR is likely to present by reducing their workforce (Solidarity, 2019). To understand the impact of the 4IR on employee engagement, banking sector employees in the three biggest banks were surveyed using a quantitative research methodology. The study focuses on the extent that training and development, communication, and remuneration have on employee engagement in a banking sector adopting 4IR technologies. The findings add to the evidence of the impact of the 4IR in the banking sector on employee engagement. It also brings into focus the plight of current employees, which is equally important as that of future desired employees in the desired working framework for the banking sector. This research also closes the knowledge gap and allows companies to understand what factors to prioritise to keep their employees engaged.

1.8 Theoretical Overview

The idea of employee engagement was initially conceptualised by Kahn in 1990 and culminated in the development of a conceptual model. Kahn's model emphasised the psychological determinants that precede employee engagement. The author examined the psychological conditions of personal engagement and disengagement at work(Robinson et al., 2004); however, it expanded on Kahn's model to include factors that cause workers to feel valued and involved and thus engaged (Robinson et al., 2004) applied an IES model with ten factors that feed into the psychological realm of an employee to feel valued and involved, eventually leading to Employee Engagement. The authors listed the following factors as antecedents of engagement, training, development and career, management, performance appraisals, communication, fairness and equal opportunities, pay and benefits, health and safety, cooperation, family friendliness and job satisfaction. These combined factors lead to the psychological realm of being valued and involved, hence engagement. Therefore, the IES model (Robinson et al., 2004) is not contrary to the psychological factors identified by Kahn but qualifies it with requisite antecedents.

Therefore, this study follows this expanded IES model in Figure 1 and only uses the circled factors, i.e., training and development, communication, and pay and benefits deemed more relevant to 4IR and engagement.

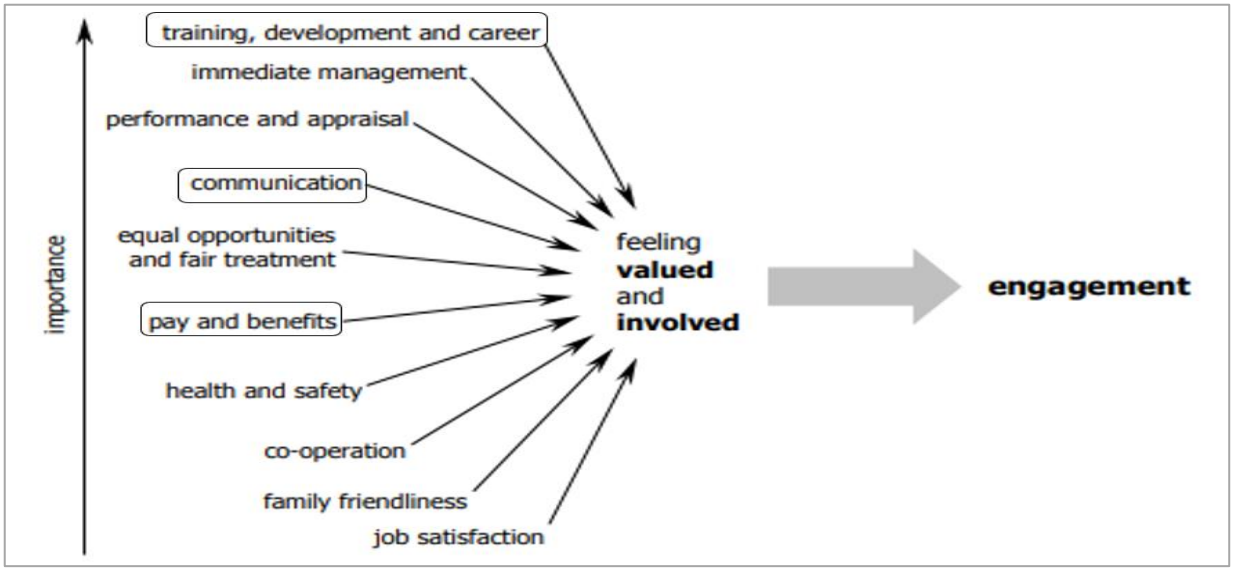


Figure 1-1: IES Model applied by Robinson, Perryman and Hayday for employee engagement (2004)

1.9 Conceptual model of the study

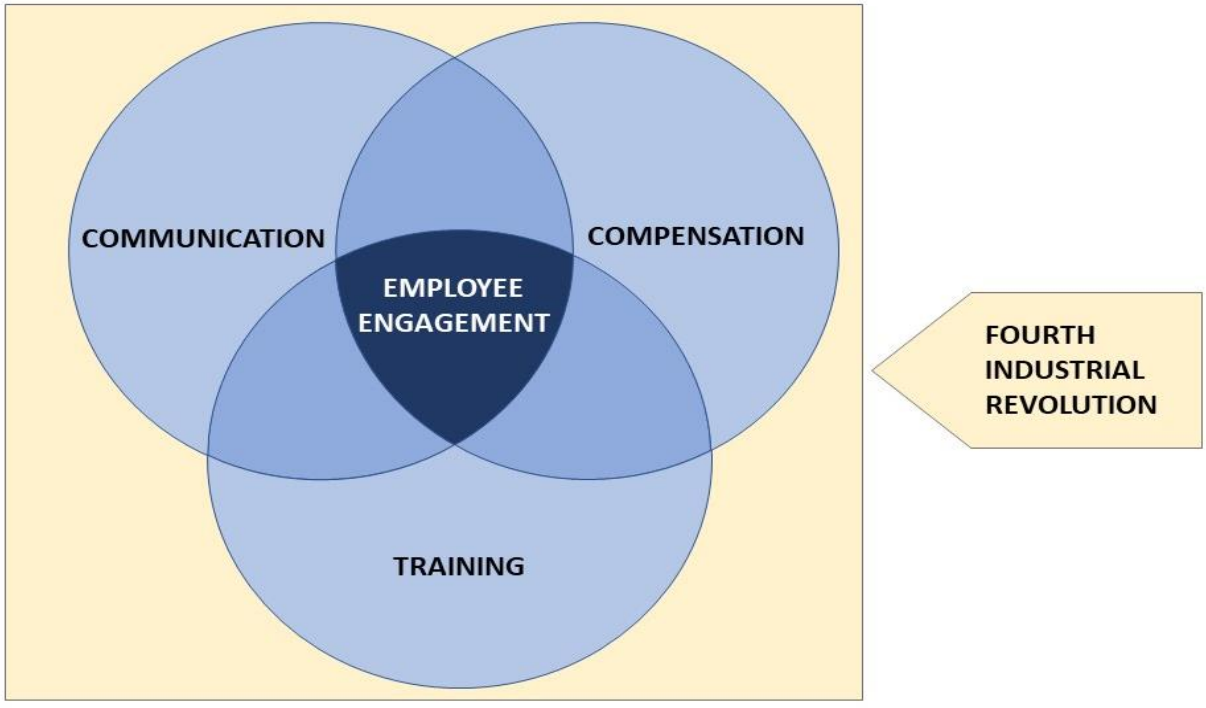


Figure 1-2:Modified model of the study.

1.10 Research Paradigm and approach

Park, Konge & Artino (2020) describe positivism as a paradigm associated with quantitative research, although qualitative research is sometimes used to explain some phenomena that can be explained with numbers. The study followed a

positivism research paradigm. First, the research is developed from a hypothesis then the research collects data that either proves or disproves the hypothesis that has been stated. Data is collected using variables, the components or pieces of information required to answer this hypothesis. Positivism always has a dependent variable, also known as the outcome, and independent variables, which are believed to be related or associated with the outcome (Park et al., 2020). One of the critical characteristics of positivism is the ability to control the research environment to answer the research hypothesis accurately.

2 Literature review

2.1 The concept of Employee Engagement

Employee engagement is a central construct of human resources responsible for developing employees that identify with the company's definition. It is still poorly understood in most workplaces because of its relative novelty. Employee engagement is often easily confused with narrow factors such as employee satisfaction and happiness (Shuck & Wollard, 2010). Robinson, Perryman and Hayday (2004) define employee engagement as "a positive attitude the employee holds towards the organisation and its values". This definition was a build-up from Kahn's earlier understanding of employee engagement when defined as "To be fully there: The psychological presence at work" (Kahn, 1992). To the worker, employee engagement is a selfish construct because the worker is always looking at what is being done for them and what they benefit from the company (Kahn, 1990) refers to this psychological dimension as feeling valued. (Dávila & Piña-Ramírez, 2014) further explicitly refers to employee engagement as an emotional construct where the employee is first absorbed in the concept of "I", that is, me as an employee, and after that, committed to the organisation. It is not a destructive concept and benefits organisations to have an employee who values their circumstances as positive (Vance, 2006a).

Employee engagement is broad and cannot be equated as an exhaustive or a one-directional construct (Kompaso & Sridevi, 2010). Employee engagement recognises a complete relationship between the employer and the employee. The employer acknowledges that their critical resource for production is the employee; hence, their increased identification with company values and

objectives fosters production (Kompaso & Sridevi, 2010). Employees can reciprocate by offering services beyond paying back the hours by giving the company more and going the extra mile (Vance, 2006b). This unison between the employer and the employee is called engagement. Employee engagement is vital in strategic human resources development because it focuses on developing relationships between employees and employers to achieve a common objective (Shuck & Wollard, 2010). Because of its complexity, however, theories may be required to understand the full utilisation and factors for employee engagement (Sun & Bunchapattanasakda, 2019).

2.2 Training and development

Training and development are separate concepts that seem inextricable but are fundamentally different. Training systematically improves workers' skills to increase productivity or suit them for new roles (Ferreira, 2016a). Alternately, development refers to the general planned or planned refining of an individual's skills from novice to expert, and it is a long-term aspect of output-based training (Ferreira, 2016b). Growth is the most common reason for leaving a job on many candidates' curriculum vitae. Whether in salaries, seniority or education, growth remains crucial in employees` engagement with organisations. Practical training and development can begin with a simple orientation of new employees about the organisation (Vance, 2006a). It is a critical step because it shows the employees that they are a part of the company by having their roles and inputs to the company clearly explained.

Training and development also extend to the actual development of innovative skills and refining skills already known. This form of training makes employees more eligible for higher remuneration in their current organisations and their employability (Vance, 2006a). Training and development are also pivotal to bridging company and employee preparedness for changes like those presented by 4IR. In South Africa, many companies are laying off employees due to repetitive tasks being taken over by technologies.

Research on employee engagement is affected by training and development to improve business performance (Manuel, 2014). The study's outcome was a positive relationship between training and engagement. A study in the

Bangladeshi banking industry focusing on employee engagement showed that participating in training programs improved their engagement with the bank (Afroz, 2018). As a result, the nature and outcome of such engagement was enhanced performance, commitment, productivity, retention, and employee satisfaction. This relationship provides evidence of the hypothesised relationship between engagement and training and development. and development

2.3 Communication

Communication is exchanging information between people (Editors at Merriam-Webster, 2019). It is often a played-down concept because it is a simple day-to-day conversation. As a concept, communication is related to all other components of employee engagement. It is also vital to link communication and respect to maintain a healthy balance within the communication lines (Teresko, 2004). However, the communication type and the content's value influence how managers and employees relate. For employees, a lack of communication can be interpreted as a lack of engagement with the company, and they can lose trust in the management (May, 2006). Therefore, managers must ensure that effective communication lines are established for the continued transfer of information. Communication is, therefore, two-directional similar to the idea of employee engagement. Employees also have a critical role in initiating and maintaining communication and not only leave this task to management.

Managers` and subordinates' relationships are probably the most challenging component of employee engagement. Some authors call it "the most critical driver of employee engagement" because of its potential to disrupt the workspace and maximise its benefits (Dávila & Piña-Ramírez, 2014b). It is closely related to communication because of being influenced mainly by how and what is communicated to employees (Dávila & Piña-Ramírez, 2014b; Teresko, 2004). It is also possible that communication is a sub-construct of the manager and employee relationships because it is a tool used to achieve healthy relationships (Kang & Sung, 2017). Furthermore, the (Kang & Sung, 2017) study findings showed a relationship between employee engagement and internal communication management. Companies may, therefore, capitalise on using effective communication to keep their staff engaged and satisfied and retain them in their employ (McCorkindale, 2019; Ruck & Welch, 2012).

Siddiqui (2019) found that training, development, and communication are essential for keeping employees engaged in the banking industry. The same researchers` findings confirmed the positive impact of training and development and internal communication on engagement (Siddiqui & Sahar, 2019). In addition, internal communication has been proven to improve workplace relationships and employee engagement (Karanges et al., 2014).

2.4 Pay and benefits (Compensation)

The compensation of employees is concerned with monetary salaries, benefits, and nonfinancial elements or perks (Sundaray, 2011). Compensation of employees is one of the primary reasons why employees work. It motivates employees to keep working and provide their best if correctly structured (Vance, 2006a). However, the previous components of employee engagement can affect an employee's compensation. For example, if there is no proper training and development, some employees may never qualify for higher compensation because of a lack of training. Rewarding employees for the work done is a critical motivator for higher employee engagement (Bhattacharya & Mukherjee, 2009).

Employee engagement occurs in organisations employees like working for and receive a matching compensation package for their abilities, knowledge, and skills (D. Brown, 2014). Penna (2007) also discusses the importance of pay and benefits in the "Hierarchy of engagement" model.

(Khaliq Alvi et al., 2014) studied the impact of employee compensation on employee engagement in the banking sector of Lahore, Pakistan. The study results confirmed that employee compensation positively impacts employee engagement.

2.5 Understanding employee engagement in 4IR

Klaus Schwab, one of the foremost proponents of the 4IR, defines it as a rapid transformation in how we do things using technology (Schwab, 2016). (Schwab, 2016) distinguishes 4IR from its predecessor, which also included technological advancement through computerisation. The 4IR, unlike the third, is faster and readily available to society, and it does not spare an industry in its reach. The 4IR is an inclusive and interconnected environment of efficiency with building blocks from artificial intelligence, robots' use, modern biology technologies, automated

systems such as self-driving vehicles, and big data usually used in quantum computing (Schwab, 2016). Products that drive technology in 4IR have also become cheaper (Schwab, 2016). Since this 4IR affects all industries, players in the industry must prepare for it because it can bring more significant production potential. Failure to prepare for 4IR can render what Klaus Schwab calls “peril” (Schwab, 2016). However, the world is advantaged by the foresight of impending changes. Although 4IR promises disruption, it is not only harmful but also brings positive returns if prepared for it. The central theme and threat constantly and persistently raised in most industries are the security of jobs.

