STRATEGIES TO IMPROVE EMPLOYEE FINANCIAL INTELLIGENCE

PERINE BOTHA

STRATEGIES TO IMPROVE EMPLOYEE FINANCIAL INTELLIGENCE

By

Perine Botha

Student number: 200327186

Submitted in partial fulfilment of the requirements for the degree

MASTER OF BUSINESS ADMINISTRATION

In the Faculty of Business and Economic Sciences

at the Nelson Mandela University

April 2020

Supervisor: Mr Luyolo Mahlangabeza

Co-Supervisor: Prof Cecil Arnolds

DECLARATION BY STUDENT

Name   : Perine Botha

Student Number   : 200327186

Qualification   : Master of Business Administration

In accordance with Rule G5.6.3 and by submitting this research report, I, Perine Botha, declare that the entirety of the work contained therein is my own, original work. I further declare that this work has not been submitted in its entirety or in part for assessment to another University or for obtaining another qualification.

Signature

Date

ACKNOWLEDGEMENTS

A sincere thank you to all the people who contributed, in one way or another, towards the completion of the present research effort. In appreciation, I wish to acknowledge the following:

My God almighty.

My dear husband.

My parents.

My children.

The subjects of this study.

My MBA supervisors, Mr Luyolo Mahlangabeza and Professor Cecil Arnolds.

Faculty librarian, and NMMU library staff.

ABSTRACT

South African employees are largely indebted, with the majority of their disposable income used to service debt. The potential causes of this problem include the levels of education of individuals, how investors perceive the political climate in the country, levels of disposable income and the spending habits of individuals.This study aims to assist organisations to improve employee financial intelligence by investigating what influences financial intelligence. To ascertain these influences, the respondents' level of financial literacy is to be determined as well. Financial literacy is assessed by determining a respondents' knowledge of numeracy, risk diversification, compound interest and inflation. Additional factors such as debt management, saving culture and access to digital information too have an impact on financial literacy.

An empirical study, consisting of a questionnaire was conducted among employees of a state-owned enterprise (SOE) in the Eastern Cape Province of South Africa. These employees represent both the management and junior employee profiles.

The study found that 75% of the respondents were not financially literate. Financial literacy rates globally are at 51%, however in a major emerging economy such as South Africa, the rate is between 48% and 51%. The results of the study however indicate that it much lower than the global average as well as for that of similar developing countries.

The results of the study indicate that age, gender, job grade, level of education, access to digital information, a savings culture, budgeting and debt management do not significantly influence financial literacy in the context of South Africa.

The research indicates that the respondents are, however, willing to learn and be educated to increase their financial knowledge and awareness. Possible strategies which could assist in improving levels of financial intelligence are:
- Financial literacy courses offered by employers;
- Research undertaken by employees themselves could increase their financial literacy;

- Employee wellness programmes, such as debt counselling, could improve the financial literacy of employees;
- Completion of online courses would improve the employees' level of financial literacy;
- Budgeting and money management courses;
- Financial advisors to be appointed by employers;
- Debt counselling of employees.

TABLE OF CONTENTS

CHAPTER 2: FINANCIAL INTELLIGENCE

CHAPTER 3: RESEARCH METHODOLOGY AND EMPIRICAL RESULTS

CHAPTER 4: STATISTICAL ANALYSIS AND PRESENTATION OF FINDINGS

CHAPTER 5: RECOMMENDATIONS AND CONCLUDING REMARKS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1 – SCOPE OF THE STUDY

1.1 INTRODUCTION

In South Africa, more than three million individuals have emoluments attachment orders ("Debt restructuring", 2016). An emoluments attachment order grants the creditor the right to receive instalments directly from the debtor by way of monthly deductions from the debtors' salary before the debtor receives such a salary (Van Sittert, 2013).

Debt Rescue, a debt management firm, determined that South African consumers owe the majority of their monthly salaries to creditors. Consumers contribute a substantial portion of their salaries to debt repayments, as is depicted in Figure 1.1 creditors (Ventruella, 2016). This has increased to almost 75% in 2018, per the South African Reserve Bank. That is to say that 75% of disposable income is used to service debt (South African consumer indebtedness should be a serious concern for policymakers, 2019).

FIGURE 1.1 PROPORTIONS OF INDEBTEDNESS PER INCOME GROUP
(2013 & 2015)

Source: Ventruella (2016)

The potential causes of this problem include the levels of education of individuals, how investors perceive the political climate in the country, levels of disposable income and the spending habits of individuals (Lusardi & Mitchell, 2014).

The global financial crisis in 2008, raised employer awareness on the worsening state of employees' financial well-being. Globally, millions of people were affected by the impact of the crisis, as markets went into recession. As a result, individuals now have to be more financially knowledgeable (Malouf, 2012).

According to the Quarterly Labour Force Survey, published by Statistics South Africa in 2016, only 20% of employed individuals have a tertiary qualification (StatsSA, 2016). This is therefore indicative of the fact that a large percentage of the population may not be financially literate.

Studies show that the political climate in a country and how investors perceive this climate has a direct impact on the citizens in that country (Mboweni, 2017). In 2017 the investment grading of South Africa was downgraded to "Junk Status" by Standard and Poors (Mboweni, 2017). This has put pressure on the South African economy and could directly increase the cost of living for all South Africans, hence putting a further financial strain on employees (Lawlor, 2018).

According to Lehohla (2016), the average salary for working individuals in South Africa is R103 000 per annum. This indicates that many sufficiently disposable incomes are hence not able to contribute toward savings regularly as their money is spent on day to day expenses. If, as indicated in the statistics, 75% of individuals' salaries are used to repay debt, then enormous financial strain is placed on them needing to utilise even more credit to sustain themselves.

In some instances, employees do earn a sufficient amount of money to not have to endure financial strain. However, lifestyle choices have a large impact on financial stability. The result is that levels of household debt increased amongst all income brackets in 2014/15 in South Africa (Lehohla, 2016).

1.2 PROBLEM STATEMENT

A large number of employees is not financially intelligent, which leads to them not being able to manage their finances and in many instances, emolument attachment orders are being attached to their salaries. This has a direct impact on the well-being of employees and their productivity in the workplace. A survey conducted by PricewaterhouseCoopers in 2013 indicated that 23% of employees admitted that financial issues have an impact on their productivity in the workplace (Bannon *et al.*, 2014).

Employees who are under financial strain are not able to perform optimally as they are not as productive or motivated as they should be, due to the stress they are suffering from. This lack of productivity can be translated into rand value losses for employers (Kadlec, 2012). It is therefore imperative that management addresses this area of weakness.

Should it be addressed, management will be able to reap the benefits of a motivated, productive workforce. A study by Kadlec (2012) found that "employees spend 28 hours a month, on average, researching personal financial issues". This equated to 5 000 US Dollars per employee per year, evidence to the benefits in addressing the problem.

1.3 PRIMARY OBJECTIVE

The objective of this research study is to determine what influences the level of financial intelligence of employees and then to develop strategies to address this.

The study's purpose is to contribute to the literature by determining the level of financial intelligence of employees in a state-owned enterprise in South Africa and to develop a framework to address the levels of financial intelligence. Primary research will be done via a positivistic paradigm. A cross-sectional survey will be created and a sample of employees in South Africa surveyed.

1.4   SECONDARY OBJECTIVE

To achieve the primary objective the following secondary objectives were pursued:

1. To conduct a literature review on financial intelligence and financial literacy and determine the impact that gender, age, job grade, level of education, access to digital information, a savings culture, budgeting and debt management have thereon.
2. To develop a questionnaire that will measure the respondents' feedback.
3. To record and interpret the results.
4. To present the findings, draw conclusions, provide managerial recommendations and indicate future research gaps.

1.5   THE RESEARCH QUESTIONS

To address the research problem, aim and objectives, the following research questions are addressed:

RQ 1   What is the relationship between age and the level of financial literacy?

RQ 2   What is the relationship between gender and the level of financial literacy?

RQ 3   What is the relationship between job level and the level of financial literacy?

RQ 4   What is the relationship between education and the level of financial literacy?

RQ 5   What is the relationship between access to digital information and the level of financial literacy?

RQ 6 What is the relationship between financial literacy and employees' knowledge of budgeting?

RQ 7 What is the relationship between financial literacy and employees' saving culture?

RQ 8 What is the relationship between financial literacy and employees' knowledge of debt management?

1.6 THE HYPOTHESIS

The following hypotheses were investigated in this study:

H1: There is a positive relationship between age and the level of financial literacy.

H2: There is a positive relationship between gender and the level of financial literacy.

H3: There is a positive relationship between job level and the level of financial literacy.

H4: There is a positive relationship between education level and the level of financial literacy.

H5: There is a positive relationship between access to digital information and the level of financial literacy.

H6: There is a positive relationship between financial literacy and employees' knowledge of budgeting.

H7: There is a positive relationship between financial literacy and employees' savings culture.

H8: There is a positive relationship between financial literacy and employees' knowledge of debt management.

1.7   THEORETICAL FRAMEWORK

The theoretical framework, Figure 1.2 below, illustrates the hypothesised relationships to address the financial intelligence of employees.

The independent variables identified are namely, age, gender, level of education, job level of the employee and access to digital information. The dependent variable of financial intelligence is further split into the nominal variables of financial literacy, a savings culture, budgeting and debt management.

FIGURE 1.2: THE HYPOTHESISED MODEL OF FACTORS WHICH INFLUENCE FINANCIAL LITERACY AND FINANCIAL INTELLIGENCE
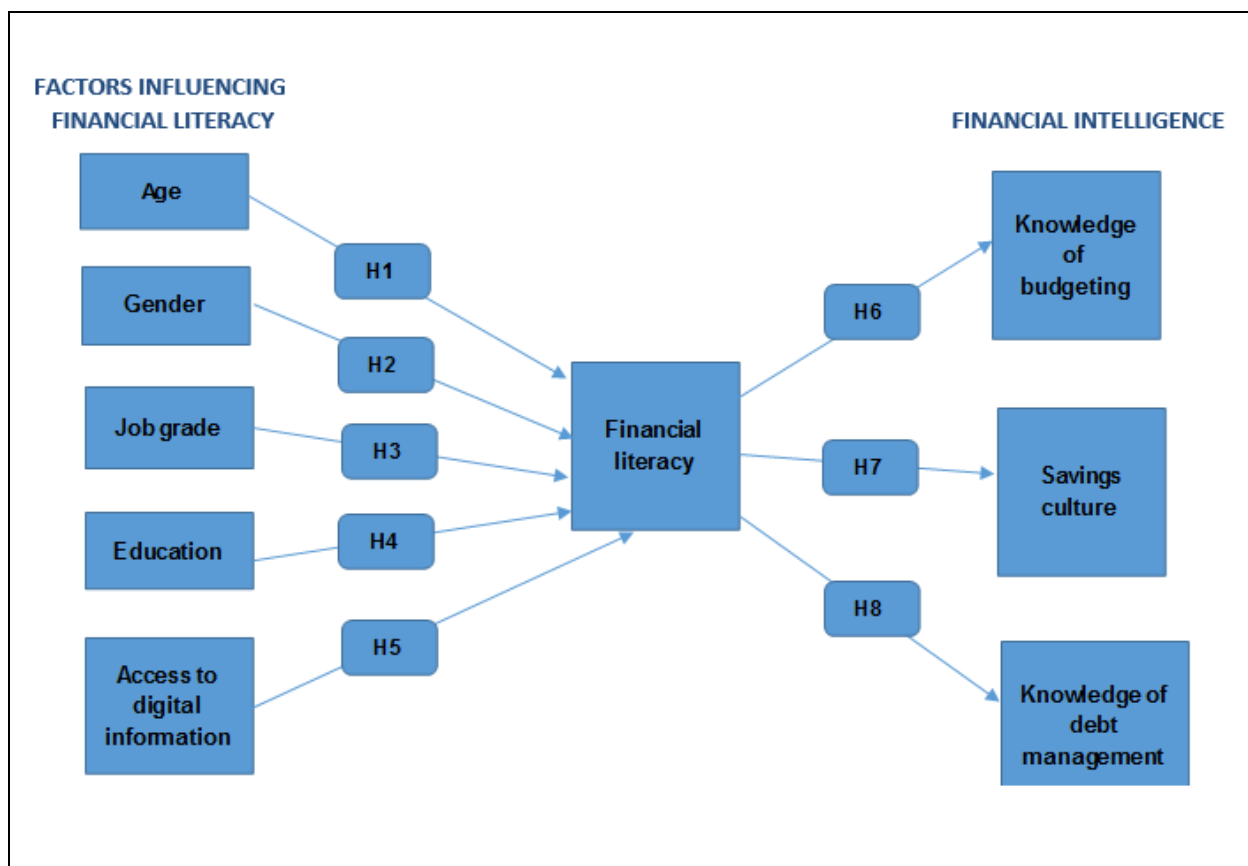
Source: Own construction

1.8 DEMARCATION OF THE STUDY AREA

The study is conducted in a South African context, the sample will be gathered from employees of a state-owned enterprise in the Eastern Cape Region of South Africa.

1.9 METHODOLOGY OF THE STUDY

1.9.1 The research paradigm

A research paradigm is a framework that guides how research should be conducted (Collis & Hussey, 2014). The two main paradigms are those of positivism and interpretivism. Since the study is quantitative, objective and scientific, the study is located within the positivistic paradigm. The methodologies associated with positivism include experimental studies, surveys, cross-sectional studies and longitudinal studies (Collis & Hussey, 2014).

A survey is a methodology designed to collect primary or secondary data from a sample, to generalise the results to the population (Collis & Hussey, 2014). In conducting this study, a survey using a questionnaire is therefore considered most appropriate as the data obtained can be inferred across the population. The primary data obtained from employees regarding their levels of financial intelligence can then be inferred to the employed population as a whole.

1.9.2 Sampling design

The researcher distributed the questionnaires to employees, who manually completed the questionnaire. The researcher then collected and numbered the questionnaires.

1.9.3 Measuring instrument

The questionnaire consisted of three sections. Section A was anchored to a five- (5) point Likert scale ranging from one (1) strongly disagree to five (5) strongly agree. Section B contained information relating to the classification of the data, whereas

Section C included questions, which assessed the respondents' level of financial literacy and how they manage their debt.

1.9.4 Data analysis

The data will be analysed utilising the STATISTICA statistical software programme.

1.10 TERMINOLOGY

1.10.1 Financial intelligence

The idea of 'financial intelligence quotient (FiQ)' which is used in this investigation, is an extension of the financial literacy concept to quantify a person's aptitude on financial related information, abilities and confidence, which could bring about financial-related prosperity. In the present study, financial intelligence was defined as an individual's knowledge about budgeting, his/her saving cultures and his/her knowledge about debt management.

1.10.2 Financial literacy

Huston (2010) defines financial literacy as "measuring how well an individual can understand and use personal finance-related information". The present study, financial literacy was defined measured as an individual's basic knowledge of risk diversification, inflation, numeracy and compound interest.

1.10.3 Emoluments attachment order

An EAO is an order made by a Magistrate's Court ("court"), whereby the creditor attaches a portion of the debtor's income (salary). The debtor's employer will deduct an amount from the debtor's income and directly pay it to the creditor (Emolument attachment orders, 2019).

1.10.4 Budgeting

The Cambridge Dictionary defines budgeting as" the process of calculating how much money you must earn or save during a particular period of time, and of planning how you will spend it" ("Budgeting", 2018).

1.10.5 Primary data

Data generated from an original source, such as one's own experiments, surveys, interviews or focus groups (Collis & Hussey, 2014).

1.10.6 Secondary data

Data collected from an existing source. Such as publications, databases and internal records (Collis & Hussey, 2014).

1.11 OUTLINE OF THE STUDY

The study is divided into five chapters that will include the following:
- **Chapter One**: Outlines the scope of the study, including the background and rationale for the study, the problem statement, research objectives, methodology, terminology and treatise layout.
- **Chapter Two**: Comprises a review of the literature relevant to the topic.
- **Chapter Three**: Explains the research design and methodology chosen for the study. The selected paradigm and methodology are described. The sample and sampling techniques, together with the data collection technique, are discussed.
- **Chapter Four**: The empirical findings of the study will be interpreted, discussed and summarised and the implications thereof provided.
- **Chapter Five**: Summarises the main findings of the study, the limitations, managerial implications and future research gaps. The layout of the study is depicted in Figure 1.3 below.

Figure 1.3: LAYOUT OF TREATISE
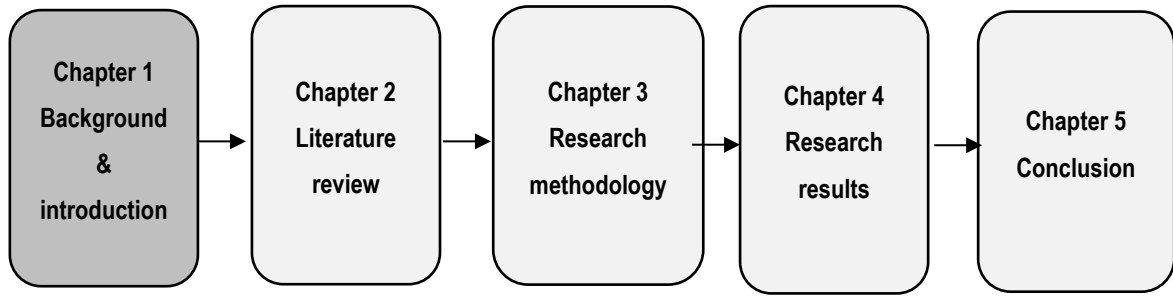
Source: Own construction

1.12 CHAPTER SUMMARY

This chapter has introduced the problem statement and the impact it has on employees. It has been determined that consumers contribute as much as 75% of their salaries toward debt repayments. Thus, employees are often under financial strain and this could impact upon their productivity in the workplace.

Understanding what determines financial literacy and financial intelligence and how it can be improved upon is therefore imperative.