The 4IR represents an age of technologies that are supposed to improve productivity by helping humans to focus on their creative and productive faculties. The 4IR is inevitable, and most companies that seek to be sustainable are already implementing technologies intending to improve productivity(Mothibi & Rahulani, 2021). However, 4IR is also a critical element in promoting employee engagement, and the human role should not be overlooked but must be part of the digital strategy. The company’s goal when introducing a 4IR should be to increase customer experience while increasing employee engagement. However, 4IR currently presents the biggest threat to economies such as South Africa regarding human resources because companies tend to put more effort into the customer experience while ignoring the importance of employee engagement in the process.

During the transformation period, the companies need committed and engaged employees; if this process is not managed correctly, employees are not involved or do not accept the transformation, it might affect the change. Therefore, companies must engage employees in the transformation process to understand that the 4IR is not there to eliminate their jobs but to improve productivity and bring new opportunities. This may also lead to employees contributing to the innovation process, which enhances employee engagement.

Open communication is essential throughout the transformation process, with clear purpose and goals and communicating the effects of the transformation(Winasis et al., n.d.). The upfront communication avoids any misconceptions or wrong impressions that the change is being forced upon employees or that they will lose their jobs. It might help improve or redefine

current customer services and processes for better productivity and performance. Clear goals and open communication must continue throughout the transformation process, allowing employees to voice their concerns and suggestions for a positive customer experience and impact employee engagement.

2.6 The South African banking system and employee engagement

Although BankSeta (2021) claims that technological advancement improves employment opportunities, little is said about the job losses in the current workforce, which may not fit in the new world of work. From a human resources perspective, employee engagement for a workforce uncertain about their immediate future can easily affect the bank`s performance. BankSeta (2020) identifies new skills that were required and relevant for the future but are still inapplicable to the immediate consequences of a disengaged workforce that constantly perceives those technologies are pushing them out of employment.

3 Methodology

3.1 Study design/Research Approach

The study follows a cross-sectional research design where data is collected at one point. The research approach was quantitative and descriptive with an aim to give a picture of how technological advancements affect employee engagement in the banking sector. To achieve this, quantitative numerical data was collected and analysed using statistical measures (Voss, 2016). The use of statistical techniques in the quantitative approach allows inferences to be made about the population using the data from the sample.

3.2 Study setting and population.

The study was conducted among banking sector employees from the three largest banks in South Africa: Standard Bank, ABSA and FNB. The bank employees were identified on the LinkedIn platform and invited to participate using a sponsored survey (LinkedIn, 2022c) and LinkedIn targeting. On the LinkedIn platform, the Standard Bank Group has 37000 current employees in South Africa (LinkedIn, 2022d), the ABSA group has 28000 (LinkedIn, 2022a), and FNB has 23000 (LinkedIn, 2022b), giving a total of 88000 potential participants.

To capture more participants, the study also includes postgraduate students from the University of Witwatersrand because they may also be bank employees, and it is more convenient to find them through the school account. In addition, the data collection tool has a question to screen out those who might have participated through the LinkedIn link.

3.3 Sampling and sample size calculation

Sampling is the process of selecting the participants for the study from the target population (Lee et al., 1999). Therefore, the characteristics of the sample are representative of the target population. Sample representativeness allows the researcher to make conclusions about the population from the data collected in the sample (Lee et al., 1999). This study uses simple random sampling, one of the probability sampling methods. In this study, the sampling frame was all employees from the three largest banks in South Africa.

The following parameters were used to calculate the sample size for this study.

- 95% confidence interval
- 5% precision level/margin of error
- An infinite population >20,000
- 17% response rate

The first three parameters are standard in most studies except the response rate. The response rate represents the expected proportion of the outcome in the sample. In this study, the outcome is employee engagement, and Gallup`s 2021 report on the state of the workforce globally found that employee engagement in South Africa was only 17% (Gallup, 2021). Using these parameters, therefore, a minimum sample size of 215 participants was required for this study.

3.4 Data collection instrument

A structured questionnaire has been developed and converted into an electronic tool on the Qualtrics platform (Qualtrics, Provo, UT). The questionnaire is first piloted among a small group of 20 potential participants to verify its validity in answering the desired questions and consistency between different respondents. Then, Cronbach's alpha was calculated from the 20 respondents to determine its

consistency, and if lower than 70%, the inconsistent questions were modified and retested.

The first section of the tool was used for pre-screening to ensure that only banking sector employees were considered. From the pre-screening section, potential respondents could not determine that the survey was intended for banking sector employees, thereby minimising fraudulent respondents. Those who passed the pre-screening section were taken to an informed consenting section, where they were given information about the survey and electronically signed if they agreed to participate.

Consenting participants proceed to section 2 of the questionnaire, which asks about the participants' demographic characteristics, including confirmation of the bank they work for, gender, job description and duration of their service in the banking sector. Next, section 3 addresses the technological changes that have occurred in the bank during the participant's employment. The last section, section 4, was a modified Gallup`s Q12 questionnaire to measure employee engagement (Gallup, 2022). The modifications relate employee engagement to questions in section 3 about the technological changes in the banking sector.

3.4.1 Validity and reliability

Validity refers to the accuracy of collected information, and reliability is the consistency of collected results (Tsang et al., 2017b). For research to be credible, the instruments used to collect data must be valid and reliable. Regarding validity, the instrument must ensure validity in terms of content, criteria, and constructs. Content validity is obtained by having field experts review the questions to ensure the questioning is appropriate to answer the research problem (Tsang et al., 2017). Criterion validity compares the questions and responses against known scores or responses to evaluate if there is a similarity in responses of the new tool and the reference tool (Tsang et al., 2017). Construct validity can be broken into convergent and discriminant validity. In convergent, the evaluation focuses on the convergence of ideas between the researcher's questionnaire and other reference tools that have been done or used before. This is distinct from criterion validity in that it looks at convergence at a conceptual and theoretical level rather than raw responses. Discriminant construct validity looks at a discriminatory

effect between variables that must not be related. This new tool may not bring connections between variables that can never be related.

Data used to determine reliability was obtained from pilot studies that collected preliminary data. For example, in Likert scale data, Cronbach's alpha mentioned above evaluates the internal consistency of the responses to the questions. The scale starts from 0 to 1; any score above 0.7 means internal consistency in the data collection tools.

3.5 Data collection strategy

Current employees from the three banks were identified on the LinkedIn platform and invited through direct messaging to participate in the study using the LinkedIn Messaging function (LinkedIn, 2022c). A paid LinkedIn survey was also used for customised targeting of bank employees. Some bank employees were also approached and agreed to participate. A link to the Qualtrics tool was also emailed to University of the Witwatersrand postgraduate students. A sponsored survey link also be created on LinkedIn, targeting the prospective respondents. Ten vouchers worth R100 each were randomly allocated to respondents to encourage participation.

3.6 Data analysis

Data were analysed using Stata (Version 16, College Station, TX). All the collected data were stored securely on Qualtrics and imported into Stata 16 for analysis. The variables were arranged in columns, and each participant was anonymous. Data were first cleaned but not altered. Data cleaning ensured that all missing data were accounted for, the variable format was consistent, and that data was of excellent quality for analysis (Wegner, 2013). The cleaning required for the Qualtrics dataset was minimal due to the tool's robustness. After data cleaning, descriptive summaries of the participants' demographic data were analysed and presented in a table.

The main questions used in the inferential statistics were Likert-type. These were summarised using means and proportions. Spearman's Rho was used to calculate the correlations (Jamieson, 2004).

In the Likert type, data were analysed as Likert items and Likert scale. A Likert item is a single question with a list of responses from the furthest disagreement

to the furthest agreement, and in some cases, anchored by a neutral option(J. D. Brown, 2011). A Likert scale is a panel of Likert items(J. D. Brown, 2011).

The Likert items were treated as follows:

(i) Responses were arranged horizontally.

(ii) responses were coded with consecutive integers as follows (1=Strongly disagree, 2=Somewhat disagree, 3=Neither agree nor disagree, 4=Somewhat agree and 5=Strongly agree)

(iii) An assumption that responses are evenly spaced with equal distances between options.

(iv) The furthest disagreement and agreement options are exact opposites.

In summarising each Likert item, a weighted average score was calculated by multiplying the identifying integer with the number of respondents, and then the average for each item was obtained by adding up the average category score. Table 3-1 shows the steps followed in summarising a single Likert item.

Table 3-1: Example of how to calculate a result of a Likert item.

Likert items	Code	# of responses	(%)	Mean
Item 1				
Strongly disagree	1	a	$\frac{a}{a+b+c+d+e}$	$\frac{1*a}{a+b+c+d+e}$
Somewhat disagree	2	b	$\frac{b}{a+b+c+d+e}$	$\frac{2*b}{a+b+c+d+e}$
Neither agree nor disagree	3	c	$\frac{c}{a+b+c+d+e}$	$\frac{3*c}{a+b+c+d+e}$
Somewhat agree	4	d	$\frac{d}{a+b+c+d+e}$	$\frac{4*d}{a+b+c+d+e}$
Strongly agree	5	e	$\frac{e}{a+b+c+d+e}$	$\frac{5*e}{a+b+c+d+e}$
Total of Likert item 1	**No calc**	$\boldsymbol{a+b+c+d+e}$	$\frac{\mathbf{a+b+c+d+e}}{\mathbf{a+b+c+d+e}}$	**Mean of item 1 (Sum all above)**

Each Likert item was grouped into a panel of questions to develop a Likert scale in the following domains: Engagement, Communication, Compensation, Training, Technology and Retrenchments. In the Likert scale, the average of all Likert items

was calculated to determine the final result of that scale. An example of how the calculation was done is given below.

Table 3-2: Example of how to calculate a result of a Likert scale.

Likert items	Code	# of responses	(%)	Mean
Item 1				
Strongly disagree	1	a	$\frac{a}{a+b+c+d+e}$	$\frac{1*a}{a+b+c+d+e}$
Somewhat disagree	2	b	$\frac{b}{a+b+c+d+e}$	$\frac{2*b}{a+b+c+d+e}$
Neither agree nor disagree	3	c	$\frac{c}{a+b+c+d+e}$	$\frac{3*c}{a+b+c+d+e}$
Somewhat agree	4	d	$\frac{d}{a+b+c+d+e}$	$\frac{4*d}{a+b+c+d+e}$
Strongly agree	5	e	$\frac{e}{a+b+c+d+e}$	$\frac{5*e}{a+b+c+d+e}$
Total of Likert item 1	**No calc**	$\boldsymbol{a+b+c+d+e}$	$\frac{\mathbf{a+b+c+d+e}}{\mathbf{a+b+c+d+e}}$	**Mean of item 1 (Sum all above)**
Item 2				
Strongly disagree	1	f	$\frac{f}{f+g+h+i+j}$	$\frac{1*f}{f+g+h+i+j}$
Somewhat disagree	2	g	$\frac{g}{f+g+h+i+j}$	$\frac{2*g}{f+g+h+i+j}$
Neither agree nor disagree	3	h	$\frac{h}{f+g+h+i+j}$	$\frac{3*h}{f+g+h+i+j}$
Somewhat agree	4	i	$\frac{i}{f+g+h+i+j}$	$\frac{4*i}{f+g+h+i+j}$
Strongly agree	5	j	$\frac{j}{f+g+h+i+j}$	$\frac{5*j}{f+g+h+i+j}$
Total of Likert item 1	**No calc**	$\boldsymbol{f+g+h+i+j}$	$\frac{\mathbf{a+b+c+d+e}}{\boldsymbol{f+g+h+i+j}}$	**Mean of item 2 (Sum all above)**
Mean of the Likert scale				$\frac{\boldsymbol{means\ of\ items}\ (\mathbf{1+2})}{\mathbf{2}}$

To make sense of the means of Likert items and scale, ranges for the codes were developed as follows. First, a Likert width was calculated by subtracting the lowest code from the highest and then dividing that by the number of options; an equation is given below Likert item which has five options where; "1=Strongly

disagree, 2=Somewhat disagree, 3=Neither agree nor disagree, 4=Somewhat agree and 5=Strongly agree". Then the width was added to the upper limit of each Likert category. The steps are shown below.

$Step\ 1\ (Calculating\ numerator):\ 5-1=4$

$Step\ 2\ (Calculating\ the\ width):\frac{4}{5}=0.8$

$Step\ 3\ (Calculating\ upper\ limits\ of\ the\ ranges:$

$$\boldsymbol{Range\ 1}:\ 1+0.8=1.8$$
$$\boldsymbol{Range\ 2}:\ 1.8+0.8=2.6$$
$$\boldsymbol{Range\ 3}:\ 2.6+0.8=3.4$$
$$\boldsymbol{Range\ 4}:\ 3.4+0.8=4.2$$
$$\boldsymbol{Range\ 5}:\ 4.2+0.8=5$$

In interpreting the results of the Likert item and scale calculations, the ranges in Table 3-3 were used. For example, if the calculated mean falls between 1 and 1.18, then the overall result means that the respondents strongly agree with what is being asked. This was applied for both Likert items and Likert scales. In the Likert scales, categorised as domains mentioned above, the calculated mean was used to interpret the overall results of the entire domain.

Table 3-3: Likert ranges used for interpreting items and scale means

Category	Code	Range
"Strongly disagree"	1	1 to 1.8
"Somewhat disagree"	2	1.8 to 2.6
"Neither agree nor disagree"	3	2.6 to 3.4
"Somewhat agree"	4	3.4 to 4.2
"Strongly agree"	5	4.2 to 5

Using the Spearman's Rho, a correlation between the employee engagement domain and other domains was calculated. Employee engagement was also a calculated variable measured as a mean of Likert items. The strength of the relationships were determined using the table below. Although the correlation of interest was between employee engagement and other domains, pairwise correlations were also performed to investigate how all domains were correlated.

Bonferroni was also used to limit false positives or untrue significance(Armstrong, 2014).