The study aims to develop strategies to improve the financial intelligence of employees. A review of the literature is provided in the next chapter.

CHAPTER 2 - FINANCIAL INTELLIGENCE

2.1 INTRODUCTION

The purpose of this chapter is to review important and relevant theoretical concepts and literature pertaining to the research questions. These concepts are age, gender, level of education, job level of the employee and access to digital information and their impact on financial intelligence. Financial intelligence is further analysed into the nominal variables of financial literacy, savings culture, budgeting and debt management.

This study aims to determine what influences the level of financial intelligence of employees and then to develop strategies to address their level of financial intelligence. Important definitions will be discussed and the influence that the concepts mentioned above have on employee financial intelligence. The objective is to acquire evidence from the literature that will indicate to what extent these factors have an impact on employee financial intelligence.

Figure 2.1 provides a layout of the treatise.

FIGURE 2.1: LAYOUT OF TREATISE
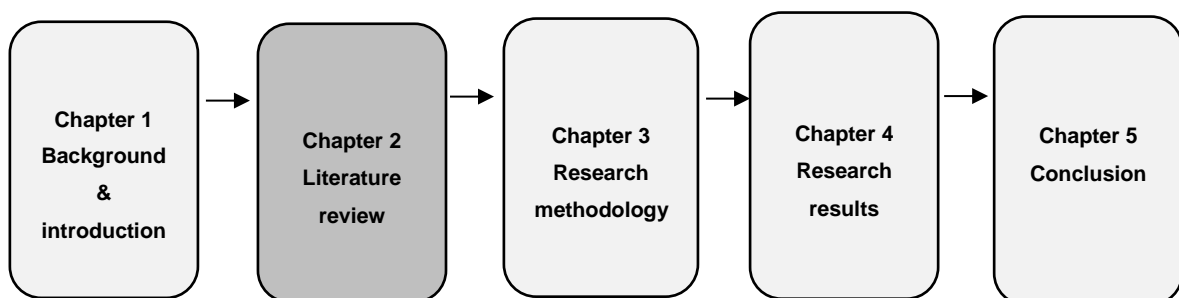
Source: Own construction

Financial literacy is considered to be a critical life skill, although the levels of financial literacy vary among countries. The provision of financial education and socio-economic factors explain the variance in financial literacy in some countries, however not in all (Riitsalu, 2016). A basic understanding of financial concepts is required to

make informed financial decisions. However, many individuals are not equipped to make decisions related to financial management. Financially literate individuals can make informed financial choices relating to investing, saving, borrowing, and other financial-related issues (Klapper, Lusardi & Van Oudheusden 2015). Financial literacy (or financial knowledge) influences financial outcomes, such as investing, debt behaviour and saving. It is therefore critical that financial literacy is defined and measured to improve upon effective financial decision-making (Huston, 2010).

The terms financial knowledge, financial literacy and financial education are often used interchangeably in the literature and media. Few scholars have attempted to define or differentiate these terms. Abraham and Marcolin (2006) identified the need for research focused specifically on the measurement of financial literacy.

2.2 DEFINITION OF FINANCIAL INTELLIGENCE

2.2.1 Financial intelligence

The idea of the 'financial intelligence quotient (FiQ)' which is utilised in this investigation, is an extension of the financial literacy concept to quantify a person's aptitude on financial-related information, abilities and confidence, which could bring about financial-related prosperity. FiQ does not indicate general knowledge, as this IS surveyed using the (IQ) test. The estimation of a person's financial intelligence is not to test a person's scholarly inclination, but rather to quantify the abilities on financial intelligence and the application thereof, which moulds good financial behaviour and prosperity (Kamil, Musa & Sahak, 2017).

Lusardi (2015) defines financial literacy as "the ability to process economic information and make informed decisions about financial planning, wealth accumulation, debt, and pensions". Furthermore, the Organisation for Economic Co-operation and Development (OECD) (2014) defines financial literacy as "knowledge and understanding of financial concepts and risks, and the skills, motivation and confidence to apply such knowledge and understanding to make effective decisions across a

range of financial contexts, to improve the financial well-being of individuals and society, and to enable participation in economic life" (OECD, 2014).

Thus whereas financial intelligence will be expanded upon, the terms financial intelligence and financial literacy in this study are used interchangeably due to the limited research available, specifically within the sphere of financial intelligence.

2.2.2 Financial literacy

An analysis measuring financial literacy was done by Sandra Huston. The analysis consisted of a review of 71 studies, with 52 data sets (Huston, 2010). Huston defines financial literacy as "measuring how well an individual can understand and use personal finance-related information". The study proposes a financial literacy conceptual framework based on two constructs, namely financial literacy and financial knowledge, as depicted in Figure 2.2 below.

FIGURE 2.2: CONCEPT OF FINANCIAL LITERACY
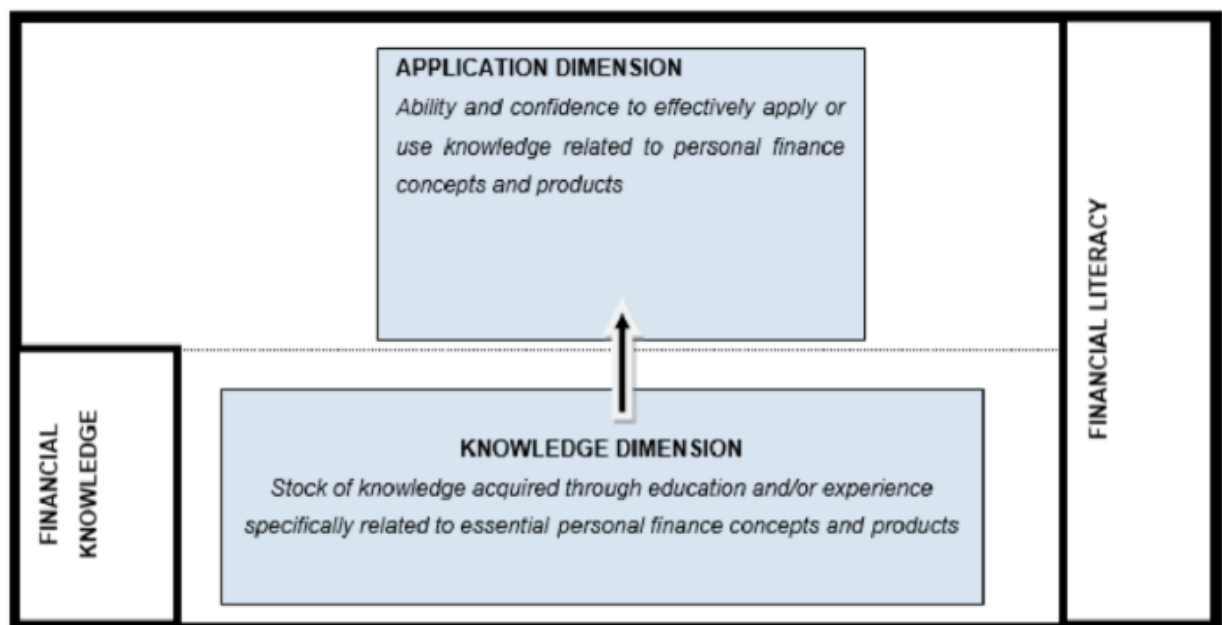
Source: (Huston, 2010)

A review of the literature indicated that at least four distinct content areas were used to measure financial literacy in varying degrees, namely:

• Money basics (including purchasing power, time value of money, personal financial accounting concepts);

• Borrowing (i.e., the use of credit cards, mortgages or consumer loans);

• Investing (i.e., saving present resources for future use by utilising saving accounts, stocks, bonds or mutual funds) and;

• Protecting resources (either through risk management techniques or insurance products), (Huston, 2010).

2.3 IMPORTANCE OF FINANCIAL INTELLIGENCE

Financial ignorance brings significant costs. Consumers who do not understand the concept of compound interest, spend more on transaction fees, accumulate higher debts, and incur higher interest rates on loans (Lusardi & Tufano, 2015; Lusardi & De Bassa Scheresberg, 2013). These individuals usually end up saving less money and borrowing more (Asli, Klapper, Singer & Van Oudheusden, 2015).

Academics, Ian Ramsay and Angelo Capuano, from the University of Melbourne, have analysed data in a research paper on financial literacy for the Centre for International Finance and Regulation. They found that higher levels of financial literacy are positively correlated with the ownership of financial products, such as credit cards, superannuation, private health insurance, a savings account and general insurance (Kavanagh, 2016).

Further studies have found that financial literacy is also positively linked with wealth accumulation and retirement savings of households (Chatterjee, Fan, Jacobs & Haas, 2017). Also, it was established that people with strong financial skills are enabled to better plan and save for retirement (Lusardi & Mitchell, 2014). Financially savvy investors are more likely to diversify risk by spreading funds across several ventures (Abreu & Mendes, 2010).

Lusardi and Mitchell (2014) state that financial literacy affects financial behaviour in numerous ways; it is, therefore, important to understand the extent of people's understanding of basic financial concepts. According to Huston (2010), in the United States of America, increasing consumer financial literacy is a public policy objective. This is particularly since the mortgage crisis of 2008, also to prevent consumer over-indebtedness and household bankruptcy rates (Hudson, 2010).

A PISA study was conducted in 2012, where a survey was given to 29 000, 15-year old students in 18 countries (OECD, 2014). The countries which participated in the survey were Australia, Belgium, Czech Republic, Estonia, France, Israel, Italy, New Zealand, Poland, Slovak Republic, Slovenia, Spain, United States of America (USA), Shanghai-China, Colombia, Croatia, Latvia and the Russian Federation. Students were asked 40 questions regarding financial literacy that covered four areas. The four content areas were money and transactions, managing finances and planning, financial landscape and risk and reward.

The data revealed that only 12% of the 15-year-old students were top performers in financial literacy (OECD average). It was then found that financial literacy is positively correlated with GDP per capita and social equality (Farinella, Bland & Franco, 2017).

Households with higher levels of financial literacy are more likely to avoid financial decisions which contain high financial risks. Such risks include scarce savings, expensive loans, lack of budgeting and financial planning (Németh, Jakovác, Mészáros, Kollár & Várpalotai, 2016). As financial literacy increases it is a win for the economy, for individuals and the industry (Kavanagh, 2016).

It can, therefore, be inferred that by improving financial literacy, the GDP and social equality of a nation can be improved. This demonstrates the importance of financial literacy. Furthermore, studies have found that an increase in wealth, retirement planning and risk tolerance, is positively correlated to financial literacy (Chatterjee, Fan, Jacobs, & Haas, 2017). Thus, improving financial literacy is a major interest for governments, individuals and business (Németh, *et al.*, 2016).

2.4 THE DETERMINANTS OF FINANCIAL INTELLIGENCE – AN INTERNATIONAL PERSPECTIVE

The Standard & Poor's Ratings Services Global Financial Literacy Survey of 2014 provides awareness into the degree of individuals' comprehension of essential financial concepts. It builds on the initiatives of other institutions such as the Organization for Economic Co-operation and Development (OECD), referred to above. These findings are sobering (Klapper *et al.*, 2015).

Globally, only one in three adults is financially literate, which indicates widespread global illiteracy. Furthermore, the survey determined large variations among countries and groups, such as developed versus emerging economies. This signifies that about three and a half billion adults worldwide, the majority in developing economies, lack an understanding of basic financial concepts.

Also, it is found that the poor, lower educated respondents and women were more likely to have gaps in their financial knowledge. Interestingly, this is true in both emerging and well-developed markets. Individuals who have a high level of financial literacy have a few common traits, irrespective of where they live (Klapper *et al.*, 2015).

It is found that adults who utilise formal financial services, such as credit cards and bank accounts, usually have higher levels of financial knowledge, regardless of their income. Even destitute individuals who have a bank account are more financially literate than those who do not have bank accounts.

Similarly, wealthy individuals who utilise credit have better financial knowledge than wealthy people who do not. This suggests that the relationship between financial knowledge and financial services may work in two directions. Whereas higher financial literacy might lead to broader financial inclusion, operating an account or using credit may also deepen consumers' financial skills (Klapper *et al.*, 2015).

Grohmann and Menkhoff (2017) argue that a relationship exists between a country's access to financial services and its economic growth. Further, they state that the most basic indicator of financial inclusion is having a bank account. Considering just this

indicator, approximately 45% of the world's population is excluded. The entire population is required to have an adequate level of financial literacy for financial services to be used and accepted (Grohmann *et al.*, 2017).

Financial literacy is recognised as a vital life skill, however, there is little evidence of the factors behind the differences in managing personal finance. Socio-economic factors and the provision of financial education explain the variance in financial literacy in some countries, but not in all (Riitsalu & Põder, 2016). The map indicated in Figure 2.3 reflects the global variations in financial literacy.

FIGURE 2.3: GLOBAL VARIATIONS IN FINANCIAL LITERACY (% OF ADULTS WHO ARE FINANCIALLY LITERATE)
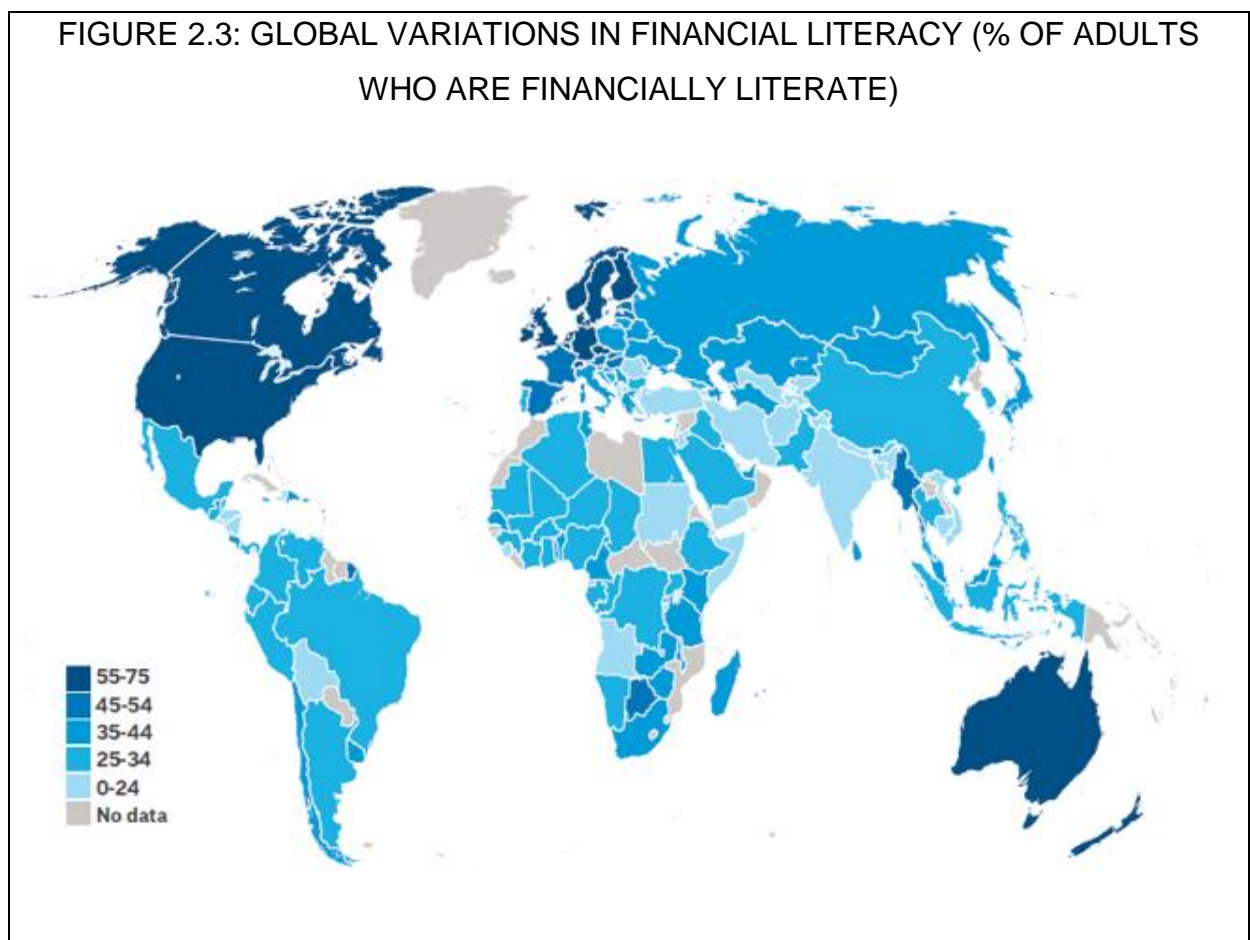
Source: S&P Global FinLit Survey (2015)

According to the S&P Global FinLit Survey (2015), the countries with the highest financial literacy rates are "Canada, Australia, Denmark, Germany, Finland, the Netherlands, Israel, Sweden, Norway, and the United Kingdom, where about 65% or more of adults, are financially literate". The countries in South Asia, however, demonstrate some of the lowest financial literacy scores, where only 25% or less, of

adults, are financially literate.   Financial literacy rates vary drastically between the major advanced and emerging economies in the world, as indicated in Figure 2.4. In the major emerging economies - the BRICS countries (Brazil, the Russian Federation, India, China, and South Africa) - on average, 28% of adults, are financially literate. There are, however, disparities among these countries as well, with rates ranging from 24% in India to 42% in South Africa (Klapper *et al.*, 2015).

FIGURE 2.4: WIDE VARIATION IN FINANCIAL LITERACY AROUND THE WORLD (% OF ADULTS WHO ARE FINANCIALLY LITERATE)
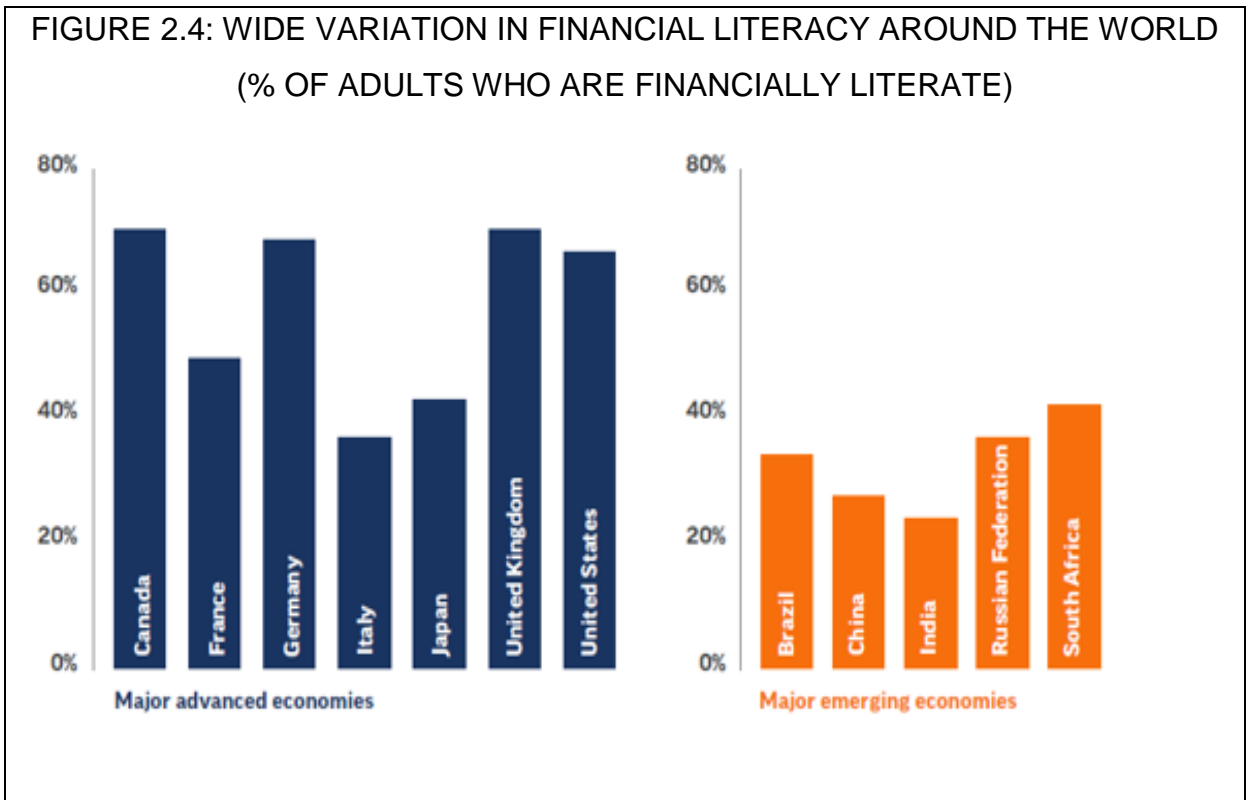
Source: S&P Global FinLit Survey (2015)

2.5 THE DETERMINANTS/INFLUENCERS OF FINANCIAL INTELLIGENCE – A SOUTH AFRICAN PERSPECTIVE

A study by a regulatory body in South Africa, Financial Services Board (FSB), estimates that South Africa currently has a financial literacy rate of 51%, which is aligned with a number of developed countries and higher than many developing nations (SAIA's financial literacy project a world first for South Africa, 2019). However, a study by Leibbrandt and Nanziri (2018), indicates that the literacy rate in South Africa is 48%.

The pattern found in South Africa is similar to that of other countries, where less educated (those with less than matric), low-income respondents exhibit low levels of financial literacy. Interestingly, the gender gaps in financial literacy found in other countries are not present in South Africa, whereas most countries have large gender gaps in financial literacy (Nanziri & Olckers, 2019).

Concerning the age of the respondents, those in the 18 to 29 year age category demonstrated lower financial literacy (Leibbrandt *et al*., 2018). Financial literacy is high at higher levels of education and for individuals older than 30 years of age, tapering off slightly at 60 years. Ethnicity too seems correlated to financial literacy where white individuals are more financially literate than black persons. As discussed above, there is little difference between gender and the correlation to financial literacy in South Africa (Leibbrandt *et al*., 2018). Figure 2.5 details graphically these findings.

FIGURE 2.5 MEAN FINANCIAL LITERACY SCORE IN AGE, GENDER AND EDUCATION

Variable	Score
60+ years	50.02
45-59 years	51.39
30-44 years	49.45
18-29 years	45.79
University	63.02
Any other post-matric qualification	58.73
Some university	57.46
Matriculated	50.47
Some high school	45.2
Primary school	44.33
Some primary school	42.4
White people	60.86
Indian people	55.83
Mixed race people	49.19
Black people	46.19
Female	47.87
Male	49.02
SA average	48.42

Source: Nanziri & Olckers (2019)

South Africa has more of a debt than a savings culture, with one of the worst savings rates in the world of just 15.4% of gross domestic product (GDP). In South Africa, only about 5% of people retire with enough income to be comfortable. The South African Savings Institute has noted that households are saving 0.2% of their income, as at December 2017. This is mainly because of the high debt impact on the household income of 72.5%. However, this savings percentage is improving (Saving in the South African context, 2019).

Data from the National Credit Regulator (NCR) shows that total consumer credit was R1.71tr at the end of March last year, up from R1.66tr in 2016. This is equal to more than 40% of South Africa's GDP. The 14 registered credit bureaus have records for almost 25m credit-active consumers, with nearly 40% of consumers having "impaired records", according to the NCR's 2017 annual report.

Most South Africans do not have emergency savings and many people resort to credit or borrowing from friends and family to manage income fluctuations. Concerning long-term saving, a substantial number does not have a retirement plan and few were confident in their retirement plan.

The OECD report has noted the following principles in improving financial literacy: financial education should begin in primary school, it should be an integral part of the good governance of financial institutions and governments and stakeholders should promote unbiased, fair and co-ordinated financial education. Also, financial education programmes should focus on important life-planning aspects, such as basic savings, debt, insurance and pensions. Thus, policymakers need to take heed of these initiatives, if financial literacy rates in South Africa is to be improved upon.

2.6   COMMON DETERMINANTS OF FINANCIAL INTELLIGENCE

2.6.1 Age

It is found that for advanced economies, as one ages, one becomes more financially literate, whereas in old age the financial literacy declines (Klapper *et al.*, 2015). On

average, globally, the majority of people of 35 years or younger are financially literate. Financial literacy rates are lower for adults older than 50 years of age, and rates are lowest among those older than 65. This correlation is however different in major emerging economies.

In emerging economies, adults who are older than 65 have the lowest financial literacy rates of any age group. South Africa is considered a major emerging economy. The average financial literacy rate for emerging economies varies between 18 and 32% (Klapper *et al.*, 2015). The average rates for major advanced economies are, however, between 50 and 60%, as depicted in Figure 2.6 below (Klapper *et al.*, 2015). Figure 2.6 indicates the percentage of financial literacy rates globally and then specifically regarding the major advanced economies versus the major emerging economies.

FIGURE 2.6 FINANCIAL LITERACY RATES PER AGE CATEGORY: WORLD VS MAJOR ADVANCED VS MAJOR EMERGING ECONOMIES
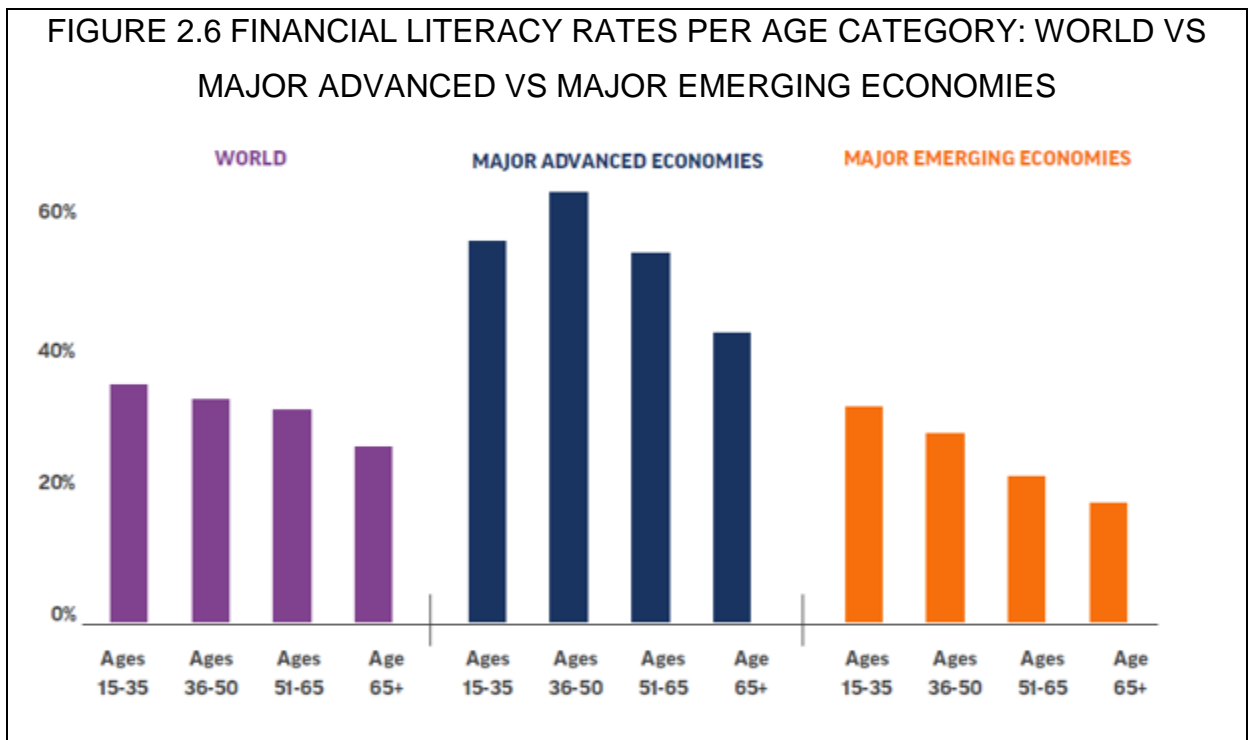
Source: S&P Global FinLit Survey (2015)

A study conducted by the OECD, to assess the financial literacy of 15-year-old respondents was done across many countries. A total of 29 000, 15-year-olds from 18 countries participated in the study. The data revealed that only 12% of 15-year-old students are top performers in financial literacy (OECD, 2014).

Also, a survey conducted on adult financial literacy found that the categories of respondents with lower financial literacy on average were those who were considered to be blue-collar workers, those younger than 25 years of age and those with no tertiary education (Kavanagh, 2016). Németh *et al*. (2016), found that irrespective of the level of finance economics knowledge among students, they have a high level of risk aversion. Three-quarters of the respondents in the study between the ages of 18 to 25 years are risk-averse. It can, therefore, be concluded that financial literacy among people of all ages is to be addressed in South Africa.

2.6.2 Gender

Financial literacy rates differ when considering characteristics such as gender, age, education level and income. Globally, 35% of men are financially literate, compared to 30% of women. The gender gap is found in both emerging economies and advanced economies as depicted in Figure 2.7 (Klapper *et al.,* 2015).

FIGURE 2.7 WOMEN TRAIL MEN IN FINANCIAL LITERACY
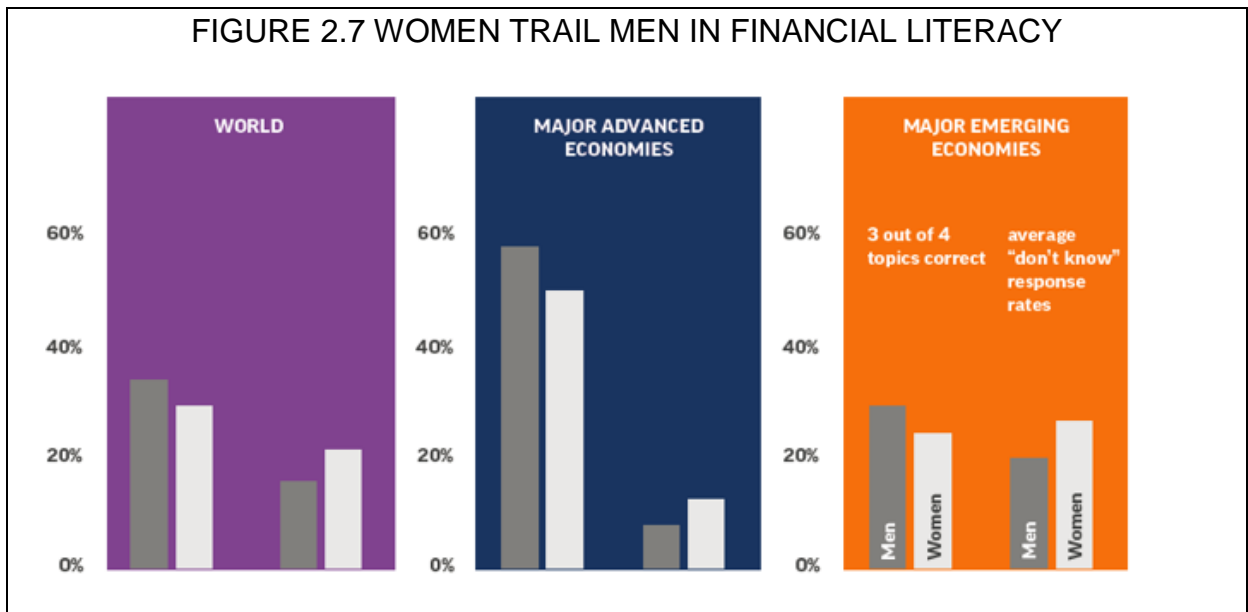
Source: S&P Global FinLit Survey (2015)

Lusardi and Mitchell (2014) found that women were less financially literate than men, further substantiating the evidence above.

The degree to which financial skills are deficient among marginalised groups, such as the poor and women, must be understood and addressed (Klapper *et al*., 2015).

2.6.3 Income level

Financial literacy is of concern at all income levels (Kavanagh, 2016). A correlation has been found between the amount of wealth and the level of financial literacy (Klapper *et al*., 2015). Wealthy adults have better financial skills than the poor.

When contrasting the degrees of financial literacy amongst adults in major emerging economies, the wealthiest 60% of households, display a financial literacy rate of 31%. This contrasts with 23% of adults who live in the least poor 40% of families all around. This trend is demonstrated in Figure 2.8 below:

FIGURE 2.8 FINANCIAL LITERACY GROWS WITH INCOME
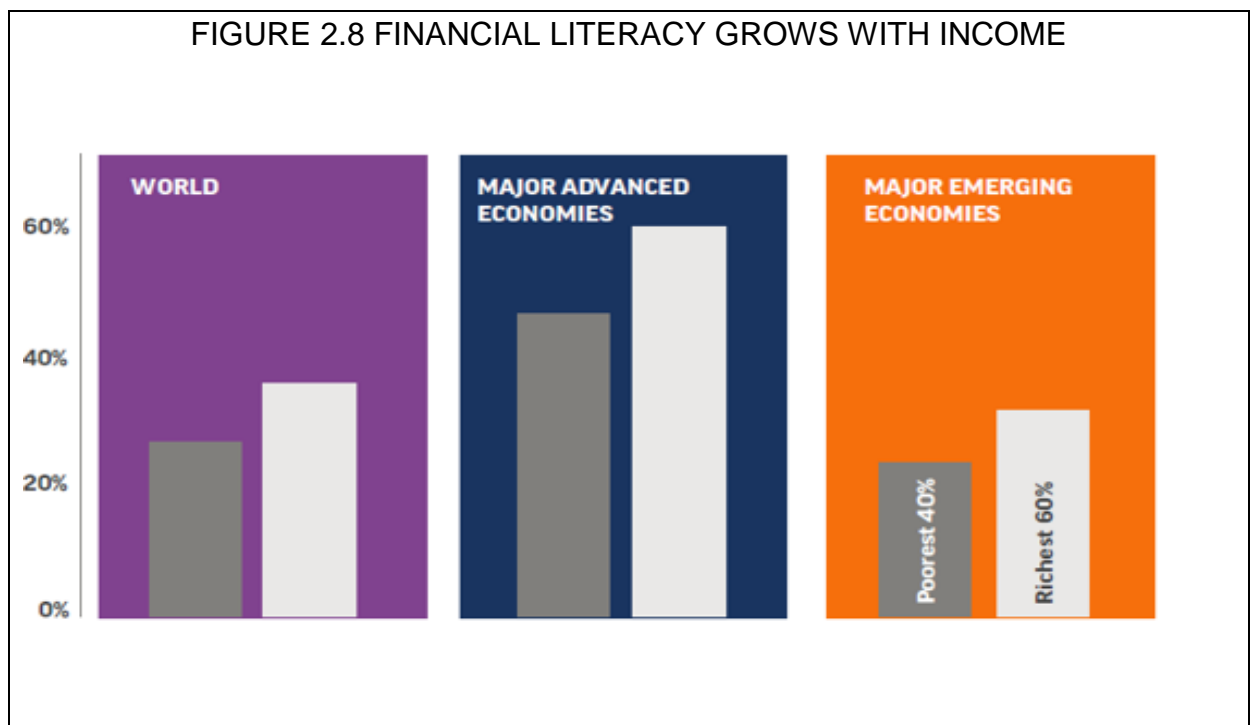
Source: S&P Global FinLit Survey (2015)

Financial literacy is an effective tool for financial inclusion, as they both go hand in hand. Thus, the requirement for financial literacy and its importance for financial inclusion have been acknowledged by most stakeholders around the globe - policymakers, practitioners, bankers, academics and researchers (Zsótér, Németh, &

Luksander, 2017). The data indicates that an additional focus should be placed on improving the financial literacy of the poor, in both advanced and emerging economies.

2.6.4 Education

Financial literacy drastically increases with educational attainment. In major advanced economies 52% of adults with secondary education are financially literate (Klapper *et al.*, 2015). Of those who have primary education, that is, up to eight years of schooling, only 31% are financially literate. A similar differential is noted between adults with secondary versus tertiary education. Among adults with tertiary education, 73% are financially literate. The education gaps are similar in the major emerging economies (Klapper *et al.*, 2015).