Correlation Coefficient		Dancey & Reidy (Psychology)	Quinnipiac University (Politics)	Chan YH (Medicine)
+1	−1	Perfect	Perfect	Perfect
+0.9	−0.9	Strong	Very Strong	Very Strong
+0.8	−0.8	Strong	Very Strong	Very Strong
+0.7	−0.7	Strong	Very Strong	Moderate
+0.6	−0.6	Moderate	Strong	Moderate
+0.5	−0.5	Moderate	Strong	Fair
+0.4	−0.4	Moderate	Strong	Fair
+0.3	−0.3	Weak	Moderate	Fair
+0.2	−0.2	Weak	Weak	Poor
+0.1	−0.1	Weak	Negligible	Poor
0	0	Zero	None	None

Figure 3-1: Interpreting correlation coefficients (Akoglu, 2018)

3.7 Data Quality Control

Electronic forms restricted responses to a structured questionnaire to only those that had been built in. Therefore, most of the possible errors were eliminated. In the questionnaire design, each field had prepopulated responses that respondents selected, which restricted manual entry. However, in cases where manual entry is inevitable, the number of field characters was limited using intuition. There also be an additional layer for allowable ranges to limit the possibility of illogical responses. The Qualtrics form also included automated skip patterns and blocking questions irrelevant to the participants. Finally, there were instructions for required fields to ensure that all questions were answered and that there was no missing data. A screening section was also included to eliminate people who did not work in the banking sector, were not based in South Africa, and did not work for either ABSA, FNB or Standard Bank.

3.8 Ethical Considerations

The electronic questionnaire first asks participants to review the information sheet, which explains the research in detail. They also asked to confirm their consent participants, and all who did not consent were excluded. The responses were treated confidentially and stored in a secure database provided by Qualtrics. No identifiers, such as names of participants, were collected to increase the security and confidentiality of participant information. However, the study collects information about the name of the bank and anonymises it using codes only known by the researcher; this increases the security and confidentiality of the

data; by so doing, it was not possible to link any of the participants to the bank that they work for. On opening the link, participants were asked to read the information sheet. This sheet explained why the purpose of the research, the risks in the study, benefits, data privacy, and data storage and reporting. They were also asked to confirm if they consented to participate in the study, selecting either “Yes” or “No” to a consenting question. Those who select “Yes” proceed to answer the questions, while the questionnaire end for those who do not consent by selecting “No”. Also, although email was intended to be a unique identifier, Qualtrics anonymised this information and did not record the email. The researcher only accessed the downloaded dataset. Therefore, none of the variables could be linked to any participants in the analysis.

The research protocol also was submitted to the non-medical Wits Non-medical Human Research Ethics Committee (HREC) for review. The protocol includes all data collection tools also be included in the protocol. The protocol version was marked, and only the approved versions were used. Any changes recommended by the ethics committee were incorporated and updated. If ethics is granted, a link to the actual ethics approval letters and information sheet to allow the participants to review was included in the email invite. The research follows all the instructions from ethics regarding reporting of results, dissemination, and length of storage of research data.

4 Results

4.1 Introduction

This chapter will present the survey results. The chapter first describes the recruitment process and structure of the sample. After that, sociodemographic details of the sample are discussed, followed by a presentation of results on technological advancements and employee engagement.

A total of 490 people responded to the survey on the Qualtrics platforms. The survey anonymity, however, made it impossible to determine. Of them, only 218 (44.49%) worked in the banking sector; the rest (272) were excluded from further participation. Furthermore, from the 218 working in the banking sector, five not based in South Africa were further excluded from the survey. Of the remaining 215 participants, 83 banking sector workers who did not work for either ABSA Bank Limited, First National Bank or Standard Bank of South Africa were dropped. Therefore only 132 (25%) out of the initial 476 participants were eligible for this survey. In addition, 17 eligible participants did not agree to one or more questions in a panel of consent questions and hence were excluded from further participation. The final sample, therefore, was 115, representing 53.49% of the target 215 sample size.

4.2 Performance of the paid survey

A paid LinkedIn Survey was run from 2 February to 25 February 2023 with a total budget of ZAR1274.78. The LinkedIn advert generated 267 visits to the survey link out of 841 clicks on the link sent to their inbox. Due to the survey's anonymity, however, it could not be determined how many of these visits led to actual participation.

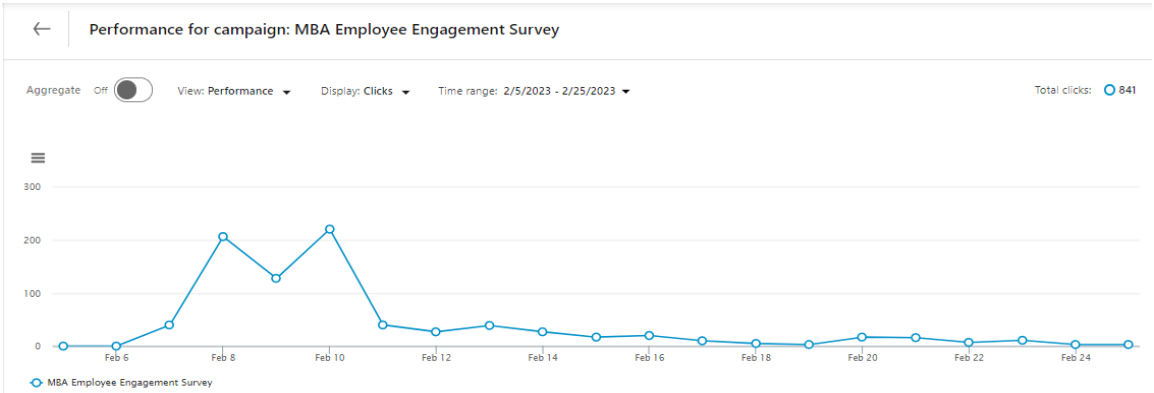


Figure 4-1: Performance of the paid LinkedIn advert

4.2.1 Survey completion

The survey completion rate was high; 89.57% (n=103) of the participants completed 100% of the survey. This was followed by 4.35% each of those who completed 85% and 88%, respectively. One participant completed 96% of the survey, which was 0.87%. The lowest completion rate was 80% for only one participant, accounting for only 0.87%.

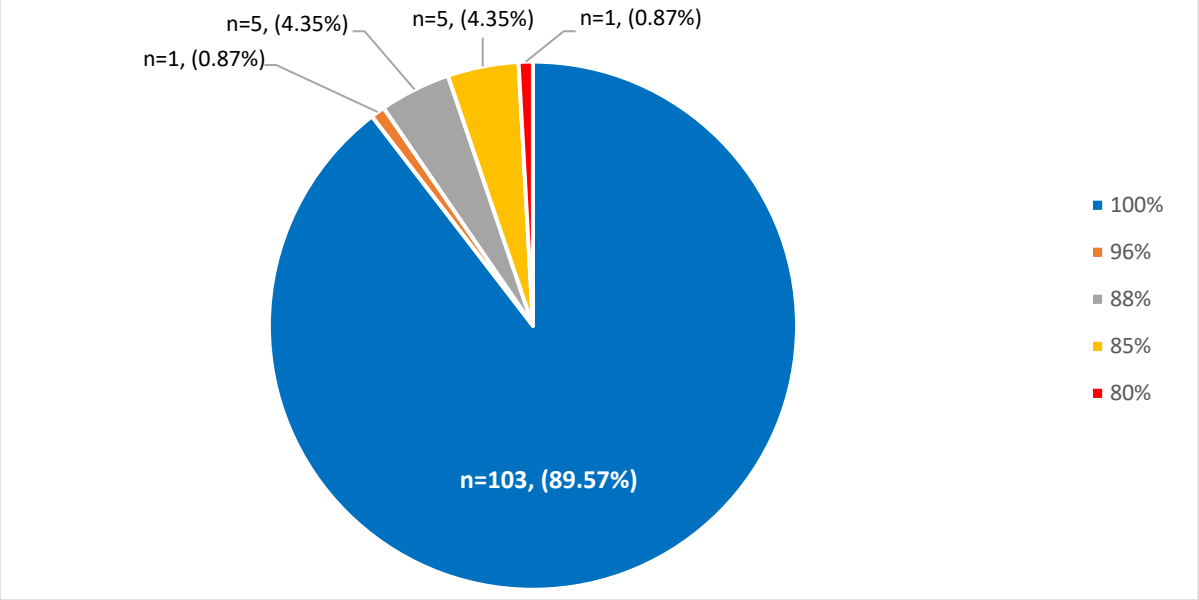


Figure 4-2: Survey completion chart

4.3 Sociodemographic characteristics of the eligible participants

Most participants (46/115) worked for Standard Bank of South Africa, representing 40% of the sample. FNB and ABSA had 32.177% and 27.83%, respectively. There were more males (54.78%) than females (42.61%), and most participants (46.09%) were aged between 25 and 34 years of age. Overall, 92.18% of the sample was aged between 25 and 44. Seven participants (7, 5.33%) were between 45 and 54, and only two were older than 55. Twenty-eight per cent (26.96%), the highest in the sample, had completed an honours degree. This was followed by 25.22% with master's degrees and exactly 20% with bachelor's degrees Diplomas and matric qualifications were reported by 12.17% and 10.43 respectively, 4.35% with a certificate while only 1 had a PhD. Most participants, 34.78%, were working in the personal banking division, with corporate and business bankers represented by 29.57% and 20.87%. Seventeen more participants (14.78%) reported other crosscutting divisions. More than a

third of the participants (36.52%) identified themselves as skilled; 20% (n=23) were in Junior management, 16.52% each in middle and senior management and 2.61% as executives. In terms of experience, most (42.42%) had between 5 and 10 in the banking sector. At their current bank, 53.54% had worked less than 4 years, 29.29% for 5 to 10 years, and 17.17% had been employed for over 10 years.

Table 4-1: Sociodemographic variables

Variable	**No.**	***(%)***
My bank		
Standard Bank of South Africa	46	*(40.00)*
First National Bank Limited (FNB)	37	*(32.17)*
ABSA Bank Limited	32	*(27.83)*
N	115	
Gender		
Male	63	*(54.78)*
Female	49	*(42.61)*
I prefer not to say	3	*(2.61)*
N	115	
Age		
25 - 34	53	*(46.09)*
35 - 44	51	*(44.35)*
45 - 54	7	*(6.09)*
18 - 24	2	*(1.74)*
55 - 64	2	*(1.74)*
N	115	
Your highest qualification - Selected Choice		
Honours	31	*(26.96)*
Masters	29	*(25.22)*
Bachelors	23	*(20.00)*
Diploma	14	*(12.17)*
Grade 12 / Matric	12	*(10.43)*
Other	5	*(4.35)*
PhD	1	*(0.87)*
N	115	
Which Department/Division do you work in within the bank?		
Personal Banking	40	*(34.78)*
Corporate Banking	34	*(29.57)*
Business Banking	24	*(20.87)*
Other	17	*(14.78)*
N	115	
Job Level hierarchy		
Skilled	42	*(36.52)*
Junior management	23	*(20.00)*
Middle management	19	*(16.52)*
Senior management	19	*(16.52)*
Sem-skilled	7	*(6.09)*
Executive/Director	3	*(2.61)*
Entry Level	2	*(1.74)*
N	115	
Total years of service in the banking sector		
4 years and less	32	*(32.32)*
5 to 10 years	42	*(42.42)*

Variable	No.	(%)
More than 10 years	25	*(25.25)*
N	99	
Total years of employment at this current bank		
4 years and less	53	*(53.54)*
5 to 10 years	29	*(29.29)*
More than 10 years	17	*(17.17)*
N	99	

4.4 Results from the Likert items

4.4.1 Cronbach alpha results to measure internal consistency.

Table 4-2 shows the results of the Cronbach alpha test of internal consistency. Five Likert items (labelled with a negative sign) were reversed to follow the same positive direction as the rest. The overall alpha was 0.9568, which represents high internal consistency. Also, individual items were evaluated, and the returned results also found high alpha of 95%.

Table 4-2: Cronbach alpha results to measure internal consistency.

Item	N	Sign	"Item-test correlation"	"Item-rest correlation"	Average interitem covariance	alpha
In the past year, my bank introduced technologies that replace humans	109	-	-0.1131	-0.1543	0.5735752	0.9599
Some of my colleagues have been retrenched because of new technologies	109	-	0.0564	0.0126	0.5661863	0.9597
New technologies are good for the company	109	+	0.4734	0.4451	0.5467391	0.9565
New technologies are good for most employees	109	+	0.5838	0.558	0.5413683	0.9559
New technologies are good for customers	109	+	0.5723	0.5454	0.5401234	0.956
I can see myself still working at this bank in the next five years despite new technologies	109	+	0.6706	0.6502	0.5379699	0.9555
My skills are relevant to the technological direction that the bank is taking	109	+	0.6902	0.6703	0.5359591	0.9553
The skills of most of my colleagues are relevant to the technology direction that the bank is taking	109	+	0.7305	0.7085	0.5307335	0.9551
Most of my colleagues will still be working at this bank in the next five years despite new technologies	109	+	0.6604	0.6331	0.5323567	0.9555
Using technology improves the company's productivity overall	108	+	0.6702	0.6523	0.5403362	0.9555
As a result of technology, my bank is now more engaged with employees	108	+	0.6906	0.6668	0.5315721	0.9552
Technology use increases bank employees' expertise	108	+	0.704	0.6821	0.5347146	0.9553
Using technologies has allowed bank employees to close more deals quicker	108	+	0.6683	0.6486	0.5385936	0.9555