Furthermore, Behrman, Mitchell, Soo and Bravo (2010) found a strong positive correlation between financial literacy and schooling attainment and wealth, pension contributions, and retirement planning. Nano, Dorjana and Shkelqim (2013) studied the relationship between financial education and financial literacy in Albania. They established that financial education improves financial literacy.

The OECD defines financial education as follows: "Financial education is the process by which individuals improve their understanding of financial products and concepts; and through information, instruction and/or objective advice, develop the skills and confidence to become more aware of financial risks and opportunities, to make informed choices; to know where to go for help, and to take other effective actions to improve their financial well-being and protection" (OECD, 2005).

Financial education should begin at a young age so that young adults can begin their careers making prudent financial decisions that will assist them in achieving financial success (Farinella *et al.*, 2017). It can furthermore be inferred that financial education has a significant impact on financial behaviour and, to an even larger extent, financial literacy (Kaiser & Menkhoff, 2017).

2.6.5 Access to digital information

The Fourth Industrial Revolution brings with it numerous technological advances. In such an evolving information technology landscape, financial information is more abundant than ever before. However, people often lack the financial knowledge to use the new information that is provided to them in the new age of information-sharing (Schwab, 2016; Killins, 2017).

A study relating to Adult Financial Literacy in Australia indicated the potential for consumers to use online information to inform their financial decision-making as significant. Also, more than half of the respondents in the study were doing so already (Kavanagh, 2016). The use of personal computing presents the opportunity to design educational materials that can be delivered online, potentially addressing low financial literacy (Hubbard, Matthews & Samek, 2016).

The financial literacy of individuals has been assessed in many countries, and the consensus is that individuals lack the financial knowledge to use the new information, which is available to them in the new age of information-sharing. The financial product developments now make it even more important for individuals to understand the financial decisions they are making as the "human touch" of traditional banking services are now being transitioned to Internet-based platforms and algorithms (Killins, 2017).

2.6.6 Financial literacy

Lusardi (2015) defines financial literacy as the ability to process economic information and make an informed decision about financial planning, wealth accumulation, debt, and pensions. In terms of measuring financial literacy, four main categories of financial concepts are to be measured, namely inflation, numeracy, risk diversification and compound interest (Huston, 2010; Klapper *et al.*, 2015).

An extract from the Standard & Poor's Ratings Services Global Financial Literacy Survey of 2014, specifies the following questions within the four categories, which would determine financial literacy. The correct answers are highlighted in bold.

1. Risk diversification

Suppose you have some money. Is it safer to put your money into one business or investment, or to put your money into multiple businesses or investments? Select an answer:

a) one business or investment;
b) **multiple businesses or investments;**
c) don't know;
d) refuse to answer

2. Inflation

Suppose over the next 10 years the prices of the things you buy double. If your income also doubles, will you be able to buy less than you can buy today, the same as you can buy today, or more than you can buy today? Select an answer:

a) less;
b) **the same;**
c) more;
d) don't know;
e) refuse to answer

3. Numeracy (interest)

Suppose you need to borrow 100 US dollars. Which is the lower amount to pay back? Select an answer:

a) 105 US dollars;
b) **100 US dollars plus 3%;**
c) don't know;
d) refuse to answer

4. Compound interest

Suppose you put money in the bank for two years and the bank agrees to add 15% per year to your account. Will the bank add more money to your account, the second year than it did the first year, or will it add the same amount of money for both years? Select an answer:

a) **more;**
b) the same;
c) don't know;
d) refuse to answer

A person is defined as financially literate when they correctly answer at least three out of the four financial concepts described above. Among the four topics that define financial literacy, numeracy and inflation are the most understood. Worldwide, 50% of the adult population understands these concepts. Risk diversification scored the lowest amongst the four concepts, followed by compound interest, inflation and numeracy (Klapper *et al.*, 2015). The disparity between the advanced and major emerging economies is indicated in Figure 2.9 below.

FIGURE 2.9: STRONGER GRASP OF FINANCIAL CONCEPTS IN ADVANCED ECONOMIES (% of adults with correct answers)
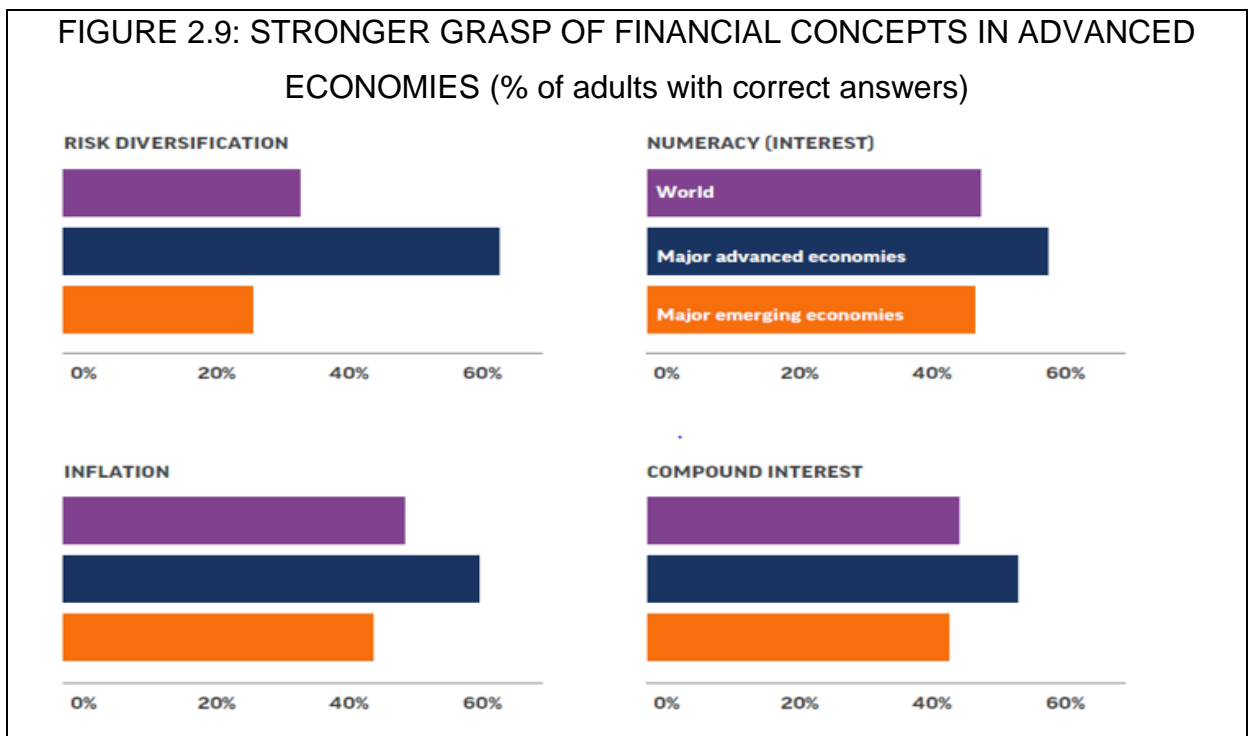
Source: S&P Global FinLit Survey (2015)

The literature reviewed indicates that a high level of financial literacy in a country's population promotes financial inclusion (Grohmann, *et al.*, 2017). Several developed countries recognise the importance of financial literacy, which can bring increased financial stability to financial markets and have launched surveys and campaigns to promote and collect data on financial literacy (Killins, 2017).

An article by Jill Cornfield (2014) analyses various financial programmes, to reduce the impact on Employees' stress, as a result of financial issues, in the workplace. It was found that employees are distracted by financial issues. The result of offering assistance in the form of financial literacy yielded benefits such as increased retention, reduced health insurance costs and improved employee engagement.

2.6.7 Saving culture

A savings culture starts with thinking and planning ahead. There could be various reasons for the requirement to save, such as retirement, an emergency or saving for a child's education (Sutherland, 2019). One study indicated that three out of five households do not have any emergency funds set aside, and about half the households have not calculated how much money they will need for retirement (Chatterjee *et al.*, 2017).

However, only 5% of the South African population save enough to retire (Sutherland, 2019). This problem is not limited to South Africa as studies show that under-saving is prevalent in many advanced economies and that households tend to save in inefficient ways (Kaiser & Menkhoff, 2017).

The Generation X cohort, in particular, is the least involved in saving/investment participation than any other generation. The Generation X cohort was born between 1965 and 1980. This generation should be saving between 10 to 15% of their annual salaries, whereas the median contribution is only 7%, which indicates that they are not saving enough (Umpierrez, 2017). This is corroborated by Alexander Forbes, which notes that the rule of thumb is to consistently save between 10 and 20% of one's monthly salary, between the ages of 20 and 60 (Sutherland, 2019).

Evidence confirms that improved knowledge of financial matters leads to wiser choices in investing and saving, in preparing for retirement (Lusardi & Mitchell, 2014) and preventing the incurrence of debt (Huston, 2012; Lusardi & Tufano, 2015). The importance of a savings culture lies in the fact that it not only nurtures a sensibility of financial management, but also one of life management (Muganza, 2013).

Tackling savings issues requires one to acknowledge the cultural, behavioural and perhaps most importantly, the underlying economic causes (Lawlor, 2018). It is evident that whereas the importance of a savings culture is imperative, much is to be done in developing such a culture.

2.6.8 Budgeting

The Cambridge Dictionary defines budgeting as" the process of calculating how much money you must earn or save during a particular time, and of planning how you will spend it" ("Budgeting", 2018). A survey done by French and McKillop (2016), finds that budgeting is a particular weakness among their respondents; more people did not make detailed budgets and only a small majority were able to adhere to their budgets.

This was further substantiated by Németh *et al.* (2016), who found that only one in every four families had a budget. A budget enables one to prioritise one's spending and manage one's monthly expenses: one decides how to use and save one's money. Setting up a budget provides insight into what's coming in and going out of one's account ("Personal Budgeting Pointers", 2018). Farinella *et al.* (2017) argue that budgeting, controlling debt and maximising savings are the keys to financial success.

Financial education should begin at an early age, so that young adults can begin their careers making prudent financial decisions that will help them achieve financial success (Farinella *et al.,* 2017).

2.6.9   Management of debt

The South African Reserve Bank (SARB) announced that household debt as a percentage of disposable income was 72.7% as at the end of 2018. This implies that almost 75% of households' available funds are spent on debt.

Most individuals have some form of debt, be it in the form of a home loan or a financed vehicle. However, it is imperative to distinguish between good and bad debt. Good debt is money that one borrows to generate wealth, effectively an investment. (How to use good debt rather than bad debt, 2016). Debt is normally considered "good" when one uses it to obtain an asset that increases in value over time or has "income-producing capacity". A study loan (income-producing capacity) or a mortgage bond on a property (increased value) is generally considered good debt (Visser, 2018). Examples of good debts include investment in property, education or debt consolidation (How to use good debt rather than bad debt, 2016).

Bad debt refers to debt that one can't afford to pay back. Another form of bad debt is debt utilised to purchase consumable goods, such as food and clothes. This is considered bad debt because one is paying interest on something, which will not retain or increase in value (How to use good debt rather than bad debt, 2016).

In South Africa consumers are under increasing financial pressure due to the high unemployment rate and increases in the cost of living. The unemployment rate in South Africa is currently 29% (Smit, 2019) and this results in a challenge in paying off debt (Visser, 2018). Most people fall into a debt spiral because of unforeseen circumstances. It is thus of the utmost importance that individuals understand how to manage their debt.

2.7 FINANCIAL LITERACY AND THE WORKPLACE

This study found benefits for employers as well as employees, after offering financial literacy programmes. These benefits are namely, increased employee productivity, increased employee engagement and retention for the employers and improved

understanding of employee benefits; improved decision-making and an increase in assets and reduction of debt (Bannon *et al.*, 2014).

This article analyses various financial programmes to reduce the impact on employees' stress as a result of financial issues, in the workplace. It was found that employees are distracted by financial issues. The result of offering assistance in the form of financial literacy yielded benefits such as increased retention, reduced health insurance costs and improved employee engagement ("Financial Literacy Programs", 2015).

The literature reviewed does provide conflicting results. However, the consensus is that employers who assist employees with financial literacy, reap the rewards thereof as financially intelligent employees become financially stable.

2.8 CHAPTER SUMMARY

This chapter defined financial literacy and financial intelligence. A method to assess financial literacy was discussed. Also, the independent and nominal variables were evaluated in relation to the dependent variable of financial literacy.

The objective of this chapter was to review the literature regarding financial intelligence and financial literacy, within a global context and then specifically within a South African context. Worldwide, only one in three adults demonstrate an understanding of basic financial concepts. Whereas financial literacy is higher among the wealthy, well educated, and those who use financial services, this is not the case for billions across the globe. Credit products, many of which are complex, are becoming more readily available. Unless people have the necessary financial skills, these opportunities can easily lead to high debt, mortgage defaults, or insolvency. This is particularly true for the poor, women and the less educated (Klapper *et al.*, 2015).

The levels of financial literacy can be improved upon; this often involves policymakers who can fund the initiatives. Employers can also initiate programmes within the

workplace to assist employees. The following chapter clarifies the methodology used for the research.

CHAPTER 3 - RESEARCH METHODOLOGY AND EMPIRICAL RESULTS

3.1 INTRODUCTION

The literature review in Chapter Two suggests that much is to be done to improve financial literacy and financial intelligence of individuals, not only in South Africa but globally. Improved financial intelligence not only benefits individuals but has a positive impact economically and socially.

The purpose of this chapter is to describe the research process and methodology that was used to determine the most appropriate method in testing the hypotheses. A theoretical background of the research methodology is also provided. This enabled the researcher to design an empirical study, based on scientific rigour. Also, demographic results are discussed.

A research paper or project allows a researcher to apply methods, systems and processes that will lead him or her to contribute to a better understanding of the problem or to propose solutions (Collis & Hussey, 2009). The research objectives, according to Collis and Hussey (2009), are embodied in the following activities:

- Reviewing and synthesising existing knowledge;
- Investigating an existing problem;
- Providing solutions to a problem;
- Exploring and analysing more general issues;
- Constructing or creating a new procedure or system;
- Explaining a new phenomenon;
- Generating new knowledge;
- A combination of any of the above.

This chapter also includes a discussion on the research paradigm, the research methodology and the quality of the data, followed by the ethical considerations and concluding statements.

Figure 3.1 provides a layout of the treatise.

FIGURE 3.1: LAYOUT OF THE TREATISE

| Chapter 1 Background & introduction | Chapter 2 Literature review | Chapter 3 Research methodology | Chapter 4 Research results | Chapter 5 Conclusion |
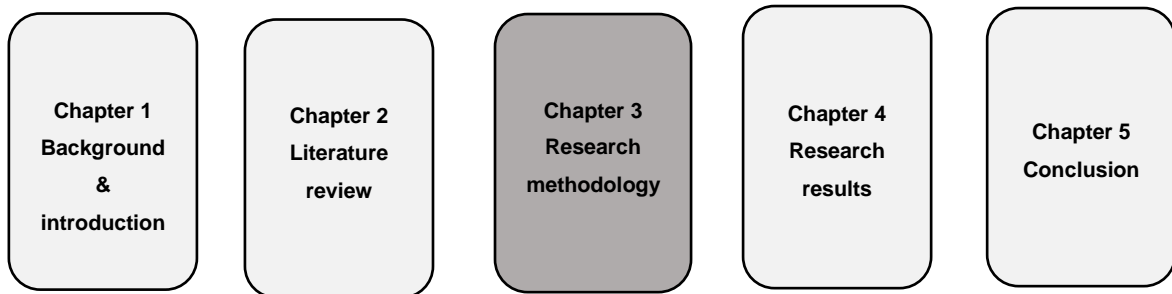
Source: Own construction

3.2   THE RESEARCH PARADIGM

A research paradigm is a framework that guides how research should be conducted, with the framework based on one's beliefs regarding a specific topic (Collis & Hussey, 2014; Guba & Lincoln, 1994). The "Research Process Onion" reflected in Figure 3.1 illustrates the stages through which the researcher must pass when formulating an effective methodology (Essays, UK, 2018).

Figure 3.2 depicts the research process onion.

FIGURE 3.2 THE RESEARCH PROCESS ONION
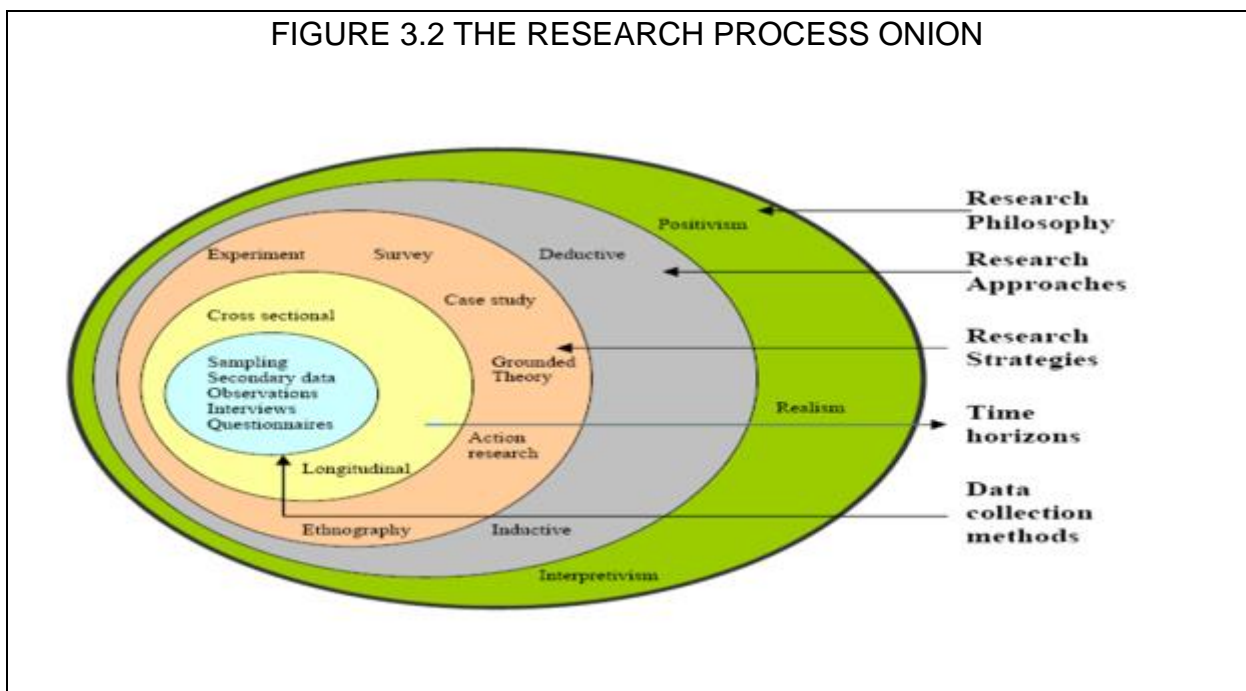
Source: Sanders, Lewis and Thornhill (2007)

The two main paradigms are positivism and interpretivism. Table 3.1 below identifies the approaches within these two paradigms.