Item	N	Sign	"Item-test correlation"	"Item-rest correlation"	Average interitem covariance	alpha
Senior management acknowledges that technology must benefit both the bank and its employees	108	+	0.7371	0.7183	0.5335291	0.955
Senior management takes the correct technology decisions for the company and employees	108	+	0.7598	0.7433	0.5327867	0.955
My bank is readily upskilling employees with digital skills	108	+	0.624	0.598	0.5361804	0.9557
Everyone looks forward to going to work because of the benefits of using technology	108	+	0.7426	0.7254	0.5346139	0.9551
My salary has increased since the introduction of technologies in the bank	108	+	0.6057	0.5755	0.537107	0.9558
Overall salaries increased since the bank increased the use of technologies	108	+	0.5982	0.5692	0.538653	0.9559
Without technologies, salaries would not have increased at this rate and magnitude	108	+	0.545	0.5128	0.5410342	0.9562
My company cares about my career development and growth opportunities for the future within the context of 4IR	104	+	0.8143	0.7999	0.5271208	0.9546
Training programs provided by the organisation are suitable for my development in 4IR	104	+	0.7613	0.7422	0.5278787	0.9549
Staff training provided allows me to be proactively ready for future challenges.	104	+	0.6798	0.658	0.5351061	0.9554
In my organisation, employees adapt quickly to changes due to training	104	+	0.7056	0.6875	0.537004	0.9553
Communication in my company is usually open and forthright	104	+	0.7259	0.7052	0.53073	0.9551
My immediate supervisor/manager's expectations of me are clear	104	+	0.7847	0.7682	0.5285853	0.9548
I am kept well informed about what the company is doing.	104	+	0.7636	0.7478	0.5331066	0.955
My superior encourages employee's suggestions	104	+	0.7587	0.7408	0.5303632	0.9549
My superior attends to me when I speak to him/her about my worries	104	+	0.7684	0.7515	0.5305903	0.9549
I am aware of my salary structure	104	+	0.631	0.6075	0.538373	0.9557
I believe the compensation I receive from my employer matches my abilities, skills, and knowledge	104	+	0.6708	0.6449	0.5311765	0.9554
I agree with the increment and other monetary benefits policies	104	+	0.6374	0.6112	0.5346744	0.9556
I am happy with promotions opportunities in the organisations	104	+	0.717	0.6947	0.529732	0.9551
I am happy with the high-performance recognition	104	+	0.7161	0.6938	0.5299141	0.9551
My pay and benefits have not been affected by the increased use of technology	104	+	0.6209	0.5957	0.5373916	0.9557
I am happy with my current contribution to the organisation	104	+	0.6058	0.5837	0.5416526	0.9558
I put in my best effort on my work to assist this organisation in becoming profitable	104	+	0.6122	0.5935	0.5444404	0.9559
I rarely think about getting another job with another organisation	104	+	0.5386	0.5055	0.5381811	0.9563

Item	N	Sign	"Item-test correlation"	"Item-rest correlation"	Average interitem covariance	alpha
My values are similar to the company's values	104	+	0.6322	0.6097	0.5388422	0.9557
My job activities are in line with my career goals	104	+	0.6909	0.6701	0.5349125	0.9553
I care about the future of the organisation	104	+	0.6775	0.6582	0.5382962	0.9555
There are employees in my organisations that have been affected by the implementation of the high technology use	104	-	-0.2052	-0.2403	0.5751835	0.9597
I feel threatened by the implementation of high-technology use	104	-	0.0525	0.0035	0.5645238	0.9595
Overall					**0.5386481**	**0.9568**

4.4.2 Employee engagement score

A total of nine Likert items were used to calculate the mean employee engagement score. The results are shown in Table 7-1 in the appendices below. The calculated mean of 3.9272 shows that the bank employees were somewhat engaged. Four of the nine Likert items with means of at least 4.2 showed that employees strongly agreed that they were engaged in their jobs. These four items were seeing themselves working at the same bank in the next five years (mean=4.1560), happiness with their contribution to the company (mean=4.2019), putting their best effort for company profitability (mean=4.5288) and caring about the future of the organisation (4.3462).

Despite these high scores, however, the means of two Likert items scored between 2.6 and 3.4, namely, seeing their colleagues no longer working at the bank in the next five years (mean=3.3394) and rarely thinking about getting another job elsewhere (mean=3.1538). However, none of the Likert items had a mean within the disagreement ranges. Other Likert items worth noting were those which fell within ranges of 3.4 to 4.2 (somewhat agree). With a mean of 3.6759, bank employees somewhat agreed that technology use in the bank made employees more engaged. Also, with higher mean scores of 3.9327 and 4.0096, respectively, bank employees somewhat agreed that their values were similar to the company`s and that their jobs were aligned with their career goals.

4.4.3 Determining the extent to which training and development affects employee engagement in the context of the 4IR.

The training domain was calculated using the variables in Table 7-2 below. The average score calculated from the Likert items was 3.8620. Using the interpreting range in Table 3-3, the bank employee somewhat agreed with training being provided by their organisation. Looking at each Likert item, the mean of those who thought their bank was readily upskilling them with digital skills was 3.9444, the highest among the Likert skills in this domain. A mean of 3.75 also meant that they somewhat agreed that training programmes provided in the banks were suitable for their development in the context of the 4IR. A higher mean of 3.9327 was also observed in bank staff training which was perceived to allow the bank worker to be proactively ready for future challenges. Also due to training, bank employees somewhat agreed (mean=3.8173) that training allowed them to adapt quickly to changes, and lastly, the employees also somewhat agreed that the banks cared for the future development in 4IR due to the training provided (mean= 3.8654)

4.4.4 Determine the extent to which communication affects employee engagement in the context of 4IR.

The average communication score calculated from all Likert items in Table 7-3 in the appendices, was 3.8404, meaning the bank employees somewhat agreed with their organisation's communication types and channels. The bank employees somewhat agreed that communication was open and forthright, with a mean score of 3.5865. similarly, with a mean of 3.875, they also somewhat agreed that their supervisors` expectations of them were clear. To be kept informed about what the company is doing, an even higher mean score of 4.0288 which was also the highest score in this domain, was calculated. Both encouragement of employee suggestions and being attended to when worries are shared had a mean of 3.856.

4.4.5 Determine the extent to which compensation affects employee engagement in the context of 4IR.

Of all domains calculated using the Likert scales, compensation scored the lowest overall mean of 3.2483 (see Table 7-4: Table of compensation scores in the appendices), which meant that the bank employees were indifferent about this domain. Three Likert items in this domain scored means closer to 2.6, which is the lower limit of indifference much closer to disagreement. Bank workers were indifferent about salary increases since the introduction of technologies (mean=2.7407), overall increases in bank salaries in the same vein (mean=2.7037) and similarly in that salaries would not have increased without technologies (mean=2.7037).

Although they somewhat agreed that they were aware of their salary structure (mean=4.1058), they were indifferent about their compensation matching their abilities, skills, and knowledge (mean=3.0481) and about their agreement with promotion opportunities (mean=3.375).

4.4.6 Technology use

Using a 11-item Likert scale in Table 7-5 in the appendices below, the overall technology mean score was 3.8676, meaning that bank workers somewhat agreed with the use of technology in the banks and what they perceived about the technologies. For the highest scores, there was strong agreement that new technologies are good for the bank (4.211), for customers (mean=4.1927), that their skills were relevant to the technological direction (mean=4.2385), and lastly, that technology improved overall productivity in the banks (mean=4.3519). However, with a mean of 2.8704, bank employees were indifferent when asked if using technologies increases their expertise. The rest of the Likert items, which comprised the technology Likert scale, fell in the “somewhat agree” range between a mean of 3.4 and 4.2. With a mean score of 3.9358, bank workers somewhat agreed that new technologies were good for most employees, also somewhat agreed (mean=3.6147) that skills bank colleagues were relevant to the technology direction in the bank, they also somewhat agreed that the use of technologies allowed quicker closing of deals (mean=4.1204). In addition, the bank employees somewhat agreed (mean=4.0556) that senior management

acknowledged technologies must benefit both employees and the bank and that they take the correct technologies decisions (mean=3.8241). Slightly lower mean scores closer to the lower limit of the “somewhat agree” range were observed in the items that asked if everyone looked forward to going to work (mean=3.5833) and if the employees felt threatened by high technology use (mean=3.4135).

4.4.7 Retrenchments and technology

The final Likert scale was on bank worker perception of technology and retrenchments and the results are shown in Table 7-6 in the appendices. All Likert items in these scales were negative, but there was no need to reverse them because they faced the same direction. Also, all three questions referred to a third person, that is, colleagues and some bank employees. The overall mean score of 3.4315 lay in the lower limit of the somewhat agree range. This meant that there was some agreement, albeit weak, that technologies could lead to the retrenchment of “other” bank employees. On the other hand, there was indifference in the Likert item that asked if some of their colleagues had been retrenched due to new technologies (mean=2.8807). For the other two Likert items, the bank workers somewhat agreed that some of their colleagues were affected by the implementation of the high technology use (mean=3.8173) and that the bank introduced technologies with the potential to replace humans (mean=3.5963).

4.5 Spearman`s Rho correlation

Table 4-3 below shows the pairwise correlation analysis of all the Likert scales. The primary relationship of interest was that of the engagement score and the rest of the scales, which were meant to determine the extent to which this affects employee engagement.

In the scales of primary interest, the highest spearman`s Rho was between training and employee engagement, with a correlation coefficient of 0.7088, representing a strong positive correlation. Compensation was second with a correlation coefficient of 0.6607, and communication had a correlation coefficient of 0.627, both representing moderate positive correlation. All the above coefficients were statistically significant, with p-values less than or equal to 0.05.

Technology also had a moderate to strong positive correlation with a statistically significant positive correlation coefficient of 0.6793.

Table 4-3: Pairwise correlation analysis of the Likert scales

Variables	Engagement	Training	Technology	Retrenchment	Compensation	Communication
Engagement	1					
Training	0.7088*	1				
Technology	0.6793*	0.7056*	1			
Retrenchment	0.1623	0.1447	-0.0728	1		
Compensation	0.6607*	0.6196*	0.562*	0.1955*	1	
Communication	0.627*	0.6806*	0.6277*	0.150	0.759*	1

Overall, Spearman rho=0.759

****statistically significant correlation with p≤0.05***

5 Discussion

This section discusses the findings from the survey, linking them with previous literature by showing similarities and contrast. This is done by going through each domain of; training, compensation, communication, technology and retrenchment and how they relate to employee engagement. The section does not repeat results in the previous chapter but qualifies them contextually. As a result of the concurrence or contrast between the results and literature, the section also makes conclusions about the takeaway messages. Limitations of the survey and recommendations are also included in this section.

5.1 Employee engagement in the banking

The survey was conducted among bank employees at ABSA, FNB and Standard Bank in South Africa, recruiting 115 participants from 490 screened. The study's objectives were to determine the extent to which training, communication and compensation affected employee engagement. Knowledge of this would help banks how to leverage 4IR for employee engagement. A structured questionnaire was developed and deployed on the Qualtrics platform and then shared using an anonymous link to prospective participants. The study results showed that training was the factor most correlated to employee engagement among bank employees. Communication and compensation were also correlated but not to the extent shown by the relationship between training and employee engagement. In the context of 4IR, employee engagement in the banks was reasonably high, with most participants somewhat agreeing that they were engaged despite the perils of working in a highly technological environment. The use of technologies in the banks was also well tolerated by most surveyed bank workers.

The findings from this, although not unexpected because of the lack of empirical evidence, are contrary to prevailing perceptions of the impact of 4IR and its impact on employee engagement. Many speculative publications about the impact of 4IR labelled it as undesirable for most employees because of threats to their job security, such as the closure of bank branches (Reuters, 2019). However, as suggested in a 2020 BankSeta publication, in the short term 4IR was only going to disrupt but create more opportunities for bank sector

employees (BankSeta, 2021). Likewise, the survey results also concur that banks and workers may have internalised this phase. The results showed that bank workers felt optimistic about using technologies in the bank and their benefits to the bank and their productivity. More employees than less were also more optimistic about their future working in the banks in the presence of these technologies, suggesting that 4IR may no longer be a threat as initially perceived.

5.2 To determine the extent to which training and development affect employee engagement in the context of the 4IR

The training offered within the banking sector was found to be the most critical factor for employee engagement in the banking sector in the context of employee engagement. Ferreira (2016a) stated that training systematically improves the skills and productivity of employees, equipping them with new skills to suit new roles. Research findings from this survey support this. The employees remained engaged because they were readily upskilled with training programmes suitable for their development in the context of 4IR. As changes came due to 4IR, the evidence shows that this training they received through the bank convinced them that the banks cared about their career development. This is a critical factor for leveraging 4IR to improve employee engagement. The survey results also concur with the IES conceptual model depicted in Figure 1-1, where training, development and career were ranked the most important in fostering employee engagement(Robinson et al., 2004). In an overcharging environment such as within the 4IR, new skills are required to keep employees relevant to the organisation's employ. Robinson et al., (2004) suggest employee engagement can be easily obtained if employers focus on developing employees, showing them they have them in their long-term plan. It is, therefore, unsurprising in this study that training was the most significant. Moreso, the sector's dynamism demands that employees are always upskilled to match the sector's requirements.

5.3 To determine the extent to which communication and compensation affect employee engagement in the context of 4IR.

Although compensation and communication were not as strongly correlated as training, their inclusion fostered engagement. In their conceptual model,

compensation ranked slightly higher than communication, contrary to Robinson et al., (2004). However, compensation and communication may also work hand in hand with training. Without clear communication, these training opportunities, which make engagement among bank employees, would not have been known. Also, the need for higher compensation should motivate employees to engage in more self-skilling. In this survey, however, it seemed most employees could not attach compensation to any improvement in their skills or the use of technology in the company. Most employees doubted the role of technology in increasing their salaries. This contradicts the view that 4IR will introduce new higher-paying opportunities. Again, compensation is always an area whose desire for personal gain than true fairness could confound real reasons for highly affecting employee engagement. Nonetheless, it is still advisable to communicate the benefits other than financial, which could result from 4IR. For instance, 4IR indirectly improves disposable income by allowing arrangements for working from home, which may also be considered a form of compensation.

5.4 Conclusions

This survey evaluated the effect of training and development, communication and compensation on employee engagement in the context of the fourth industrial revolution. The literature review described how these concepts relate to employee engagement using the theoretical framework to depict this relationship. In stating the problem, the research hypothesised that the increased use of technologies might have a negative impact on employee engagement because 4IR is associated with making employees redundant. Using existing literature, a hypothesis was made that training and development, communication and compensation could be important factors to consider for evaluating the extent to which they affect employee engagement.

The survey followed quantitative data collection approaches with a structured questionnaire deployed on the Qualtrics platform. This survey confirmed the long-standing theory that training is the most critical factor in fostering employee engagement for banks seeking to leverage 4IR for employee engagement, training is the most impactful approach, and this training can also be delivered on 4IR platforms while contradicting the notion that 4IR negatively affects employee engagement. Communication and compensation are also essential since they

catalyse awareness about training opportunities and attract people to training programmes. The unscientific notion that 4IR disengages employees may be inaccurate; instead, these create better opportunities for employees willing to upskill themselves using the available platforms.

5.5 Limitations of the study

Recruitment in the survey was difficult due to several factors. First, the strict inclusion criteria allowed only three banks, ABSA, FNB and Standard Bank. Because of this, nearly 100 potential participants from other banks were excluded from participation. This made reaching the minimum sample size difficult.

Second, bank employees were apprehensive about completing the survey questions, likely due to fear of reprisals. When approached, they would express their worry and fears about the consequences they may face despite the survey being completely anonymous. Some who completed when approached would also decline to use their own devices, fearing being “traced”. This incidental finding, however, was deemed unimportant in its effect on the responses given. Also, the Cronbach alpha confirmed a high internal consistency which supported the internal consistency of the results.

5.6 Recommendations

Banks can emphasise this in order to leverage 4IR for employee engagement. Communication and compensation still need to be transparent for them to be essential factors in improving employee engagement. However, more research is still required with larger sample sizes to estimate the causal relationship instead of a correlation and include more banks, not just the three, in this survey. Nevertheless, this survey proves the initial evidence which can be further expanded. Also, qualitative studies provide more in-depth evidence about the real impact of 4IR and how employees are affected. These approaches will provide banks with further evidence on how to leverage 4IR for employee engagement.

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7 Appendices

7.1 Appendix 1: Clearance Certificate from Wits Business School Ethics Committee

Graduate School of Business Administration
University of the Witwatersrand, Johannesburg

Wits Business School Ethics Committee
Constituted under the University Human Research Ethics Committee (Non-Medical)

Ethics Clearance Certificate

Ethics protocol number: WBS/BA1282435/321
This certificate is only valid with a legitimate ethics protocol number and signed by the Researcher (below).

This certificate is only valid if accompanied by formal permission from the relevant stakeholder(s).

Project title	Leveraging digital technology for employee engagement in the banking sector in South Africa
Investigator / Researcher	Ms Precious Mavundla
Nature of Project	MBA (Research Article)
Decision of the Committee	Approved, provided stakeholders and participants are guaranteed anonymity and confidentiality.
Issue Date of Certificate	2022-09-01
Expiry date	Date of submission of the project / research report
Chairperson	Prof Anthony Stacey ☎ +27 11 717 3587 +27 82 880 4331 anthony.stacey@wits.ac.za

Declaration by Researcher

One copy must be signed by the Researcher and returned to the Chairperson of the Wits Business School Ethics Committee.

I fully understand the conditions under which I am authorized to carry out the abovementioned research and I guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I undertake to resubmit the protocol to the Committee.

Signature

05/09/2022
Date:

7.2 Appendix 2: Permission Letter from University of Witwatersrand Deputy Registrar

UNIVERSITY OF THE WITWATERSRAND JOHANNESBURG | OFFICE OF THE DEPUTY REGISTRAR

24 January 2023

Precious Mavundla
Student Number (1282435)
Master of Business Administration
Wits Business School

TO WHOM IT MAY CONCERN

"Leveraging digital technology for employee engagement in the banking sector in South Africa."

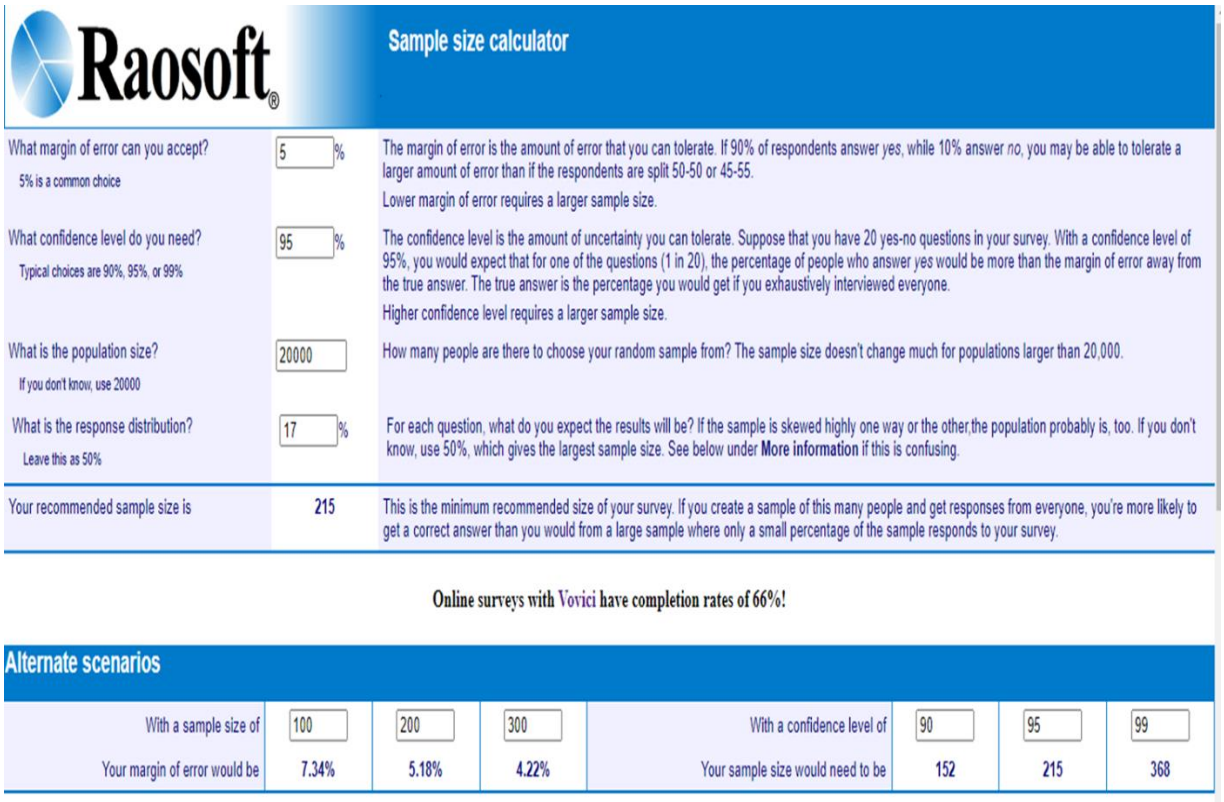
This letter serves to confirm that the above project has received permission to be conducted on University premises, and/or involving staff and/or students of the University as research participants. In undertaking this research, you agree to abide by all University regulations for conducting research on campus and to respect participants' rights to withdraw from participation at any time.

If you are conducting research on certain student cohorts, year groups or courses within specific Schools and within the teaching term, permission must be sought from Heads of School or individual academics.

Ethical clearance has been obtained. (Protocol number: WBS/BA1282435/321)
Research Expiration: (Research submission date)

Nicoleen Potgieter
University Deputy Registrar

7.3 Appendix 3: Sample size



Raosoft®

Sample size calculator

What margin of error can you accept? 5% is a common choice	5 %	The margin of error is the amount of error that you can tolerate. If 90% of respondents answer *yes*, while 10% answer *no*, you may be able to tolerate a larger amount of error than if the respondents are split 50-50 or 45-55. Lower margin of error requires a larger sample size.
What confidence level do you need? Typical choices are 90%, 95%, or 99%	95 %	The confidence level is the amount of uncertainty you can tolerate. Suppose that you have 20 yes-no questions in your survey. With a confidence level of 95%, you would expect that for one of the questions (1 in 20), the percentage of people who answer *yes* would be more than the margin of error away from the true answer. The true answer is the percentage you would get if you exhaustively interviewed everyone. Higher confidence level requires a larger sample size.
What is the population size? If you don't know, use 20000	20000	How many people are there to choose your random sample from? The sample size doesn't change much for populations larger than 20,000.
What is the response distribution? Leave this as 50%	17 %	For each question, what do you expect the results will be? If the sample is skewed highly one way or the other,the population probably is, too. If you don't know, use 50%, which gives the largest sample size. See below under **More information** if this is confusing.
Your recommended sample size is	215	This is the minimum recommended size of your survey. If you create a sample of this many people and get responses from everyone, you're more likely to get a correct answer than you would from a large sample where only a small percentage of the sample responds to your survey.

Online surveys with Vovici have completion rates of 66%!

Alternate scenarios

With a sample size of	100	200	300	With a confidence level of	90	95	99
Your margin of error would be	7.34%	5.18%	4.22%	Your sample size would need to be	152	215	368

7.4 Appendix 4: Participant information sheet and consent form

INFORMED CONSENT

q3 *

Skip to

Thank you for taking your time to com... if No Is Selected

Dear participant

I am inviting you to participate in the following research study.

Title of research study: Leveraging digital technology for employee engagement in the banking sector in South Africa

What are we doing in the study?

I am a student for Master of Business Administration (MBA) at Wits Business School and currently conducting research for my studies. The purpose of the research is to analyse factors influencing employee engagement in the banking sector in the fourth industrial revolution era.

I will use the data from this study to help companies understand how they can keep their employees engaged in their jobs despite the dangers and uncertainties introduced by the 4IR. I am asking you to participate in the study because you work for a banking institution, and I have identified the banking sector as one of the industries most affected by the 4IR.

If you agree to take part in this study, I will ask you to complete an online questionnaire asking about your engagement experience at your company. The questions will take approximately 20 minutes to complete. I will only ask you to participate once.

You will not be asked to complete any other questionnaire for this research study. Your participation in this study is voluntary. You can stop answering the questionnaire at any part without giving a reason for your decision. Refusing to answer questions or to participate in this study will not affect you in any way.

There are no direct benefits to you for participating in this study. However, the results of the study will be useful for promoting and improving employee engagement. You may be randomly selected to receive one of ten (10) R100 vouchers for participating in this survey.

There are no known risks of participating in this study. The information collected in this study will only be accessed by the researcher. Also, no names will be collected for the increased security of data. However, the study will collect information about the name of the bank and anonymize it using codes only known by the researcher. This will increase the security and confidentiality of the data by so doing as well it will not be possible to link any of the participants to the bank that they work for. The service provider for the online form also provides additional encryption for the data, which ensures that only authorised personnel will have access.

The study has been explained and I understand what my participation involves

- ○ Yes
- ○ No

Q26

Display this question

If Dear participant I am inviting you to participate in the following research study. Title of resea... No Is Selected

Skip to

End of Survey If Thank you for taking your t... Is Displayed

Skip destination Go to skip origin

Thank you for taking your time to complete the screening questions for this survey. Unfortunately, based on your responses, you do not qualify to complete the survey because you do not work in the sector of interest for this specific study.

Q65

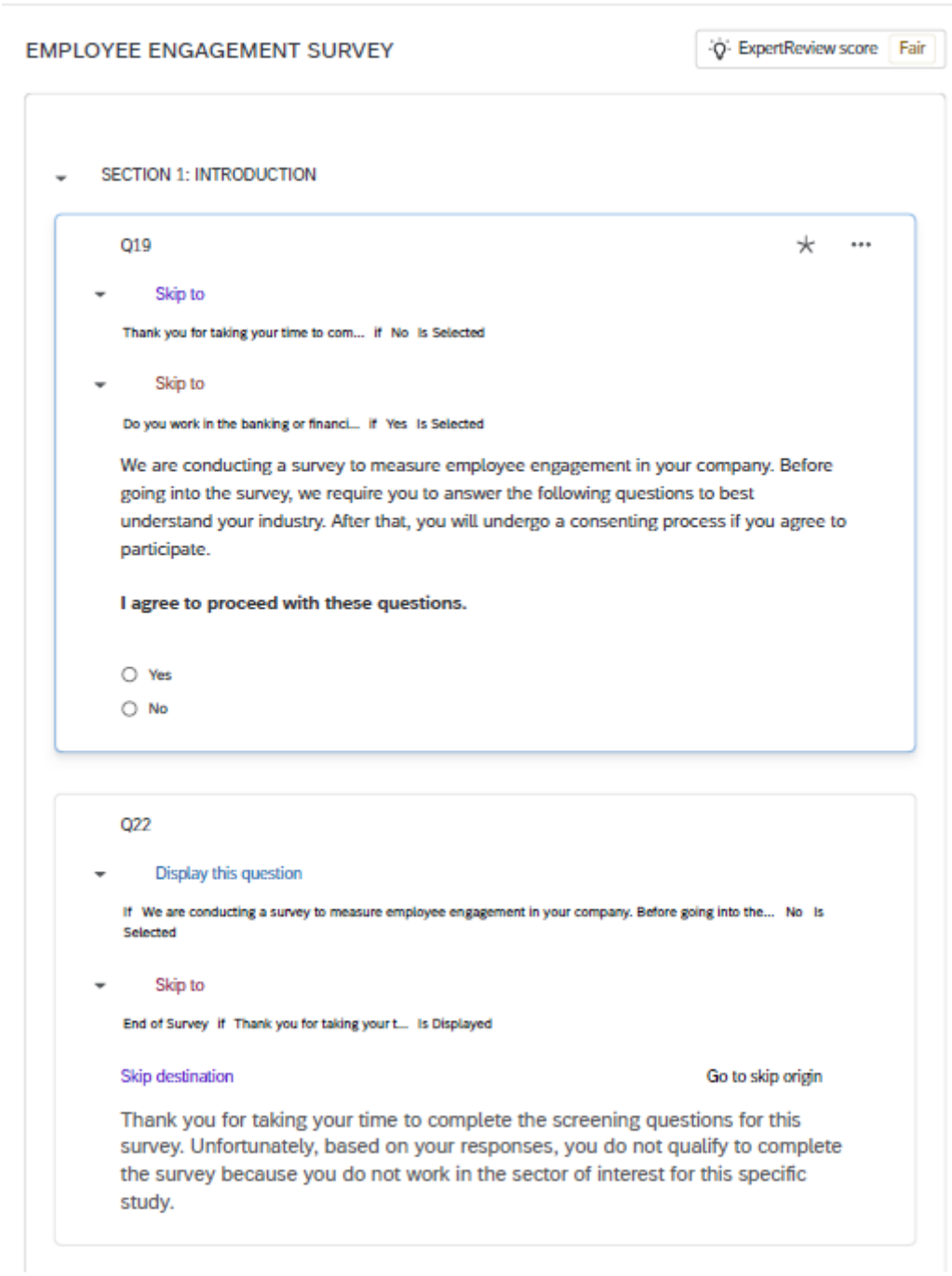
Skip to

Thank you for taking your time to com... If No Is Greater Than or Equal to 1

Eligibility questions

	Yes	No
I agree that I have voluntarily agreed to partake in this research project	○	○
I agree to participate in this study that will be submitted in partial fulfilment of the requirements for the degree of Master of Business Administration (MBA) at Wits Business School.	○	○
I agree that my participation will remain anonymous	○	○
I agree that the researcher may use anonymous quotes in his / her research report	○	○
I agree that the data I will provide are not to be used to evaluate my performance as an employee in any way	○	○
I agree that the information I provide may be used anonymously after this study has ended, for academic purposes by other researchers.	○	○
I agree that I may withdraw from the study at any time with no adverse repercussions.	○	○

7.5 Appendix 5: Online survey



Q1 ✶

Skip to

Thank you for taking your time to com... if No is Selected

Skip to

Are are you based in South Africa? if Yes is Selected

Skip destination Go to skip origin

Do you work in the banking or financial services sector?