TABLE 3.1

APPROACHES WITHIN THE TWO PARADIGMS

Positivism	Interpretivism
Quantitative	Qualitative
Objective	Subjective
Scientific	Humanist
Traditionalist	Phenomenological

Source: Collis and Hussey (2014)

The positivistic approach is concerned with quantitative data (Flick, 2011). This approach holds several accepted statistical standards for the validity of the data. The quantitative methodology can be most adequately utilised for circumstances where a large number of respondents are accessible, where the information can be successfully estimated using quantitative strategies, and where factual techniques for examination can be applied (Essays, UK, 2018). The methodologies associated with positivism are experimental studies, surveys and cross-sectional and longitudinal studies (Collis & Hussey, 2014). Table 3.2 highlights the comparison between the two paradigms.

<div align="center">

TABLE 3.2

COMPARISON BETWEEN THE TWO PARADIGMS

</div>

Aspect	Quantitative (Positivism)	Qualitative (Interpretivism)
Purpose	To test hypothesis and make predictions	To gain a deeper understanding of the topic and interpret social interactions
Simple size	Has a larger sample size	Has a smaller sample size
Strategy of enquiry	Experimental designs Non-experimental designs such as surveys	Narrative Phenomenologies Ethnographies Grounded theory Case study
Instrument used	Predetermined instrument based Closed ended questions	Emerging methods Open ended questions Interview data • Observation data, document data and audio-visual data
Type of analysis	Statistical analysis	Text and image analysis
Objectivity vs subjectivity	Objectivity is critical	Subjectivity is expected
Biases of the researcher	The biases of the researcher remain unknown to participants	The biases of the researcher may be known to participants
Generalisability of the findings	It has generalisable findings that can be applied to a wider population	It has specified findings that are less generalisable

Source : Donley and Grauerholz (2012)

A quantitative approach is considered most appropriate for this study as various hypotheses are being tested, the sample size is larger, the analysis is to be statistical and the study is objective.

A survey is a methodology designed to collect primary or secondary data from a sample, to generalise the results to the population (Collis & Hussey, 2014). In conducting this study, a survey is considered most appropriate as the data obtained can be inferred across the population. The primary data gained from employees regarding their level of financial intelligence can thus be applied to the rest of the employed population.

This study was a positivistic study as it tested the hypotheses formulated as independent variables and how these have an impact on employee financial intelligence.

3.3   RESEARCH OBJECTIVES AND HYPOTHESES

Chapter One highlights the main problem statement of this study, which determines which influences employees' level of financial intelligence and the development of strategies to improve it.

To realise the said aim, the following secondary objectives were pursued:

i)   To investigate the relationship between age and the level of financial literacy;

ii)   To investigate the relationship between gender and the level of financial literacy;

iii)   To investigate the relationship between job grade and the level of financial literacy;

iv)   To investigate the relationship between education and the level of financial literacy;

v)   To investigate the relationship between access to digital information and the level of financial literacy;

vi) To investigate the relationship between financial literacy and employees' knowledge of budgeting;

vii) To investigate the relationship between financial literacy and employees' saving cultures;

viii) To investigate the relationship between financial literacy and employees' knowledge of debt management.

These objectives and related literature led to the development of hypotheses, as follows:

H1: There is a positive relationship between age and the level of financial literacy.

H2: There is a positive relationship between gender and the level of financial literacy.

H3: There is a positive relationship between job level and the level of financial literacy.

H4: There is a positive relationship between education level and the level of financial literacy.

H5: There is a positive relationship between access to digital information and the level of financial literacy.

H6: There is a positive relationship between financial literacy and employees' knowledge of budgeting.

H7: There is a positive relationship between financial literacy and employees' savings culture.

H8: There is a positive relationship between financial literacy and employees' knowledge of debt management.

3.4   THE RESEARCH METHODOLOGY

3.4.1   Population

The population is considered to be a set of components of the research focus, to which the obtained results can be generalised (Higson-Smith, 2000). In conducting research, the population is an exact gathering of individuals or articles that has the characteristic that is addressed in the examination. To define the target population, the researcher must identify all the specific qualities that are common to all the people or objects in focus.

3.4.2   Sampling design

Population sampling is the process of taking a subset of subjects that is representative of the entire population. The population in this study is employees of a state-owned enterprise. A sample is defined as a subset of a population (Collis *et al.*, 2014). Sampling methods are classified as either non-probability or probability sampling. Where the sample is not selected randomly, non-probability sampling takes place (Wegner, 2016). In this study, convenience sampling is used, as the sample is drawn to suit the researcher (Wegner, 2016).

The sample size was 55 respondents within the firm mentioned. Collis and Hussey (2014) describe a sampling frame as a record of the population from which a sample can be drawn. In this instance, the sampling frame is the employees of a state-owned enterprise, located in the Eastern Cape Province of South Africa.

3.4.3   Data collection

Data collection is characterised as the system of gathering, estimating and examining precise bits of knowledge for research, using standard approved procedures. The most significant target of data collection is guaranteeing that data-rich and dependable information is gathered for factual examination, with the end goal as being able to make information-driven choices (Bhat, 2019).

This study will use primary and secondary data collection. Primary data is collected for the first time at the source and with a specific purpose in mind. Secondary data already exists in a processed format (Wegner, 2016).

This study obtained primary data which was collected from respondents via questionnaires. The questionnaire is structured in a way to obtain feedback relating to the impact of the independent variables on the dependent variable. The secondary data were obtained by reviewing the available literature on the topic. The sources that were utilised were articles in journals, on the internet and published in books.

3.4.3.1   Research instrument

Research instruments are measurement tools (for example, questionnaires or scales) designed to obtain data on a topic of interest from research subjects ("What are research instruments?", 2019). In this study, a validated questionnaire was distributed to employees of a state-owned entity in South Africa. The research aims to measure the perceptions of employees regarding financial intelligence and to develop strategies to improve employee financial intelligence. As many of the employees surveyed were blue-collar workers, the surveys were distributed by hand.

3.4.3.2   Questionnaire structure and design

The questionnaire consisted of closed and open-ended questions. A copy of the questionnaire can be found in Appendix B. The questionnaire was structured into three sections, namely Sections A, B and C. In Section A, respondents were requested to indicate the extent to which they agree/disagree with a statement. A five-point Likert-scale was used, where one (1|) indicated that the respondent strongly disagreed and five (5) showed strongly agreed.

Section B included the classification of data. The indicators depicted in this section of the questionnaire were gender, educational level, employment at a state-owned entity, age, years of service at the entity, employees' job grade, number of dependents and marital status.

Section C included open and closed-ended questions to ascertain the employees' level of financial intelligence as well as what they perceive that could assist them in improving their levels of financial intelligence.

3.4.3.3   Data collection process

The questionnaires were distributed through line managers in the said state-owned entity. A total of 80 questionnaires were distributed. The questionnaire instructions were explained to the line managers so that they could respond to queries that may arise. Respondents were given a week to return the questionnaires.

Of the 80 questionnaires that were distributed, only 55 questionnaires, equating to 69%, were returned. These were available for data analysis and interpretation. These questionnaires were captured into a spreadsheet and forwarded to a statistician for data analysis. The statistical tool STATISTICA Version 13 (2018), was used to analyse the data.

3.4.4 Demographic data

This section consists of the results of survey items related to the demographics of the participants. This includes gender, educational level, employment at a state-owned entity, age, years of service at the entity, employees' job grade, number of dependents and marital status.

3.4.4.1   Gender

Of the 55 respondents, 43 were males and 12 females. Table 3.3 and Figure 3.3 demonstrate the demographic composition of the study in terms of gender. Table 3.3 shows 43 male and 12 female respondents. Figure 3.3 indicates that 78% of the respondents were male and 22% female, the sample, therefore, included substantially more males than females. This is largely due to the nature of the function of the state-owned entity, namely being a manufacturing entity.

TABLE 3.3:   DEMOGRAPHIC COMPOSITION OF THE SAMPLE: GENDER

Gender	Number of responses	Percentage of responses
Male	43	78
Female	12	22
Total	**55**	**100.00**

Source: Own construction

FIGURE 3.3: RESPONSE RATE BY GENDER
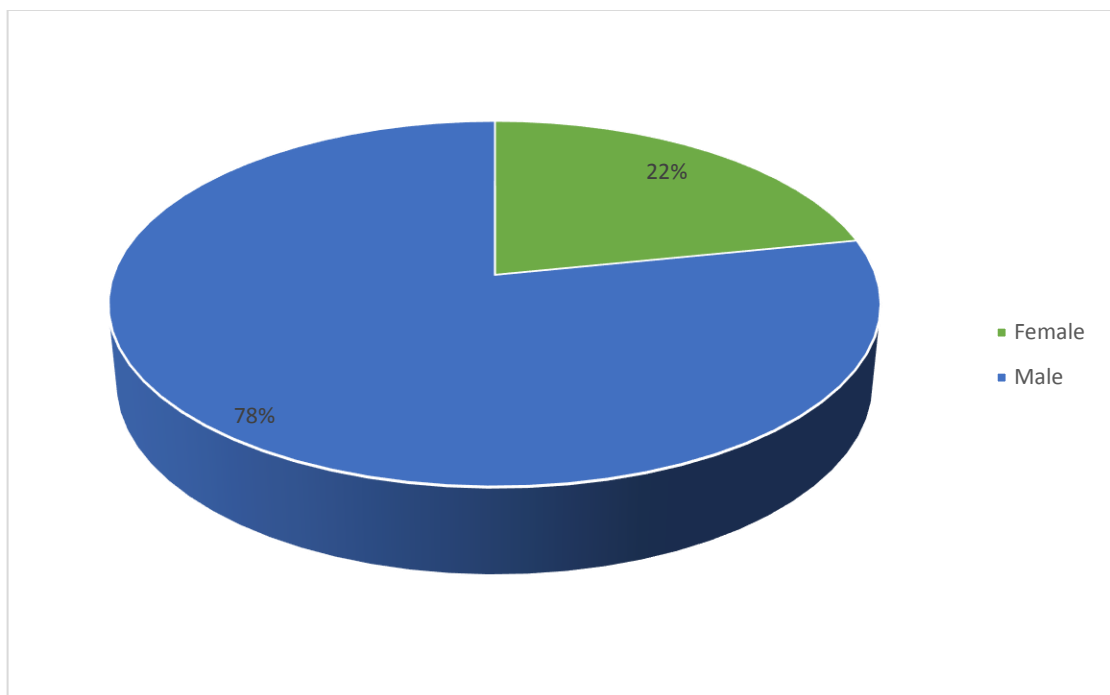
Source: Own construction

3.4.4.2   Age

Concerning the age of the respondents, the majority, namely 67%, was between the ages of 30 and 50 years. Almost 30% were above the age of 50. Table 3.4 and Figure 3.4 below represents this data.

TABLE 3.4: DEMOGRAPHIC COMPOSITION OF THE SAMPLE: AGE

Age group	Number of responses	Percentage of responses
20-29	2	4%
30-39	23	42%
40-49	14	25%
50-59	11	20%
60+	5	9%
Total	**55**	**100%**

Source: Own construction

FIGURE 3.4: RESPONSE RATE BY AGE GROUP
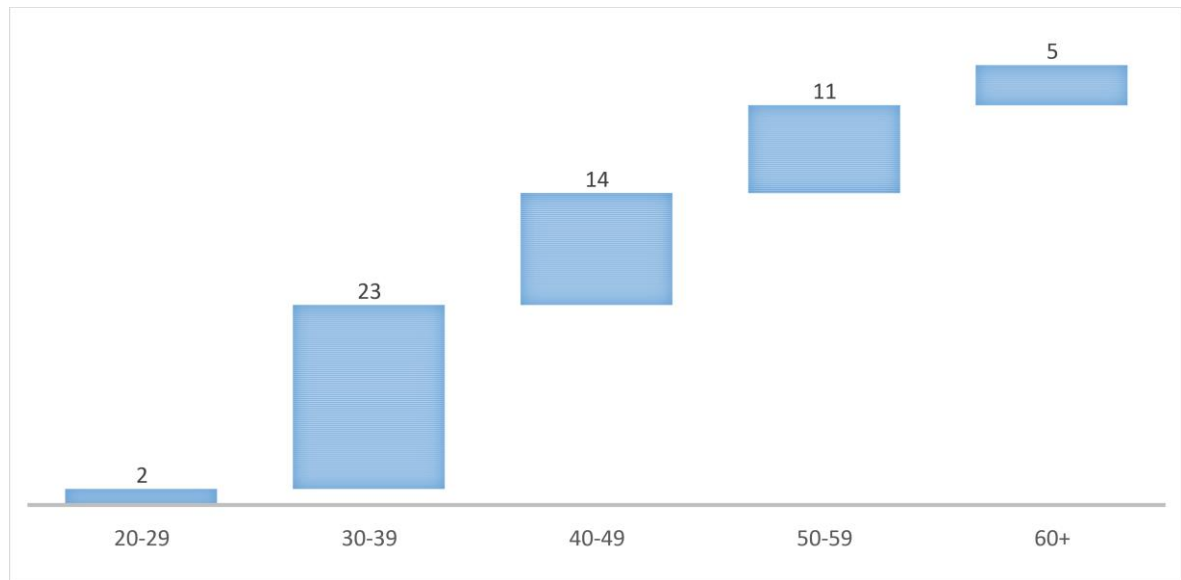
Source: Own construction

3.4.4.3   Educational level

Table 3.5 and Figure 3.5 below depict the educational level of respondents. In this survey, 58% or the majority, have a secondary education. Furthermore 6% only have a primary school level of education. A total of 36% of respondents have a tertiary qualification, with only 11% holding a postgraduate qualification.

TABLE 3.5: DEMOGRAPHIC COMPOSITION OF THE SAMPLE: EDUCATION LEVEL

Highest Educational Qualification	Number of responses	Percentage of responses
Primary school	3	6%
Senior secondary	32	58%
Diploma	9	16%
Bachelor's degree	5	9%
Postgraduate qualification	6	11%
Total	**55**	**100.00**

Source: Own construction

FIGURE 3.5: RESPONSE RATE BY EDUCATIONAL LEVEL
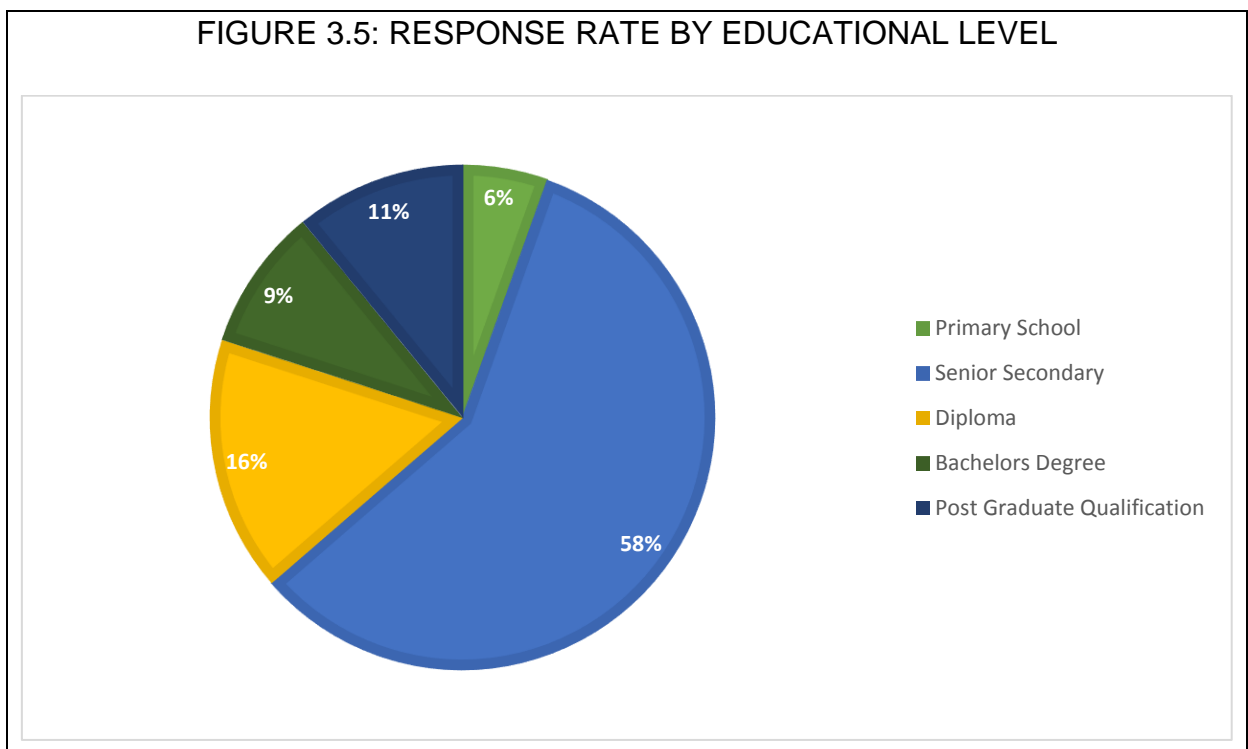
Source: Own construction

3.4.4.4   Employment at a state-owned entity

The survey was conducted within the confines of the work environment at the state-owned entity. Therefore, all the employees were employed at the entity. All the data received is relevant and can be included in the study. Table 3.6 depicts the responses received.

TABLE 3.6: DEMOGRAPHIC COMPOSITION OF THE SAMPLE: EMPLOYMENT AT AN STATE-OWNED ENTITY (SOE)

Employed at an SOE	Number of responses	Percentage of responses
Yes	55	100%
No	0	0%
Total	**55**	**100.00**

Source: Own construction

3.4.4.5   Years of service at a state-owned entity

Table 3.7 and Figure 3.6 below depict the distribution of the respondents' years of service at the state-owned entity. A total of 37% of the respondents have between six and 10 years' service, whereas 31% have between 11 and 20 years. Interestingly, 20% have more than 30 years of service. This indicates that the overwhelming majority of the sample has had stable employment and therefore a steady income for several years.

TABLE 3.7 DEMOGRAPHIC COMPOSITION OF THE SAMPLE: YEARS OF SERVICE

Years of service	Number of responses	Percentage of responses
0-5 Years	6	12%
6-10 Years	19	37%
11-20 Years	16	31%
21-30 Years	0	0%
More than 30 Years	10	20%
Total	**51**	**100.00**

Source: Own construction

FIGURE 3.6: RESPONSE RATE BY YEARS OF SERVICE

Years of service

	0-5 years	6-10 years	11-20 years	21-30 years	More than 30 years
■ Series1	6	19	16	0	10
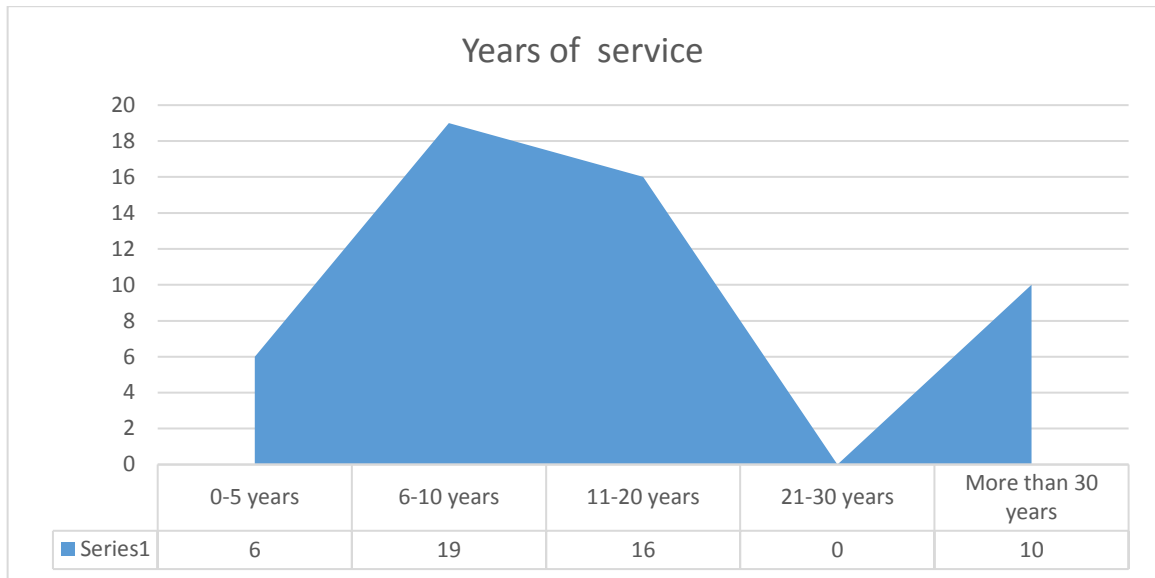
Source: Own construction

3.4.4.6   Job level

Table 3.8 and Figure 3.7 below show the respondents' job level. Grade L is the lowest and Grade A the highest grade at the state-owned entity and the grade is correlated to the pay scale. Thus the higher the grade, the higher the respondent's salary. Grade F and above indicates management employees at the entity.

The responses received are indicative of the spread of employees within the entity, where the majority is junior employees, graded below Grade F and 17% are at management level. This equitable distribution provides a broad insight across the grades, which is useful when surmising the results.

TABLE 3.8: DEMOGRAPHIC COMPOSITION OF THE SAMPLE: JOB GRADE

Job grade	Number of responses	Percentage of responses
L	4	7%
K	11	20%
J	10	19%
I	11	20%
H	6	11%
G	3	6%
F and Above	9	17%
Total	54	100.00

Source: Own construction

FIGURE 3.7: RESPONSE RATE BY JOB GRADE
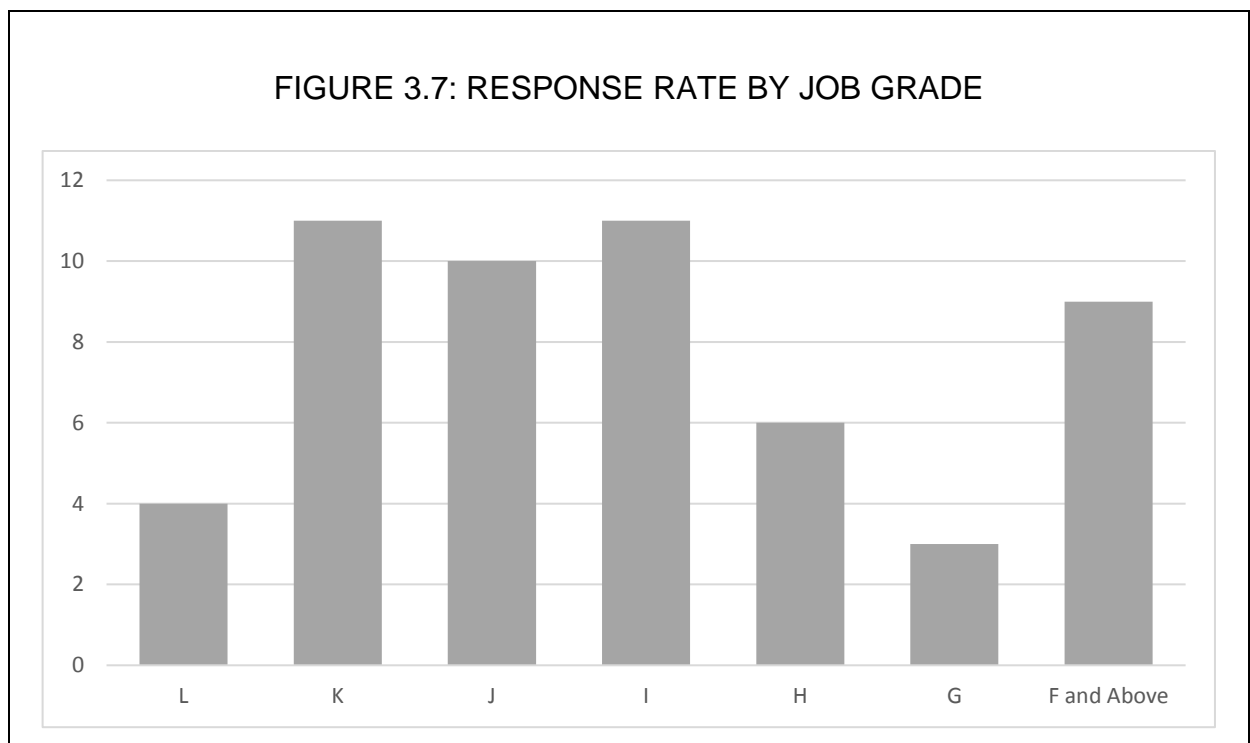
Source: Own construction

3.4.4.7   Number of dependents

Table 3.9 and Figure 3.8 below indicate the respondents' number of dependents. The data reflects that 84% of the sample have three or more dependents, whereas 28% have more than four dependents. Therefore, the income which each respondent earns has to financially support on average three to four dependents.

TABLE 3.9: DEMOGRAPHIC COMPOSITION OF THE SAMPLE: NUMBER OF DEPENDENTS

Number of dependents	Number of responses	Percentage of responses
1	4	7%
2	5	9%
3	16	30%
4	14	26%
More than 4	15	28%
Total	**54**	**100.00**

Source: Own construction

FIGURE 3.8: RESPONSE RATE BY NUMBER OF DEPENDENTS
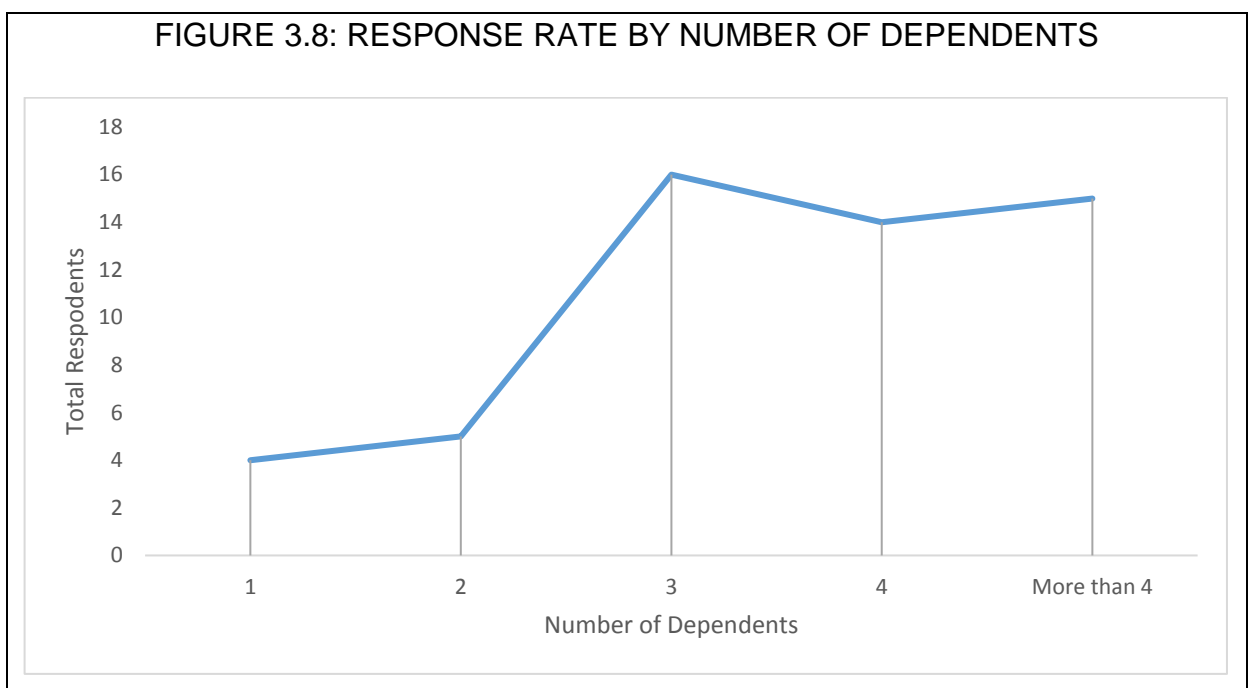
Source: Own construction

3.4.4.8   Marital status

Table 3.10 and Figure 3.9 below depict the marital status of the respondents. A total of 78% of the sample are either married or living with their spouse, whereas 20% are single.

TABLE 3.10: DEMOGRAPHIC COMPOSITION OF THE SAMPLE: MARITAL
STATUS

Marital status	Number of responses	Percentage of responses
Married	37	67%
Living with spouse but unmarried	5	9%
Single	11	20%
Divorced/separated	1	2%
Widowed	1	2%
Total	**55**	**100.00**

Source: Own construction

FIGURE 3.9: RESPONSE RATE BY MARITAL STATUS
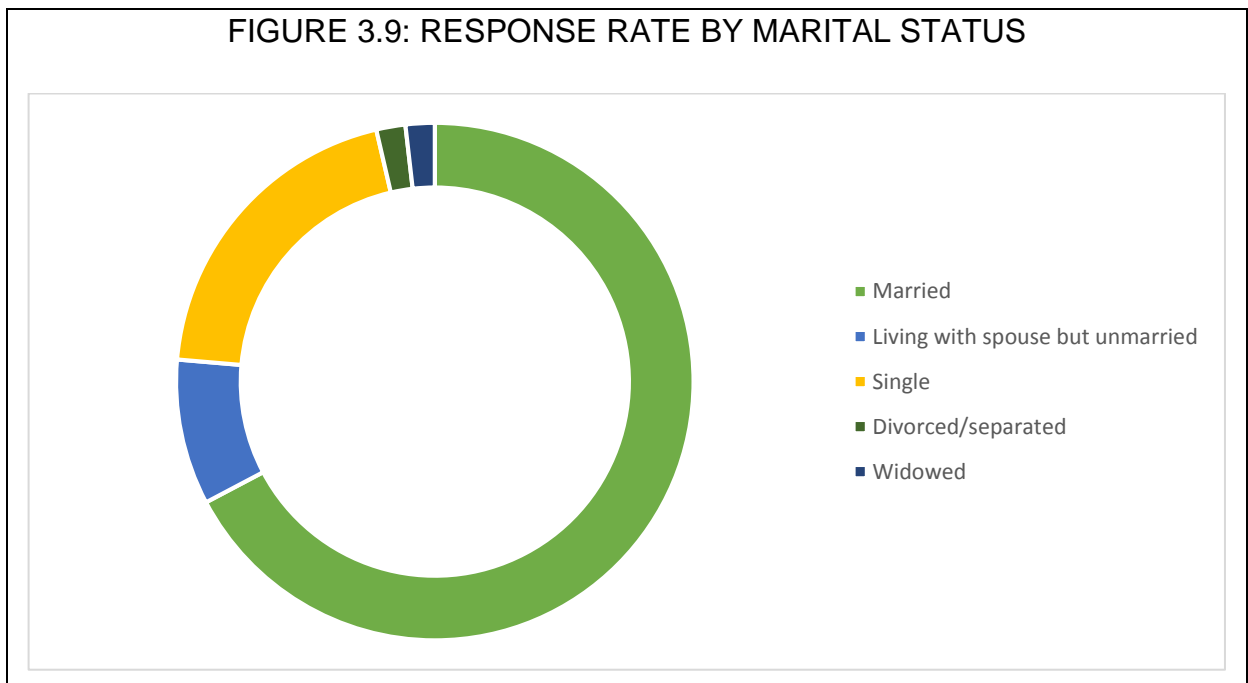
Source: Own construction

3.5   QUALITY OF DATA

3.5.1   Reliability

Reliability alludes to the exactness and accuracy or consistency of the estimation and
the absence of contrasts in results if the examination were rehashed (Collis *et al.*,
2014). The three types of consistency are over time (test-retest reliability), across

items (internal consistency), and across different researchers (inter-rater reliability) (Chiang & Price, 2019).

Test-retest reliability is the extent to which the result obtained from measuring a construct should be consistent across time (Chiang & Price, 2019). This infers that if the measure is tabled, the results should be reliable.

To measure consistency, the Cronbach alpha coefficient is utilised. It is expressed on a scale from 0 to one (1). Nunnally (1978) indicated that a Cronbach alpha of 0.70 is indicative of good reliability, while an alpha of 0.50 is acceptable for basic or exploratory research.

STATISTICA Version 13 (2018), a statistical software programme, was used to correlate test items for the sections of the questionnaire that measure the independent variables and the dependent variable. To test reliability, Cronbach's alpha was utilised. The results obtained in the Cronbach's alpha are depicted in Table 3.11 below. As the Cronbach alpha is higher than 0.50 as discussed above, the data is deemed reliable for this research.

TABLE 3.11: RELIABILITY OF THE MEASURING INSTRUMENT AS MEASURED BY THE CRONBACH'S ALPHA

Variable	Cronbach's alpha
Job level	0.73
Access to digital information	0.63
Savings culture	0.53
Budgeting	0.64
Debt management	0.66

Source: Own construction

3.5.2 Validity

Validity can be explained as the accuracy of a measure or the extent to which a score truthfully represents a concept (Zikmund, Babin, Carr & Griffin, 2013). O'leary (2004) explains that validity is based on the assumption that that which is being explored or considered can be captured or measured. Furthermore, it strives to confirm the

legitimacy and accuracy of data that is being captured. Cohesion needs to exist between the inquiries posed and that which is being researched, and conclusions justified from the findings of the study. Validity focuses on researchers' strategies justifying their decisions.

The two types of validity are namely internal and external validity. Internal validity refers to the ability of an instrument to measure that which it is supposed to measure. That is, the effect that the change in an independent variable would have on a dependent variable. The validity of research can be assessed via content and face validity (Collis & Hussey, 2014). Face validity determines whether or not a measure makes sense at face value.

Content validity implies that the research instrument depicts applicable content (Tavakol & Dennick, 2011). External validity refers to the 'generalisability' of a particular study. In other words, whether the study or findings could be repeated if used in other contexts, events or situations (Sekaran & Bougie, 2003). In this study, validity was based on content and face validity. Human resources and finance practitioners were consulted in drawing up the questionnaire.

3.6   ETHICAL CONSIDERATIONS

Research ethics relates to how research is directed and how the outcomes are accounted for (Collis *et al.*, 2014). Various moral standards should be thought about when performing research. At the centre, these moral standards stress the need to do great and no mischief. The ethical principles at the core emphasise the need to do good and no harm.

In reality, these ethical principles mean that as a researcher, one needs to:
(a) Obtain informed consent from potential research participants;
(b) Minimise the risk of harm to participants;
(c) Protect their anonymity and confidentiality;
(d) Avoid using deceptive practices; and
(e) Give participants the right to withdraw from ones' research ("Principles of Research Ethics", 2019).