○ Yes ○ No

Q23

Display this question

If Do you work in the banking or financial services sector? No is Selected

Skip to

End of Survey if Thank you for taking your t... is Displayed

Skip destination Go to skip origin

Thank you for taking your time to complete the screening questions for this survey. Unfortunately, based on your responses, you do not qualify to complete the survey because you do not work in the sector of interest for this specific study.

Q20 ✶

Display this question

If Do you work in the banking or financial services sector? Yes is Selected

Skip to

Thank you for taking your time to com... if No is Selected

Skip to

You have mentioned that you work in t... if Yes is Selected

Skip destination Go to skip origin

Are are you based in South Africa?

○ Yes

○ No

Q24

Display this question

If Are are you based in South Africa? No Is Selected

Skip to

End of Survey if Thank you for taking your t... Is Displayed

Skip destination Go to skip origin

Thank you for taking your time to complete the screening questions for this survey. Unfortunately, based on your responses, you do not qualify to complete the survey because you do not work in the sector of interest for this specific study.

Q2

Display this question

If Are are you based in South Africa? Yes Is Selected

Skip to

Thank you for taking your time to com... if None of the above Is Selected

Skip to

Invalid logic

Skip destination Go to skip origin

You have mentioned that you work in the banking sector, which one of the following banks do you work?

- Standard Bank of South Africa
- First National Bank Limited (FNB)
- ABSA Bank Limited
- None of the above

Q25

Display this question

If You have mentioned that you work in the banking sector, which one of the following banks do you w... None of the above Is Selected

Skip to

End of Survey if Thank you for taking your t... Is Displayed

Skip destination Go to skip origin

Skip destination Go to skip origin

Thank you for taking your time to complete the screening questions for this survey. Unfortunately, based on your responses, you do not qualify to complete the survey because you do not work in the sector of interest for this specific study.

INFORMED CONSENT

q3 *

Skip to

Thank you for taking your time to com... if No Is Selected

Dear participant

I am inviting you to participate in the following research study.

Title of research study: Leveraging digital technology for employee engagement in the banking sector in South Africa

What are we doing in the study?

I am a student for Master of Business Administration (MBA) at Wits Business School and currently conducting research for my studies. The purpose of the research is to analyse factors influencing employee engagement in the banking sector in the fourth industrial revolution era.

I will use the data from this study to help companies understand how they can keep their employees engaged in their jobs despite the dangers and uncertainties introduced by the 4IR. I am asking you to participate in the study because you work for a banking institution, and I have identified the banking sector as one of the industries most affected by the 4IR.

If you agree to take part in this study, I will ask you to complete an online questionnaire asking about your engagement experience at your company. The questions will take approximately 20 minutes to complete. I will only ask you to participate once.

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The study has been explained and I understand what my participation involves

- ○ Yes
- ○ No

Q26

Display this question

If Dear participant I am inviting you to participate in the following research study. Title of resea... No Is Selected

Skip to

End of Survey If Thank you for taking your t... Is Displayed

Skip destination Go to skip origin

Thank you for taking your time to complete the screening questions for this survey. Unfortunately, based on your responses, you do not qualify to complete the survey because you do not work in the sector of interest for this specific study.

Q65

Skip to

Thank you for taking your time to com... If No Is Greater Than or Equal to 1

Eligibility questions

	Yes	No
I agree that I have voluntarily agreed to partake in this research project	○	○
I agree to participate in this study that will be submitted in partial fulfilment of the requirements for the degree of Master of Business Administration (MBA) at Wits Business School.	○	○
I agree that my participation will remain anonymous	○	○
I agree that the researcher may use anonymous quotes in his / her research report	○	○
I agree that the data I will provide are not to be used to evaluate my performance as an employee in any way	○	○
I agree that the information I provide may be used anonymously after this study has ended, for academic purposes by other researchers.	○	○
I agree that I may withdraw from the study at any time with no adverse repercussions.	○	○

Q27

Display this question

If Eligibility questions - No Is Greater Than or Equal to 1

Skip to

End of Survey if Thank you for taking your t... Is Displayed

Skip destination Go to skip origin

Thank you for taking your time to complete the screening questions for this survey. Unfortunately, based on your responses, you do not qualify to complete the survey because you do not work in the sector of interest for this specific study.

Import from library Add new question

Add Block

SECTION 2: DESCRIPTIVE CHARACTERISTICS

Q11 *

Gender

- Male
- Female
- Non-binary / third gender
- Prefer not to say

Q12 *

Age

- Under 18
- 18 - 24
- 25 - 34
- 35 - 44
- 45 - 54
- 55 - 64
- 65 - 74
- 75 - 84
- 85 or older

Q7 *

Your highest qualification

- ○ Grade 12 / Matric
- ○ Diploma
- ○ Bachelors
- ○ Honours
- ○ Masters
- ○ Phd
- ○ Other

Q6 *

Which Department/Division do you work in within the bank?

- ○ Personal banking
- ○ Business banking
- ○ Corporate banking
- ○ Other

Q9 *

Job Level hierachy

- ○ Junior management
- ○ Skilled
- ○ Middle management
- ○ Senior management
- ○ Executive/Director
- ○ Unskilled
- ○ Sem-skilled
- ○ Other

Q8 *

What is your exact job title

- Accountant
- Branch Manager
- Cashier
- Customer Care Assistant
- Data analyst/scientist
- Human Resources
- Intern
- Insurance/Risk
- Audit
- IT / Software Engineer /Programmer
- Actruary
- Forensics
- Bank teller
- Other

Q10 *

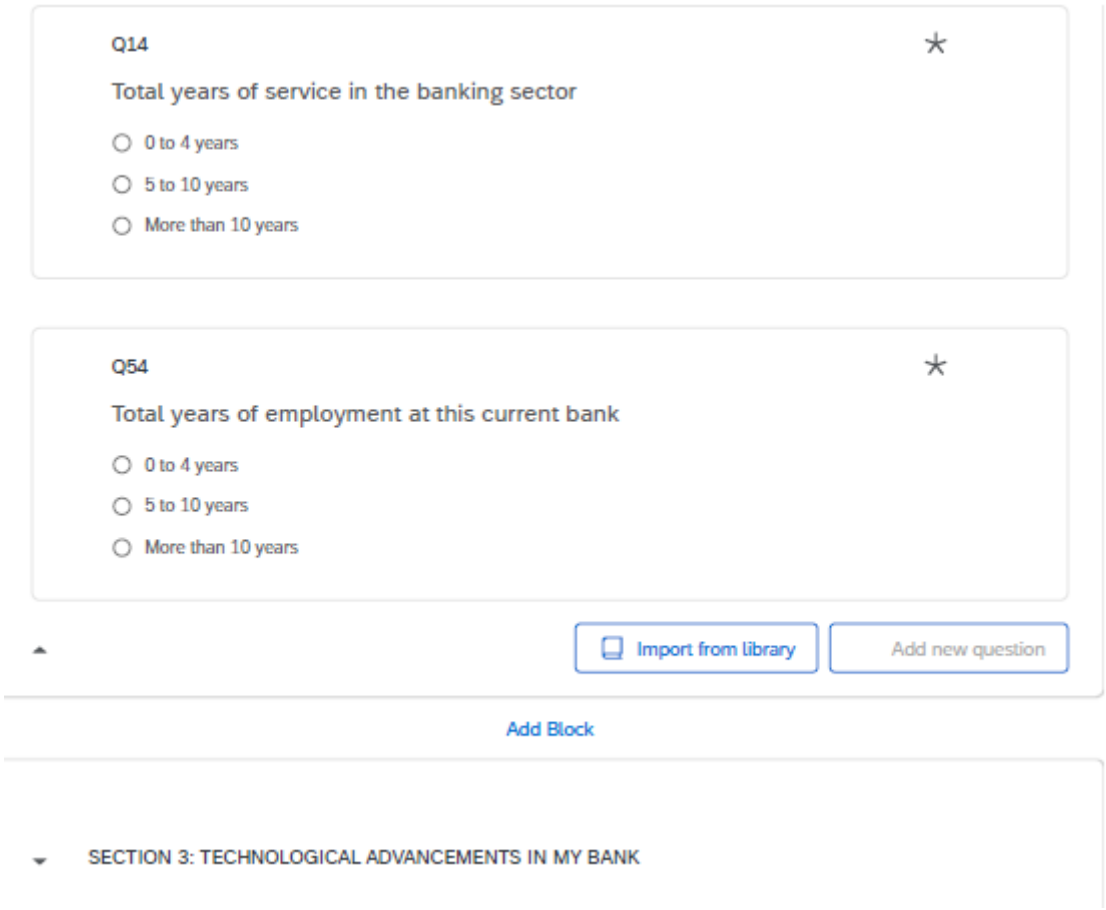
Previous job title at this bank

- Accountant
- Branch Manager
- Cashier
- Customer Care Assistant
- Data Analyst/Scientist
- Human Resources
- Intern
- Insurance/Risk
- Audit
- IT / Software Engineer /Programmer
- Actuary
- Forensics
- None, this is my first job here
- Other

Q13 *

Total years of work experience (include all companies and sectors you have worked in not just in the banking sector)

- 0 to 4 years
- 5 to 10 years
- More than 10 years

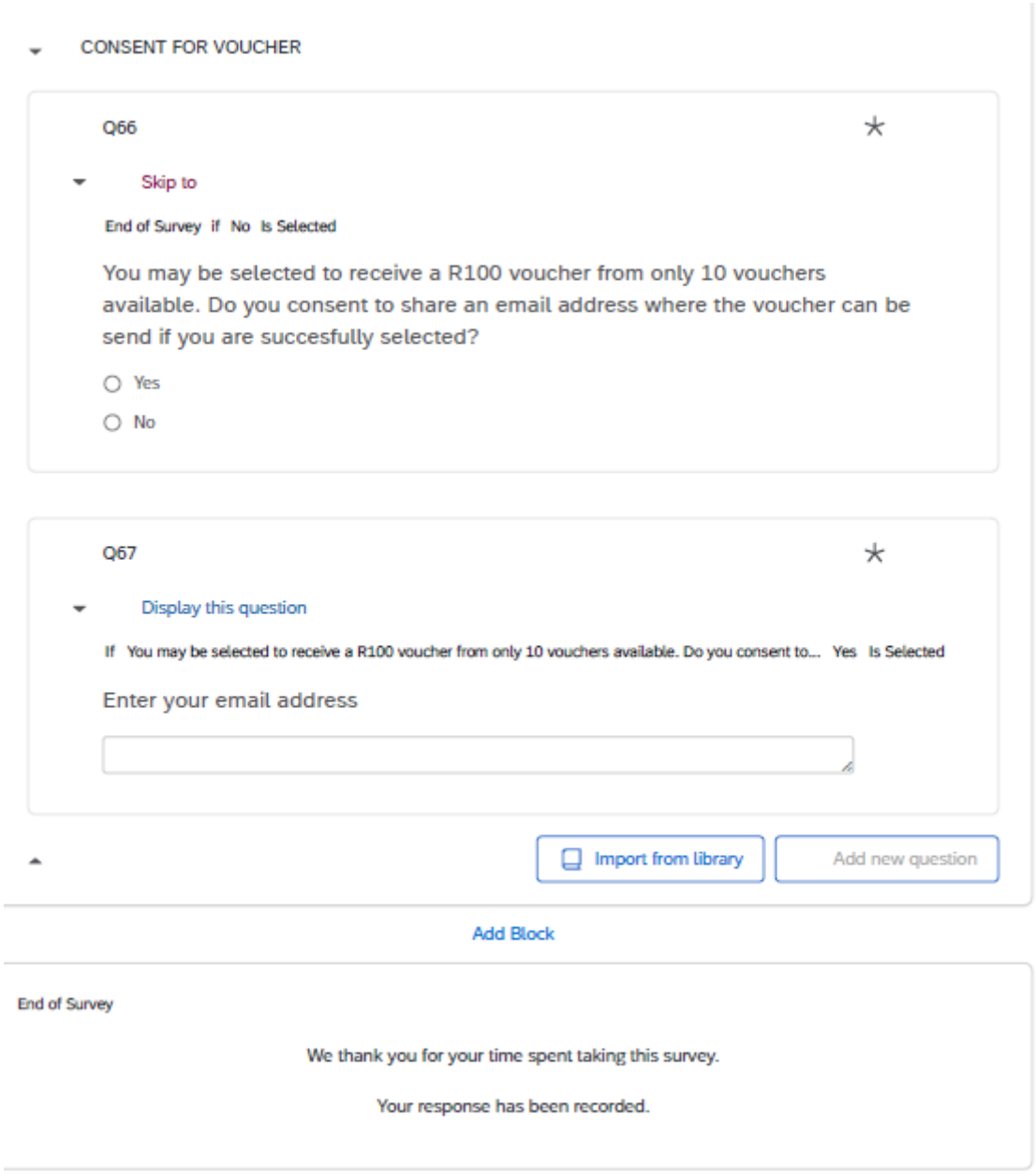

Q14
Total years of service in the banking sector
0 to 4 years
5 to 10 years
More than 10 years
Q54
Total years of employment at this current bank
0 to 4 years
5 to 10 years
More than 10 years
Import from library
Add new question
Add Block
SECTION 3: TECHNOLOGICAL ADVANCEMENTS IN MY BANK