Universities subscribe to their own research ethics policies and procedures. This study commenced upon receipt of the ethics approval from the Faculty of Business and Economic Sciences. Refer to Form E, included as Annexure A in this regard.

3.7 CHAPTER SUMMARY

This chapter described the research process and methodology that was used in this study. A theoretical background of the research methodology was discussed. This enabled the researcher to design an empirical study. The research paradigm as shared indicated that this study was positivistic. The measuring instrument identified as most appropriate was a survey. The survey was constructed and the data quality confirmed concerning reliability and validity. The survey was conducted and 55 respondents' answers were analysed. The data was deemed reliable, as the Cronbach alpha was higher than 0.50 for all the variables noted. Also, the data was deemed valid as human resources and finance practitioners were consulted in drawing up the questionnaire.

Furthermore, the demographic data, derived from Section B of the survey were analysed and matters of ethical consideration were briefly outlined.

The next chapter details the empirical results of the study.

CHAPTER 4 - STATISTICAL ANALYSIS AND PRESENTATION OF FINDINGS

4.1   INTRODUCTION

The previous chapter provided a discussion of the research methodology adopted for this study. With the use of descriptive statistics, this chapter seeks to analyse, present and discuss the results from the data collected during the study. Figure 4.1 provides a layout of the treatise.

FIGURE 4.1: LAYOUT OF TREATISE
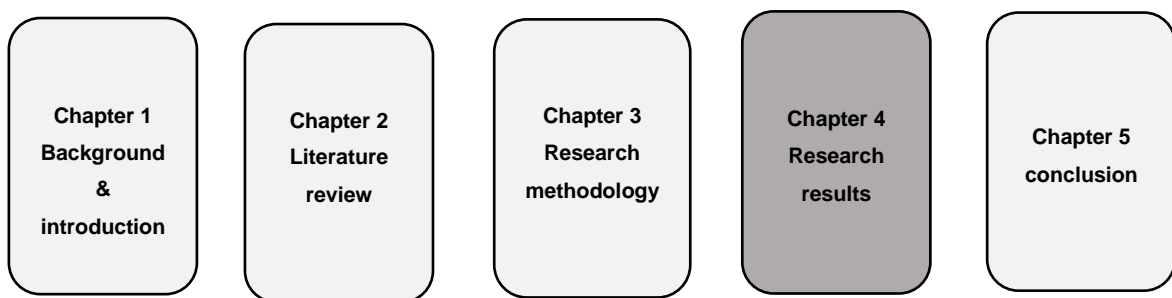
Source: Own construction

4.2 DATA ANALYSIS APPROACH

STATISTICA Version 13 (2018) is the software programme utilised to process and analyse the data. Descriptive statistics were then used to calculate the frequency distribution central tendency, and standard deviations of data to ascertain the significance of interrelatedness of survey items. The respondents' answers were captured and illustrated in histogram charts and frequency tables. The respondents in this study, are employees of a state-owned entity, 55 questionnaires were returned, on which the statistics are based.

4.2.1   Questionnaire structure and design

The questionnaire was structured into three sections, namely Section A, B and C. In Section A, respondents were requested to indicate the extent to which they agree/disagree with a statement. A five-point Likert-scale was used, where one (1) indicated that the respondent strongly disagreed and five (5) strongly agreed.

Section B included the classification of data. The indicators depicted in this section of the questionnaire were gender, educational level, employment at a state-owned entity, age, years of service at the entity, employees' job grade, number of dependents and marital status.

Section C included open and closed-ended questions to ascertain the employees' level of financial intelligence as well as that which they perceive could assist them in improving their levels of financial intelligence.

The questionnaire was structured in such a way as to not only determine the possible relationship between the dependent variables and the independent variable; it further endeavours to establish the link between the nominal variables and the dependent variable. Also, the financial literacy of the respondents is assessed utilising a Global Financial Literacy Survey standard.

Lastly, the survey obtained feedback from the respondents as to how they perceive the impact of financial concerns on themselves in the workplace and the related strategies which they think could improve financial intelligence. Figure 4.2 below, reflects the hypothesised model, as included in Chapter One, which demonstrates the hypotheses being tested.

FIGURE 4.2: THE HYPOTHESISED MODEL OF FACTORS WHICH INFLUENCE FINANCIAL LITERACY AND FINANCIAL INTELLIGENCE
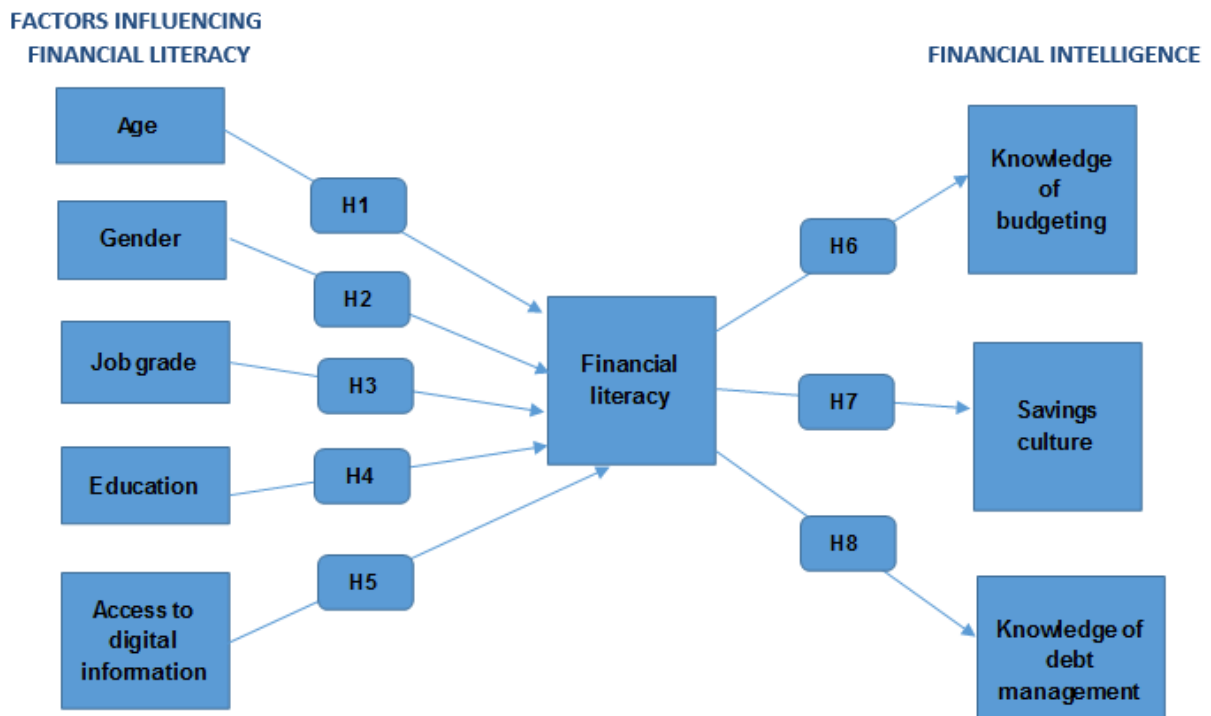
Source: Own construction

The independent variables are age, gender, job level, level of education, and access to digital information, whereas the dependent variable is financial intelligence. The nominal variables are savings culture, budgeting and debt management.

The empirical results documented below will be analysed accordingly.

4.3   RESULTS OF THE STATISTICAL ANALYSES

4.3.1   Measurement of financial literacy

Financial literacy can be assessed by four questions, which were included in Standard & Poor's Ratings Services, Global Financial Literacy Survey of 2014. The questions are within four categories, which would determine financial literacy. These categories are risk diversification (VEST), inflation (PRIC), numeracy (BORR) and compound

interest (PERC). A person is defined as financially literate when he or she correctly answers at least three out of the four financial concepts described above.

Figure 4.3 below surmises the responses to these four questions. As is depicted, most respondents did not select the correct answer. The question relating to inflation garnered the lowest correct response rate and the one linked to numeracy, the highest. Overall, only 13 of the 55 respondents obtained three or more correct answers. This equates to a percentage of just 24%. The four financial concepts will be discussed in further detail below.

FIGURE 4.3: FINANCIAL LITERACY ASSESSMENT
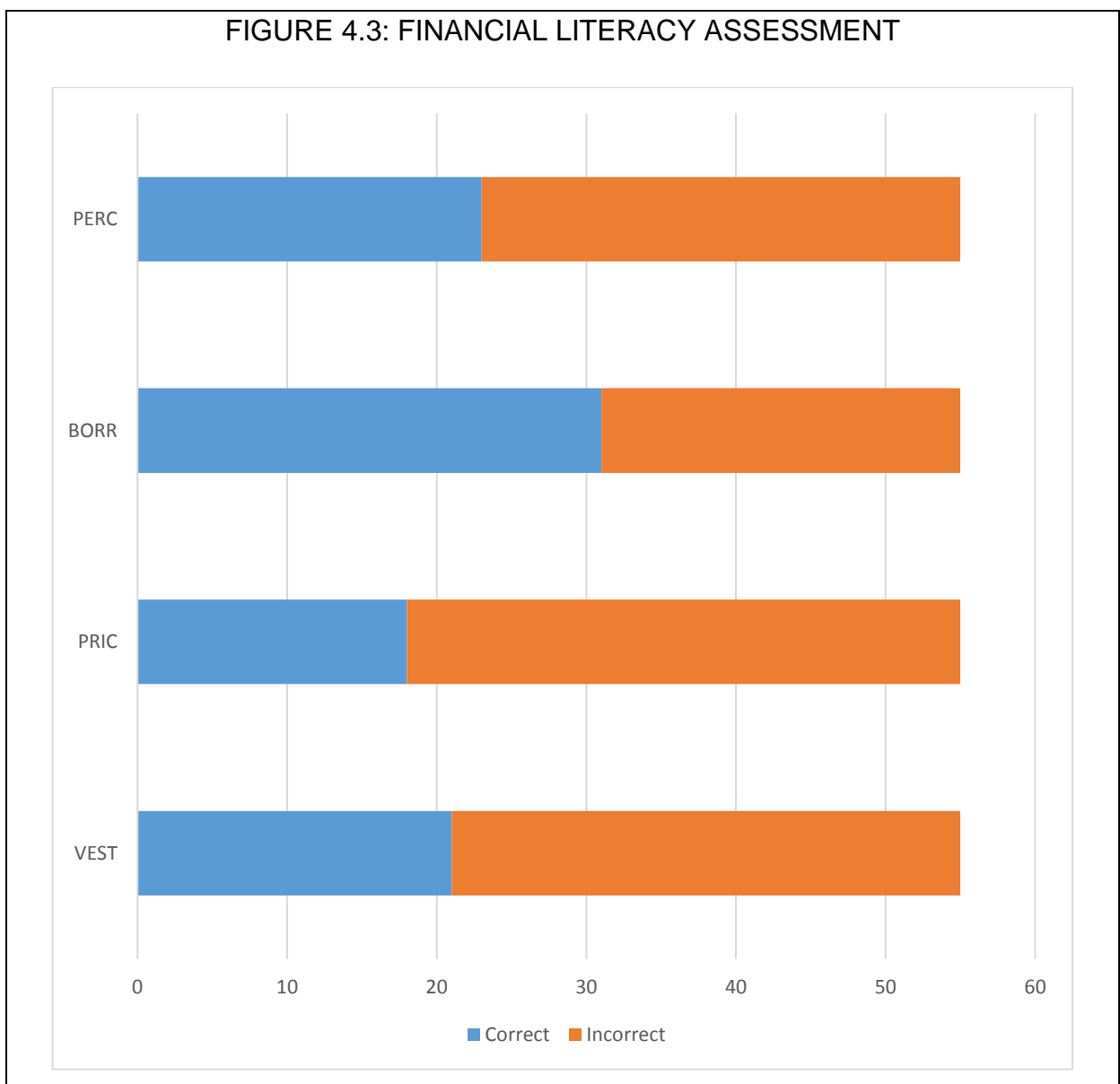
Source: Own construction

4.3.1.1 Risk diversification

Table 4.1 presents the distribution of the respondents' answers to the question regarding risk diversification. The correct answer to the question: "Suppose you have some money. Is it safer to put your money into one business or investment, or to put your money into multiple businesses or investments?" is "Multiple businesses or investments". A total of 38% of respondents provided the correct answer to this question. Whereas this is the highest category amongst the options available, it is surprising that 33% of the respondents indicated that they did not know the answer. Figure 4.4 provides a graphical presentation of the results.

TABLE 4.1 DESCRIPTIVE STATISTICS ON RISK DIVERSIFICATION

Code	Statement	One business or investment	Multiple businesses or investments	Don't know	Missing	Mean	Std Dev.
VEST	Suppose you have some money. Is it safer to put your money into one business or investment, or to put your money into multiple businesses or investments?	27%	38%	33%	2%	2.06	0.79

Source: Own construction

FIGURE 4.4 RISK DIVERSIFICATION ANSWERS
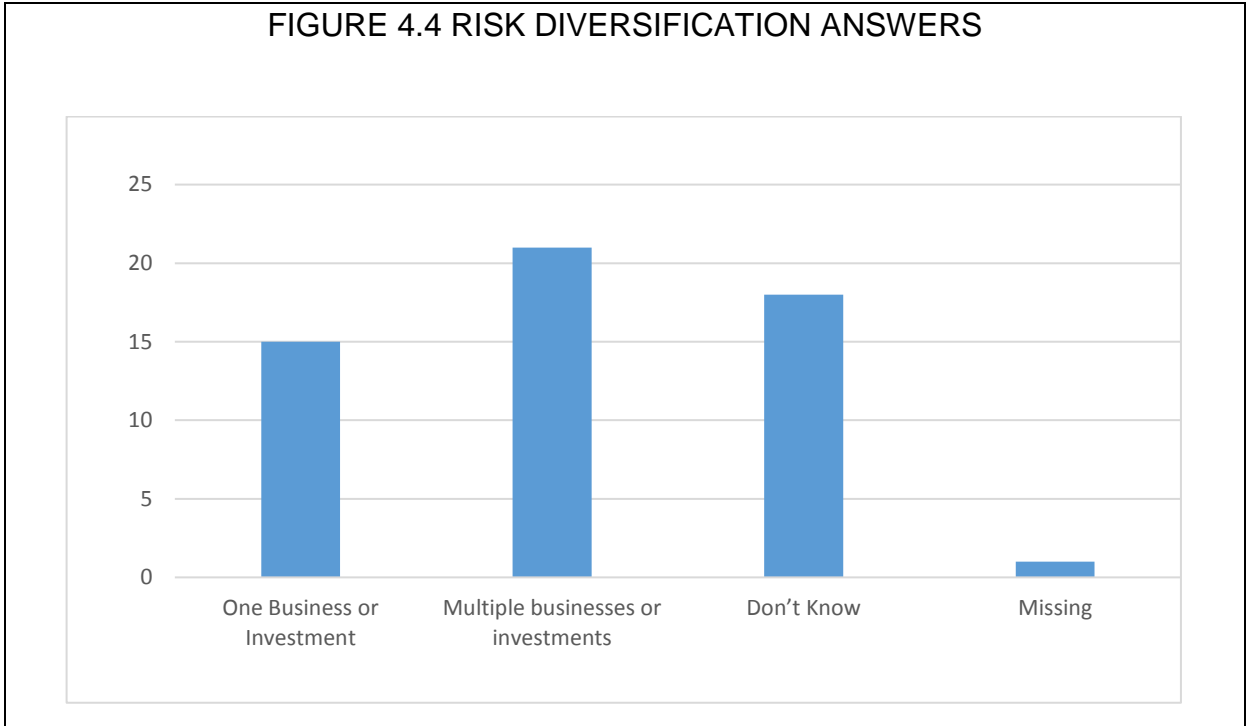
Source: Own construction

4.3.1.2 Inflation

Table 4.2 notes the distribution of the respondents' answers to the question regarding inflation. The correct answer to the question: "Suppose over the next 10 years the prices of the things you buy double. If your income also doubles, will you be able to buy less than you can buy today, the same as you can buy today, or more than you can buy today?" is "The Same". A total of 33% of the respondents provided the correct answer to this question, which is the highest category amongst the options available. Figure 4.5 provides a graphical presentation of the results.