TECHNOLOGICAL ADVANCEMENTS IN MY BANK

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
In the past year, my bank introduced technologies that replace humans	○	○	○	○	○
Some of my colleagues have been retrenched because of new technologies	○	○	○	○	○
New technologies are good for the company	○	○	○	○	○
New technologies are good for most employees	○	○	○	○	○
New technologies are good for customers	○	○	○	○	○
I can see myself still working at this bank in the next five years despite new technologies	○	○	○	○	○
My skills are relevant to technological direction that the bank is taking	○	○	○	○	○
The skills of most of my colleagues are relevant to the technology direction that the bank is taking	○	○	○	○	○
Most of my colleagues will still be working at this bank in the next five years despite new technologies	○	○	○	○	○
Using technology improves company's productivity overall	○	○	○	○	○
As a result of technology my bank is now more engaged with employees	○	○	○	○	○
Technology use increases bank employees' expertise	○	○	○	○	○
Using technologies has allowed bank employees to close more deals quicker	○	○	○	○	○
Senior management acknowledges that technology must benefit both the bank and employees	○	○	○	○	○
Senior management takes the correct technology decisions for the company and employees	○	○	○	○	○
My bank is readily upskilling employees with digital skills	○	○	○	○	○
Everyone looks forward to going to work because of the benefits of using technology	○	○	○	○	○
My salary increased since the introduction of technologies in the bank	○	○	○	○	○
Overall salaries increased since the bank increased the use of technologies	○	○	○	○	○
Without technologies salaries would not have increased at this rate and magnitude	○	○	○	○	○

EMPLOYEE ENGAGEMENT QUESTIONS

Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
My company cares about my career development and growth opportunities for the future within the context of 4IR				
○	○	○	○	○
Training programs provided by the organisation are suitable for my development in 4IR.				
○	○	○	○	○
Staff training provided allows me to be proactively ready for future challenges.				
○	○	○	○	○
In my organisation employees adapt quickly to changes due to training				
○	○	○	○	○
Communication in my company is usually open and forthright				
○	○	○	○	○
My immediate supervisor/manager's expectations of me are clear				
○	○	○	○	○
I am kept well informed about what the company is doing.				
○	○	○	○	○
My superior encourages employee's suggestions				
○	○	○	○	○
My superior attends to me when I speak to him/her about my worries				
○	○	○	○	○
I am aware of my salary structure				
○	○	○	○	○
I believe the compensation I receive from my employer matches my abilities, skills, and knowledge				
○	○	○	○	○
I agree with the increment and other monetary benefits policies				
○	○	○	○	○
I am happy with promotions opportunities in the organisations				
○	○	○	○	○
I am happy with the high-performance recognition				
○	○	○	○	○
My pay and benefits have not been affected by the increase used of technology				
○	○	○	○	○
I am happy with my current contribution to the organisation				
○	○	○	○	○
I put in my best effort on my work to assist this organisation to be profitable				
○	○	○	○	○
I rarely think about getting another job with another organisation				
○	○	○	○	○
My values are similar to the company's values				
○	○	○	○	○
My job activities are in line with my career goals				
○	○	○	○	○
I care about the future of the organisation				
○	○	○	○	○
There are employees in my organisations that have been affected by the implementation of the high technology use				
○	○	○	○	○
I feel threatened by the implementation of high technology use				
○	○	○	○	○


CONSENT FOR VOUCHER
Q66
Skip to
End of Survey if No Is Selected
You may be selected to receive a R100 voucher from only 10 vouchers available. Do you consent to share an email address where the voucher can be send if you are succesfully selected?
Yes
No
Q67
Display this question
If You may be selected to receive a R100 voucher from only 10 vouchers available. Do you consent to... Yes Is Selected
Enter your email address
Import from library
Add new question
Add Block
End of Survey
We thank you for your time spent taking this survey.
Your response has been recorded.

7.6 Appendix 5: Data analysis syntax

MBA Analysis do file* - Printed on 2023/02/28 18:36:22

```
1   import excel "EMPLOYEE ENGAGEMENT SURVEY_February 25, 2023_06.17.xlsx", sheet("Sheet0") firstrow
    case(lower)
2   drop startdate enddate responsetype ipaddress durationinseconds recordeddate recipientlastname
    recipientfirstname recipientemail externaldatareference locationlatitude locationlongitude
    distributionchannel userlanguage weareconductingasurveytome
3
4    replace doyouworkinthebankingorfi="Yes" if gender!=""& doyouworkinthebankingorfi=="" //fixing
    missing confirmation of eligible bank sector worker
5
6   //SCREENING AND RECRUITMENT STATS
7   replace doyouworkinthebankingorfi ="Yes" if doyouworkinthebankingorfi=="6"
8   tab doyouworkinthebankingorfi,m
9
10  drop if doyouworkinthebankingorfi!="Yes"
11
12  tab areareyoubasedinsouthafric,m
13  drop if areareyoubasedinsouthafric=="No"
14
15  replace youhavementionedthatyouwork="Other banks" if (youhavementionedthatyouwork!="ABSA Bank
    Limited" & youhavementionedthatyouwork!="First National Bank Limited (FNB)" &
    youhavementionedthatyouwork!="Standard Bank of South Africa")
16
17  tab youhavementionedthatyouwork,m
18
19  drop if youhavementionedthatyouwork=="Other banks"
20
21  //FULL ANALYSIS AFTER SCREENING DIAGNOSTICS
22  drop if gender==""
23
24  export excel using "MBA dataset output.xlsx", sheet("MBA clean data") firstrow(variables) replace
25
26  label define likert 1 "Strongly disagree" 2 "Somewhat disagree" 3 "Neither agree nor disagree" 4
    "Somewhat agree" 5 "Strongly agree"
27
28  foreach var in  technologicaladvancementsinmy at au av aw ax ay az ba bb bc bd be bf bg bh bi bj
    bk bl employeeengagementquestions ///
29  bn bo bp bq br bs bt bu bv bw bx by bz ca cb cc cd ce cf cg ch ci  {
30  replace `var'="1" if `var'=="Strongly disagree"
31  replace `var'="2" if `var'=="Somewhat disagree"
32  replace `var'="3" if `var'=="Neither agree nor disagree"
33  replace `var'="4" if `var'=="Somewhat agree"
34  replace `var'="5" if `var'=="Strongly agree"
35
36  destring `var',replace
37
38  label values `var' likert
39      }
40
41  //CALCULATING THE CRONBANCH ALPHA
42  alpha technologicaladvancementsinmy at au av aw ax ay az ba bb bc bd be bf bg bh bi bj bk bl
    employeeengagementquestions bn bo bp bq br bs bt bu bv bw bx by bz ca cb cc cd ce cf cg ch ci,
    item reverse(at ch  technologicaladvancementsinmy ci)
43
44  //CROBNBACH ALPHA DIAGNOSTICS
45  preserve
46
47  drop in 91/115
48
49  alpha technologicaladvancementsinmy at au av aw ax ay az ba bb bc bd be bf bg bh bi bj bk bl
    employeeengagementquestions bn bo bp bq br bs bt bu bv bw bx by bz ca cb cc cd ce cf cg ch ci,
    item reverse(at ch  technologicaladvancementsinmy ci)
50
51  restore
52
53  //TABLE WITH COMMUNICATION RESULTS
54  tabout bq br bs bt bu using Communication_table.xlsx, oneway replace ///
55  style(xlsx) font(bold) c(freq col) f(2) npos(row) twidth(20) clab(No. Col_%) stats(chi2) title(
    Communication)
```

Page 1

IBA Analysis do file* - Printed on 2023/02/28 18:36:22

```
56
57  //TABLE WITH COMPENSATION, PAY AND BENEFITS
58  tabout bj  bk  bl  bv  bw  bx  by  bz  ca using Compensation_table.xlsx, oneway replace ///
59  style(xlsx) font(bold) c(freq col) f(2) npos(row) twidth(20) clab(No. Col_%) stats(chi2) title(
    Compensation)
60
61  //TABLE WITH RETRENCHMENTS
62  tabout at ch technologicaladvancementsinmy using Retrenchments_table.xlsx, oneway replace ///
63  style(xlsx) font(bold) c(freq col) f(2) npos(row) twidth(20) clab(No. Col_%) stats(chi2) title(
    Retrenchments)
64
65  //TABLE WITH TECHNOLOGY
66
67  replace ci=6-ci // reversing question about feeling threated by technology
68  tabout au  av  aw  ay  az  bb  bd  be  bf  bg  bi  ci  using Technology table.xlsx, oneway
    replace ///
69  style(xlsx) font(bold) c(freq col) f(2) npos(row) twidth(20) clab(No. Col_%) stats(chi2) title(
    Technology)
70
71  //TABLE WITH TRAINING
72
73  tabout bh  bn  bo  bp  employeeengagementquestions  using Training_table.xlsx, oneway replace ///
74  style(xlsx) font(bold) c(freq col) f(2) npos(row) twidth(20) clab(No. Col_%) stats(chi2) title(
    Training)
75
76
77  //TABLE WITH ENGAGEMENT
78
79  tabout ax  ba  bc  cb  cc  cd  ce  cf  cg  using Engagement table.xlsx, oneway replace ///
80  style(xlsx) font(bold) c(freq col) f(2) npos(row) twidth(20) clab(No. Col_%) stats(chi2) title(
    Engagement)
81
82  egen communication_score=rowmean(bq br bs bt bu)
83  egen compensation_score=rowmean(bj  bk  bl  bv  bw  bx  by  bz  ca)
84  egen retrenchment_score=rowmean(at ch technologicaladvancementsinmy)
85  egen technology_score=rowmean(au  av  aw  ay  az  bb  bd  be  bf  bg  bi  ci)
86  egen training_score=rowmean(bh  bn  bo  bp  employeeengagementquestions)
87  egen engagement_score=rowmean(ax ba bc  cb  cc  cd  ce  cf  cg)
88
89  tabstat communication_score compensation_score retrenchment_score technology_score training_score
    engagement score, statistics( mean median skewness kurtosis iqr ) columns(statistics) save
90
91  sktest  communication score compensation score retrenchment score technology score training score
    engagement score
92
93  //SPEARMAN CORRELATION
94  asdoc spearman engagement_score training_score technology_score retrenchment_score
    compensation_score communication_score, save(Spearman_correlation.doc) stats(rho obs p) matrix
    star(.05) pw
95
96  //SELECTING 10 RANDOM PARTICIPANTS TO RECEIVE THE R100 VOUCHER
97
98  preserve
99
100 keep if enteryouremailaddress!=""
101 sample 10
102 keep enteryouremailaddress
103 save random sample,replace
104
105 restore
```

7.7 Tables

Table 7-1: Employee engagement score

Engagement variable	Code	No.	*(%)*	Average
I can see myself still working at this bank in the next five years despite new technologies				
Strongly disagree	1	5	*(4.59)*	0.0459
Somewhat disagree	2	6	*(5.50)*	0.1101
Neither agree nor disagree	3	13	*(11.93)*	0.3578
Somewhat agree	4	28	*(25.69)*	1.0275
Strongly agree	5	57	*(52.29)*	2.6147
Total		**109**	***(100.00)***	**4.1560**

Engagement variable	Code	No.	*(%)*	Average
Most of my colleagues will still be working at this bank in the next five years despite new technologies				
Strongly disagree	1	16	*(14.68)*	0.1468
Somewhat disagree	2	16	*(14.68)*	0.2936
Neither agree nor disagree	3	22	*(20.18)*	0.6055
Somewhat agree	4	25	*(22.94)*	0.9174
Strongly agree	5	30	*(27.52)*	1.3761
Total		**109**	***(100.00)***	**3.3394**
As a result of technology, my bank is now more engaged with employees				
Strongly disagree	1	12	*(11.11)*	0.1111
Somewhat disagree	2	10	*(9.26)*	0.1852
Neither agree nor disagree	3	19	*(17.59)*	0.5278
Somewhat agree	4	27	*(25.00)*	1.0000
Strongly agree	5	40	*(37.04)*	1.8519
Total		**108**	***(100.00)***	**3.6759**
I am happy with my current contribution to the organisation				
Strongly disagree	1	4	*(3.85)*	0.0385
Somewhat disagree	2	6	*(5.77)*	0.1154
Neither agree nor disagree	3	10	*(9.62)*	0.2885
Somewhat agree	4	29	*(27.88)*	1.1154
Strongly agree	5	55	*(52.88)*	2.6442
Total		**104**	***(100.00)***	**4.2019**
I put in my best effort on my work to assist this organisation in becoming profitable				
Strongly disagree	1	4	*(3.85)*	0.0385
Somewhat disagree	2	1	*(0.96)*	0.0192
Neither agree nor disagree	3	5	*(4.81)*	0.1442
Somewhat agree	4	20	*(19.23)*	0.7692
Strongly agree	5	74	*(71.15)*	3.5577
Total		**104**	***(100.00)***	**4.5288**
I rarely think about getting another job with another organisation				
Strongly disagree	1	19	*(18.27)*	0.1827
Somewhat disagree	2	18	*(17.31)*	0.3462
Neither agree nor disagree	3	21	*(20.19)*	0.6058
Somewhat agree	4	20	*(19.23)*	0.7692
Strongly agree	5	26	*(25.00)*	1.2500
Total		**104**	***(100.00)***	**3.1538**
My values are similar to the company's values				
Strongly disagree	1	5	*(4.81)*	0.0481
Somewhat disagree	2	13	*(12.50)*	0.2500
Neither agree nor disagree	3	5	*(4.81)*	0.1442
Somewhat agree	4	42	*(40.38)*	1.6154
Strongly agree	5	39	*(37.50)*	1.8750
Total		**104**	***(100.00)***	**3.9327**
My job activities are in line with my career goals				
Strongly disagree	1	8	*(7.69)*	0.0769
Somewhat disagree	2	8	*(7.69)*	0.1538
Neither agree nor disagree	3	5	*(4.81)*	0.1442
Somewhat agree	4	37	*(35.58)*	1.4231
Strongly agree	5	46	*(44.23)*	2.2115
Total		**104**	***(100.00)***	**4.0096**
I care about the future of the organisation				
Strongly disagree	1	6	*(5.77)*	0.0577
Somewhat disagree	2	4	*(3.85)*	0.0769
Neither agree nor disagree	3	3	*(2.88)*	0.0865

Engagement variable	Code	No.	*(%)*	Average
Somewhat agree	4	26	*(25.00)*	1.0000
Strongly agree	5	65	*(62.50)*	3.1250
Total		**104**	***(100.00)***	**4.3462**
Overall employee engagement score				***3.9272***

Table 7-2: Summary of training Likert scale

Training variable	Code	No.	(%)	Mean
My bank is readily upskilling employees with digital skills				
Strongly disagree	1	8	*(7.41)*	0.0741
Somewhat disagree	2	12	*(11.11)*	0.2222
Neither agree nor disagree	3	9	*(8.33)*	0.2500
Somewhat agree	4	28	*(25.93)*	1.0370
Strongly agree	5	51	*(47.22)*	2.3611
Total		**108**	***(100.00)***	**3.9444**
Training programs provided by the organisation are suitable for my development in 4IR				
Strongly disagree	1	12	*(11.54)*	0.1154
Somewhat disagree	2	10	*(9.62)*	0.1923
Neither agree nor disagree	3	12	*(11.54)*	0.3462
Somewhat agree	4	28	*(26.92)*	1.0769
Strongly agree	5	42	*(40.38)*	2.0192
Total		**104**	***(100.00)***	**3.7500**
Staff training provided allows me to be proactively ready for future challenges.				
Strongly disagree	1	8	*(7.69)*	0.0769
Somewhat disagree	2	8	*(7.69)*	0.1538
Neither agree nor disagree	3	11	*(10.58)*	0.3173
Somewhat agree	4	33	*(31.73)*	1.2692
Strongly agree	5	44	*(42.31)*	2.1154
Total		**104**	***(100.00)***	**3.9327**
In my organisation, employees adapt quickly to changes due to training				
Strongly disagree	1	5	*(4.81)*	0.0481
Somewhat disagree	2	10	*(9.62)*	0.1923
Neither agree nor disagree	3	15	*(14.42)*	0.4327
Somewhat agree	4	43	*(41.35)*	1.6538
Strongly agree	5	31	*(29.81)*	1.4904
Total		**104**	***(100.00)***	**3.8173**
My company cares about my career development and growth opportunities for the future within the context of 4IR				
Strongly disagree	1	10	*(9.62)*	0.0962
Somewhat disagree	2	9	*(8.65)*	0.1731
Neither agree nor disagree	3	9	*(8.65)*	0.2596
Somewhat agree	4	33	*(31.73)*	1.2692
Strongly agree	5	43	*(41.35)*	2.0673
Total		**104**	***(100.00)***	**3.8654**
Average score from training Likert items				***3.8620***

Table 7-3: Summary of communication Likert scale

Communication variables	Code	No.	*(%)*	Mean
Communication in my company is usually open and forthright				
Strongly disagree	1	11	*(10.58)*	0.1058
Somewhat disagree	2	14	*(13.46)*	0.2692
Neither agree nor disagree	3	14	*(13.46)*	0.4038
Somewhat agree	4	33	*(31.73)*	1.2692
Strongly agree	5	32	*(30.77)*	1.5385
Total		**104**	***(100.00)***	**3.5865**
My immediate supervisor/manager's expectations of me are clear				
Strongly disagree	1	10	*(9.62)*	0.0962
Somewhat disagree	2	7	*(6.73)*	0.1346
Neither agree nor disagree	3	14	*(13.46)*	0.4038
Somewhat agree	4	28	*(26.92)*	1.0769
Strongly agree	5	45	*(43.27)*	2.1635
Total		104	*(100.00)*	**3.8750**
I am kept well informed about what the company is doing.				
Strongly disagree	1	5	*(4.81)*	0.0481
Somewhat disagree	2	10	*(9.62)*	0.1923
Neither agree nor disagree	3	9	*(8.65)*	0.2596
Somewhat agree	4	33	*(31.73)*	1.2692
Strongly agree	5	47	*(45.19)*	2.2596
Total		**104**	***(100.00)***	**4.0288**
My superior encourages employee's suggestions				
Strongly disagree	1	8	*(7.69)*	0.0769
Somewhat disagree	2	11	*(10.58)*	0.2115
Neither agree nor disagree	3	13	*(12.50)*	0.3750
Somewhat agree	4	28	*(26.92)*	1.0769
Strongly agree	5	44	*(42.31)*	2.1154
Total		**104**	***(100.00)***	**3.8558**
My superior attends to me when I speak to him/her about my worries				
Strongly disagree	1	7	*(6.73)*	0.0673
Somewhat disagree	2	11	*(10.58)*	0.2115
Neither agree nor disagree	3	15	*(14.42)*	0.4327
Somewhat agree	4	28	*(26.92)*	1.0769
Strongly agree	5	43	*(41.35)*	2.0673
Total		**104**	***(100.00)***	**3.8558**
Average score from communication Likert items				***3.8404***

Table 7-4: Table of compensation scores

Compensation variable	Code	No.	(%)	Average
My salary has increased since the introduction of technologies in the bank				
Strongly disagree	1	26	(24.07)	0.2407
Somewhat disagree	2	20	(18.52)	0.3704
Neither agree nor disagree	3	32	(29.63)	0.8889
Somewhat agree	4	16	(14.81)	0.5926
Strongly agree	5	14	(12.96)	0.6481
Total		**108**	**(100.00)**	**2.7407**

Overall salaries increased since the bank increased the use of technologies				
Strongly disagree	1	25	(23.15)	0.2315
Somewhat disagree	2	21	(19.44)	0.3889
Neither agree nor disagree	3	33	(30.56)	0.9167
Somewhat agree	4	19	(17.59)	0.7037
Strongly agree	5	10	(9.26)	0.4630
Total		**108**	**(100.00)**	**2.7037**
Without technologies, salaries would not have increased at this rate and magnitude				
Strongly disagree	1	23	(21.30)	0.2130
Somewhat disagree	2	25	(23.15)	0.4630
Neither agree nor disagree	3	36	(33.33)	1.0000
Somewhat agree	4	9	(8.33)	0.3333
Strongly agree	5	15	(13.89)	0.6944
Total		**108**	**(100.00)**	**2.7037**
I am aware of my salary structure				
Strongly disagree	1	6	(5.77)	0.0577
Somewhat disagree	2	9	(8.65)	0.1731
Neither agree nor disagree	3	6	(5.77)	0.1731
Somewhat agree	4	30	(28.85)	1.1538
Strongly agree	5	53	(50.96)	2.5481
Total		**104**	**(100.00)**	**4.1058**
I believe the compensation I receive from my employer matches my abilities, skills, and knowledge				
Strongly disagree	1	19	(18.27)	0.1827
Somewhat disagree	2	25	(24.04)	0.4808
Neither agree nor disagree	3	15	(14.42)	0.4327
Somewhat agree	4	22	(21.15)	0.8462
Strongly agree	5	23	(22.12)	1.1058
Total		**104**	**(100.00)**	**3.0481**
I agree with the increment and other monetary benefits policies				
Strongly disagree	1	11	(10.58)	0.1058
Somewhat disagree	2	20	(19.23)	0.3846
Neither agree nor disagree	3	18	(17.31)	0.5192
Somewhat agree	4	26	(25.00)	1.0000
Strongly agree	5	29	(27.88)	1.3942
Total		**104**	**(100.00)**	**3.4038**
I am happy with promotions opportunities in the organisations				
Strongly disagree	1	14	(13.46)	0.1346
Somewhat disagree	2	19	(18.27)	0.3654
Neither agree nor disagree	3	12	(11.54)	0.3462
Somewhat agree	4	32	(30.77)	1.2308
Strongly agree	5	27	(25.96)	1.2981
Total		**104**	**(100.00)**	**3.3750**
I am happy with the high-performance recognition				
Strongly disagree	1	13	(12.50)	0.1250
Somewhat disagree	2	12	(11.54)	0.2308
Neither agree nor disagree	3	14	(13.46)	0.4038
Somewhat agree	4	29	(27.88)	1.1154
Strongly agree	5	36	(34.62)	1.7308
Total		**104**	**(100.00)**	**3.6058**
My pay and benefits have not been affected by the increased use of technology				
Strongly disagree	1	9	(8.65)	0.0865
Somewhat disagree	2	13	(12.50)	0.2500
Neither agree nor disagree	3	23	(22.12)	0.6635

Somewhat agree	4	30	(28.85)	1.1538
Strongly agree	5	29	(27.88)	1.3942
Total		**104**	**(100.00)**	**3.5481**

Overall compensation score	***3.2483***

Table 7-5: Bank workers` perceptions of the use of technologies

Technology variables	Score	No.	*(%)*	Mean
New technologies are good for the company				
Strongly disagree	1	6	*(5.50)*	0.0550
Somewhat disagree	2	6	*(5.50)*	0.1101
Neither agree nor disagree	3	5	*(4.59)*	0.1376
Somewhat agree	4	34	*(31.19)*	1.2477
Strongly agree	5	58	*(53.21)*	2.6606
Total		**109**	***(100.00)***	**4.2110**
New technologies are good for most employees				
Strongly disagree	1	6	*(5.50)*	0.0550
Somewhat disagree	2	9	*(8.26)*	0.1651
Neither agree nor disagree	3	12	*(11.01)*	0.3303
Somewhat agree	4	41	*(37.61)*	1.5046
Strongly agree	5	41	*(37.61)*	1.8807
Total		**109**	***(100.00)***	**3.9358**
New technologies are good for customers				
Strongly disagree	1	9	*(8.26)*	0.0826
Somewhat disagree	2	6	*(5.50)*	0.1101
Neither agree nor disagree	3	2	*(1.83)*	0.0550
Somewhat agree	4	30	*(27.52)*	1.1009
Strongly agree	5	62	*(56.88)*	2.8440
Total		**109**	***(100.00)***	**4.1927**
My skills are relevant to the technological direction that the bank is taking				
Strongly disagree	1	6	*(5.50)*	0.0550
Somewhat disagree	2	8	*(7.34)*	0.1468
Neither agree nor disagree	3	5	*(4.59)*	0.1376
Somewhat agree	4	25	*(22.94)*	0.9174
Strongly agree	5	65	*(59.63)*	2.9817
Total		**109**	***(100.00)***	**4.2385**
The skills of most of my colleagues are relevant to the technology direction that the bank is taking				
Strongly disagree	1	10	*(9.17)*	0.0917
Somewhat disagree	2	17	*(15.60)*	0.3119
Neither agree nor disagree	3	13	*(11.93)*	0.3578
Somewhat agree	4	34	*(31.19)*	1.2477
Strongly agree	5	35	*(32.11)*	1.6055
Total		**109**	***(100.00)***	**3.6147**
Using technology improves the company's productivity overall				
Strongly disagree	1	4	*(3.70)*	0.0370
Somewhat disagree	2	3	*(2.78)*	0.0556
Neither agree nor disagree	3	9	*(8.33)*	0.2500
Somewhat agree	4	27	*(25.00)*	1.0000
Strongly agree	5	65	*(60.19)*	3.0093
Total		**108**	***(100.00)***	**4.3519**
Technology use increases bank employees' expertise				
Strongly disagree		6	*(5.56)*	0.0000
Somewhat disagree	1	13	*(12.04)*	0.1204

Technology variables	Score	No.	(%)	Mean
Neither agree nor disagree	2	11	*(10.19)*	0.2037
Somewhat agree	3	37	*(34.26)*	1.0278
Strongly agree	4	41	*(37.96)*	1.5185
Total	**5**	**108**	***(100.00)***	**2.8704**
Using technologies has allowed bank employees to close more deals quicker				
Strongly disagree	1	4	*(3.70)*	0.0370
Somewhat disagree	2	7	*(6.48)*	0.1296
Neither agree nor disagree	3	15	*(13.89)*	0.4167
Somewhat agree	4	28	*(25.93)*	1.0370
Strongly agree	5	54	*(50.00)*	2.5000
Total		**108**	***(100.00)***	**4.1204**
Senior management acknowledges that technology must benefit both the bank and its employees				
Strongly disagree	1	5	*(4.63)*	0.0463
Somewhat disagree	2	10	*(9.26)*	0.1852
Neither agree nor disagree	3	10	*(9.26)*	0.2778
Somewhat agree	4	32	*(29.63)*	1.1852
Strongly agree	5	51	*(47.22)*	2.3611
Total		**108**	***(100.00)***	**4.0556**
Senior management takes the correct technology decisions for the company and employees				
Strongly disagree	1	6	*(5.56)*	0.0556
Somewhat disagree	2	12	*(11.11)*	0.2222
Neither agree nor disagree	3	14	*(12.96)*	0.3889
Somewhat agree	4	39	*(36.11)*	1.4444
Strongly agree	5	37	*(34.26)*	1.7130
Total		**108**	***(100.00)***	**3.8241**
Everyone looks forward to going to work because of the benefits of using technology				
Strongly disagree	1	6	*(5.56)*	0.0556
Somewhat disagree	2	13	*(12.04)*	0.2407
Neither agree nor disagree	3	27	*(25.00)*	0.7500
Somewhat agree	4	36	*(33.33)*	1.3333
Strongly agree	5	26	*(24.07)*	1.2037
Total		**108**	***(100.00)***	**3.5833**
I feel threatened by the implementation of high-technology use				
Strongly disagree	1	17	*(16.35)*	0.1635
Somewhat disagree	2	19	*(18.27)*	0.3654
Neither agree nor disagree	3	10	*(9.62)*	0.2885
Somewhat agree	4	20	*(19.23)*	0.7692
Strongly agree	5	38	*(36.54)*	1.8269
Total		**104**	***(100.00)***	**3.4135**
Overall technology score				***3.8676***

Table 7-6: Summary of retrenchment scores

Retrenchment Likert items	Score	No.	%	Mean
Some of my colleagues have been retrenched because of new technologies				
Strongly disagree	1	32	*(29.36)*	0.2936
Somewhat disagree	2	17	*(15.60)*	0.3119
Neither agree nor disagree	3	14	*(12.84)*	0.3853
Somewhat agree	4	24	*(22.02)*	0.8807
Strongly agree	5	22	*(20.18)*	1.0092

Retrenchment Likert items	Score	No.	%	Mean
Total		**109**	***(100.00)***	**2.8807**
There are employees in my organisations that have been affected by the implementation of the high technology use				
Strongly disagree	1	8	*(7.69)*	0.0769
Somewhat disagree	2	5	*(4.81)*	0.0962
Neither agree nor disagree	3	18	*(17.31)*	0.5192
Somewhat agree	4	40	*(38.46)*	1.5385
Strongly agree	5	33	*(31.73)*	1.5865
Total		**104**	***(100.00)***	**3.8173**
In the past year, my bank introduced technologies that replace humans				
Strongly disagree	1	14	*(12.84)*	0.1284
Somewhat disagree	2	8	*(7.34)*	0.1468
Neither agree nor disagree	3	18	*(16.51)*	0.4954
Somewhat agree	4	37	*(33.94)*	1.3578
Strongly agree	5	32	*(29.36)*	1.4679
Total		**109**	**100**	**3.5963**
Overall retrenchments score				***3.4315***