TABLE 4.2 DESCRIPTIVE STATISTICS ON INFLATION

Code	Statement	Less	The same	More	Don't know	Missing	Mean	Std Dev.
PRIC	Suppose over the next 10 years the prices of the things you buy double. If your income also doubles, will you be able to buy less than you can buy today, the same as you can buy today, or more than you can buy today?	27%	33%	15%	24%	0%	2.35	1.14

Source: Own construction

FIGURE 4.5 INFLATION ANSWERS
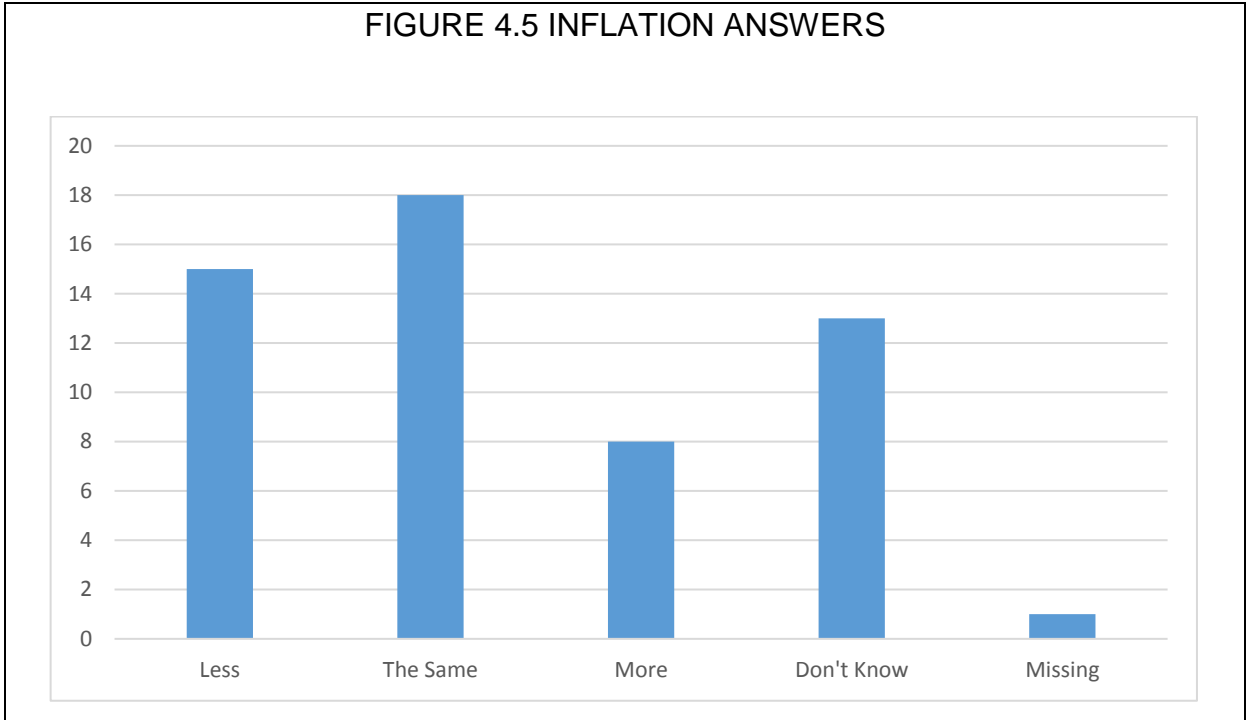
Source: Own construction

4.3.1.3   Numeracy

Table 4.3 indicates the distribution of the respondents' answers to the question regarding numeracy. The correct answer to the question: "Suppose you need to borrow R100. Which is the lower amount to pay back?" is "R100 plus 3% interest". Altogether 56% of the respondents provided the correct answer. This question is historically answered better than the rest amongst the four financial literacy questions. This proves correct in this study as well as the fact that 56% of the respondents answered correctly. This is the highest percentage of all the correct answers, regarding the financial literacy assessment. Figure 4.6 provides a graphical presentation of the results.

TABLE 4.3 DESCRIPTIVE STATISTICS ON NUMERACY

Code	Statement	105	R100 plus 3% interest	Don't know	Missing	Mean	Std Dev.
BORR	Suppose you need to borrow R100. Which is the lower amount to pay back?	25%	56%	18%	0%	1.93	0.66

Source: Own construction

FIGURE 4.6 NUMERACY ANSWERS
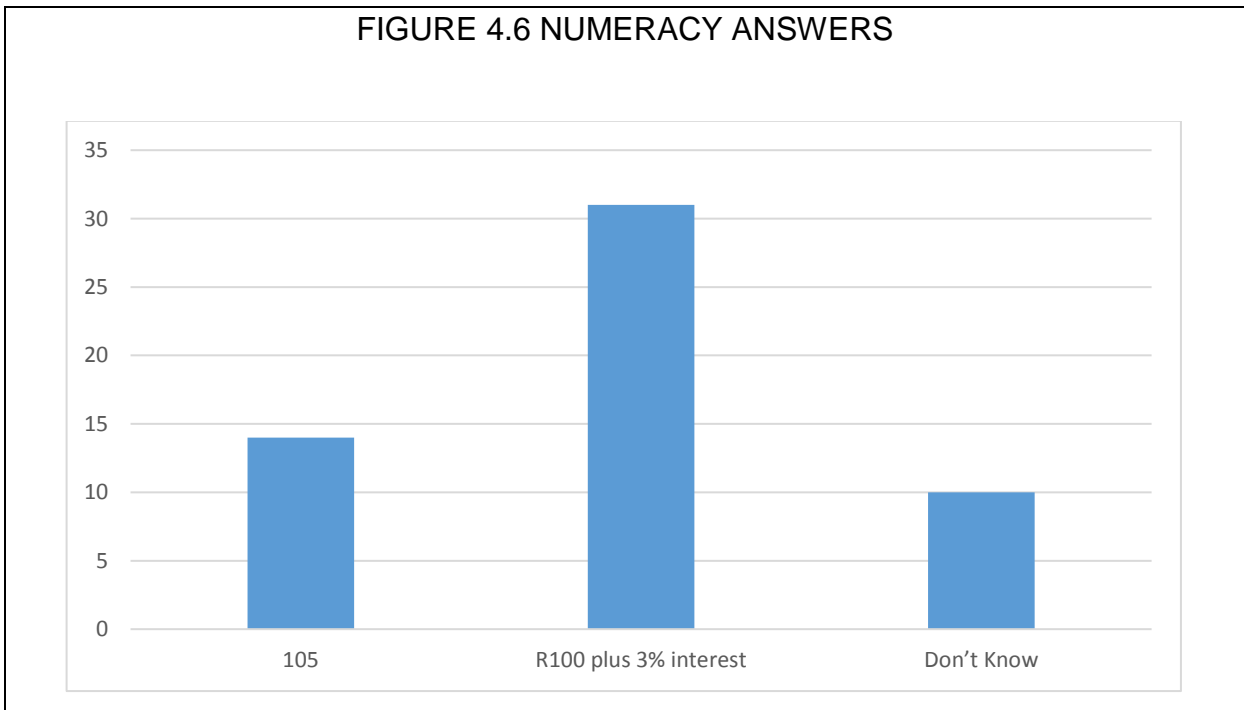
Source: Own construction

4.3.1.4　　　Compound interest

Table 4.4 shows the distribution of the respondents' answers to the question regarding compound interest. The correct answer to the question: "Suppose you put money in the bank for two years and the bank agrees to add 15% per year to your account. Will the bank add more money to your account the second year than it did the first year, or will it add the same amount of money both years?" is "More". A total of 42% of the

respondents provided the correct answer to this question. However, 31% indicated that they were unable to perform the calculation to attain the correct answer. This is very concerning as compound interest is used by most credit providers. Figure 4.7 provides a graphical presentation of the results.

TABLE 4.4 DESCRIPTIVE STATISTICS ON COMPOUND INTEREST

Code	Statement	More	The same	Don't know	Missing	Mean	Std Dev.
PERC	Suppose you put money in the bank for two years and the bank agrees to add 15% per year to your account. Will the bank add more money to your account the second year than it did the first year, or will it add the same amount of money both years?	42%	24%	31%	4%	1.89	0.87

Source: Own construction

FIGURE 4.7 COMPOUND INTEREST ANSWERS
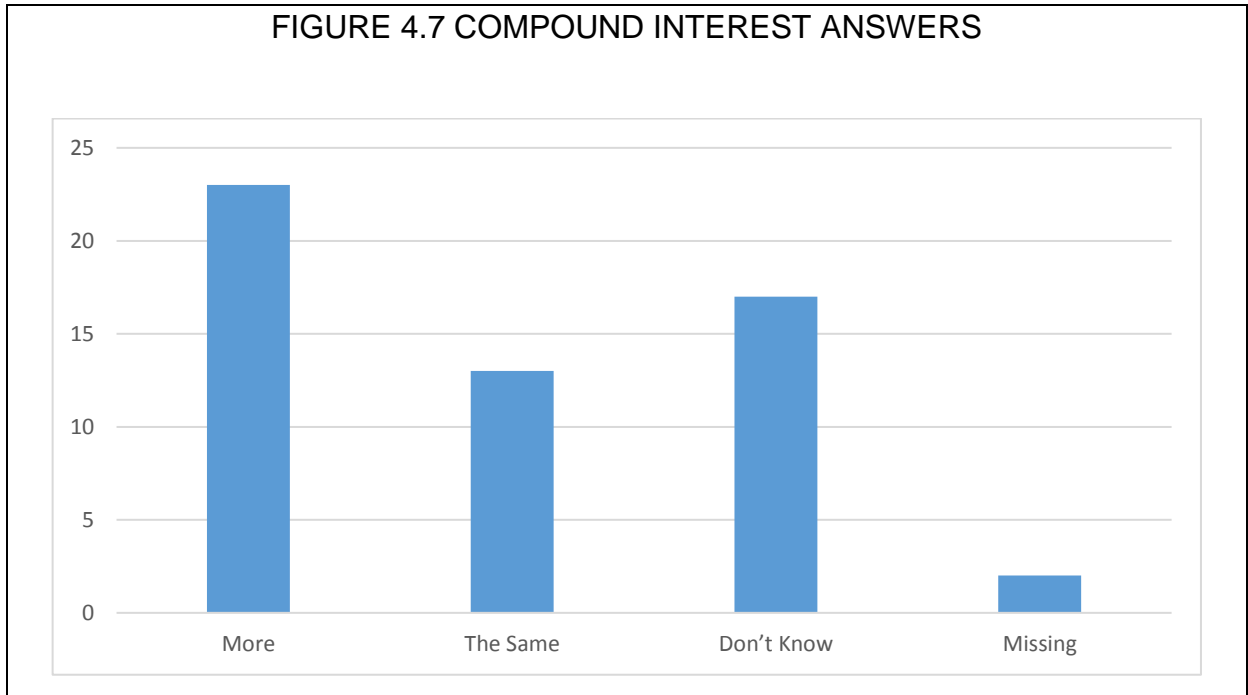
Source: Own construction

4.3.2 Measurement of financial intelligence

Financial intelligence was measured by assessing the employee's knowledge about budgeting, his/her saving cultures and his/her knowledge about debt management.

The statements that measured **knowledge about budgeting** included the following:

- I understand what a budget is.
- I prepare a monthly budget to manage my personal finances.
- I am able to stick to the monthly budget set.
- I think financial institutions should assist with users understanding of budgeting.

The statements that measured an employee's **saving culture** included the following:

- I would like to save more every month.
- I am prepared/preparing for retirement.
- I contribute towards a retirement fund.

The statements that measured an employee's **knowledge of debt management** included the following:

- I understand how the interest calculation works on credit cards.
- I understand how the interest calculation works on mortgage bonds.
- I understand monthly account statements sent to me by the firms I owe.
- I try to pay my accounts on time every month.
- It is a priority for me to pay my debts first before paying for anything else.

All the above-mentioned statements were anchored to a Likert-type scale ranging from (1) strongly disagree to (5) strongly agree.

4.3.3 The factors that influence financial literacy

4.3.3.1 Age

The majority of respondents, being 67%, was between the ages of 30 and 50, as portrayed in Chapter Three. A Chi-square was calculated to investigate whether age groups differ with regard to financial literacy. The results are reported in Table 4.5. The empirical results show that age groups do not differ with regard to financial literacy. Hypothesis H1 is therefore not supported by the empirical results. This result means that financial literacy levels are not significantly different among the age groups in this sample. The results are supported by the scatterplot in Figure 4.8. No clear systematic relationship is event in the data points.

TABLE 4.5: THE RELATIONSHIP BETWEEN AGE AND FINANCIAL LITERACY

Case	Observed vs. Expected Frequencies. Chi-Square = 59.00000 df = 54 p = 0.297814			
	observed AGE	expected FLIT	O - E	(O-E)**2 /E
Sum	159.0000	148.0000	11.00000	59.00000

FIGURE 4.8 SCATTER PLOT: FINANCIAL LITERACY IN RELATION TO AGE
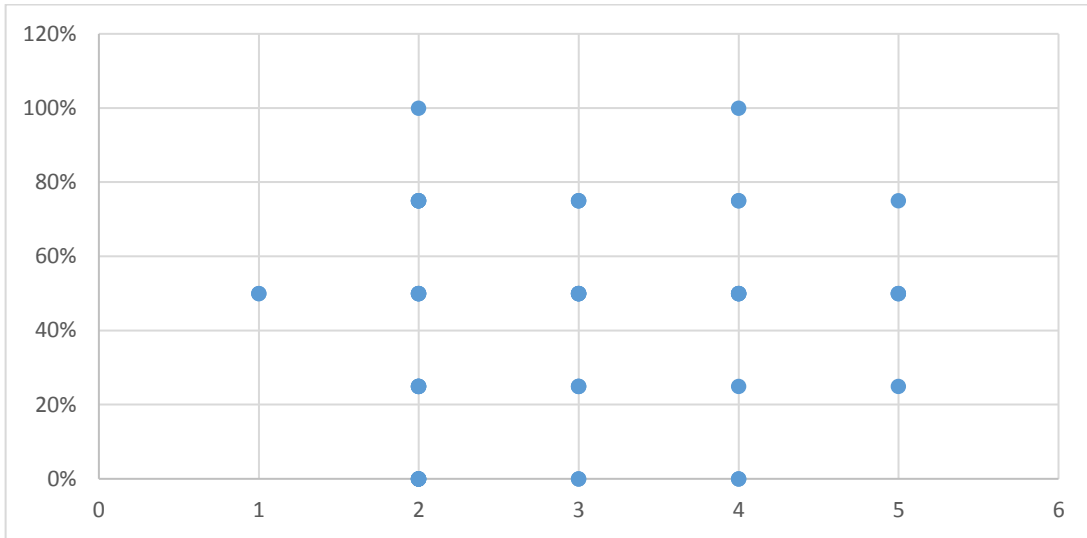
Source: Own construction

4.3.3.2 Gender

A two-sample t-test was conducted to investigate whether gender groups differ with regard to financial literacy. The results in Table 4.6 reveal that the gender groups in this sample do not differ significantly with regard to financial literacy levels. The scatter plot in Figure 4.9 supports the results in Table 4.6. The hypothesis H2 is therefore not supported by the empirical results. This result means that the males and females in this sample do not differ significantly as far as their financial literacy levels are concerned.

TABLE 4.6: THE RELATIONSHIP BETWEEN GENDER AND FINANCIAL LITERACY

Variable	T-tests; Grouping: GENDER. Group 1:Males Group 2:Females				
	Mean 1	Mean 2	t-value	df	p
FLIT	2.813953	2.250000	1.562665	53	0.124083

FIGURE 4.9 SCATTER PLOT: FINANCIAL LITERACY IN RELATION TO GENDER
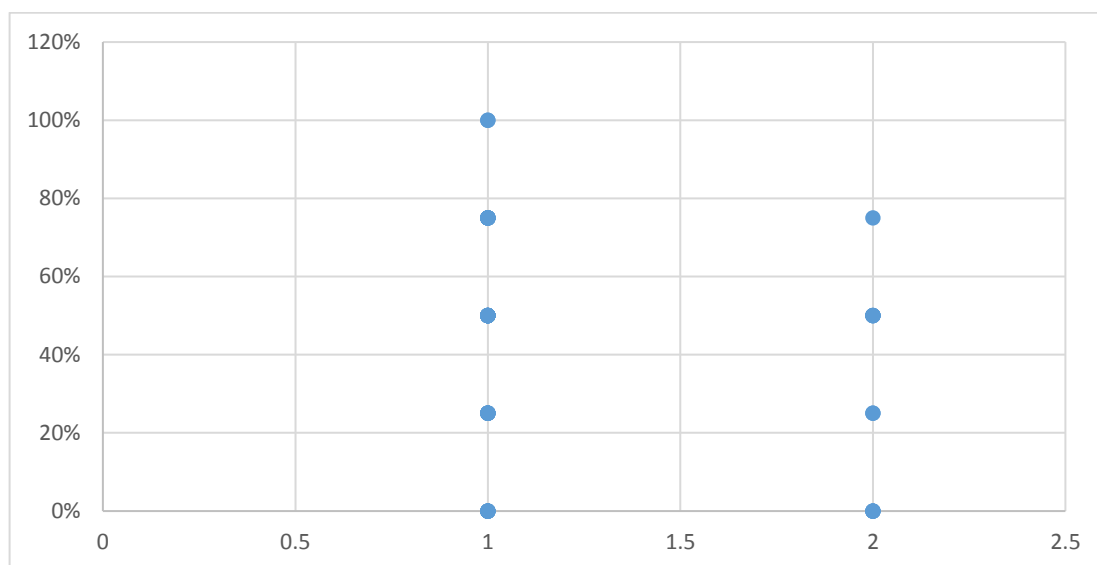
Source: Own construction

4.3.3.3   Job level

A Chi-square was calculated to investigate whether job levels differ with regard to financial literacy. The results are reported in Table 4.7. The empirical results show that job grades do differ with regard to financial literacy. Hypothesis H3 is therefore supported by the empirical results. This result means that financial literacy levels are significantly different among the job levels in this sample.

A Scheffé test was conducted to ascertain how these job grades differ. The results are reported in Table 4.8. The results show that the financial literacy means scores for job grades 2 = K, 3 = J and 4 = I are almost similar (2.27, 2.30 and 2.36 respectively), while job grades 1 = L, 5 = H and 7+ = F are almost similar (3.00, 3.17 and 3.00 respectively). Job grade 6 = G exhibits the highest financial literacy level, namely 4.00. The data points on the scatterplot in Figure 4.10 seem to support these empirical findings.

TABLE 4.7: THE RELATIONSHIP BETWEEN JOB LEVEL AND FINANCIAL
LITERACY

Case	Observed vs. Expected Frequencies. Chi-Square = 144.4167 df = 53 p = 0.000000			
	observed JOBG	expected FLIT	O - E	(O-E)**2 /E
Sum	211.0000	144.0000	67.00000	144.4167

Source: Statistica

TABLE 4.8: SCHEFFÉ TEST - HOW JOB LEVELS DIFFER

Cell No.	Scheffé test; variable FLIT. Probabilities for Post Hoc Tests Error: Between MS = 1.1417, df = 47.000						
	{1} 3.0000	{2} 2.2727	{3} 2.3000	{4} 2.3636	{5} 3.1667	{6} 4.0000	{7} 3.0000
1		0.966116	0.973754	0.982727	0.999995	0.956801	1.000000
2	0.966116		1.000000	0.999999	0.839255	0.420006	0.886710
3	0.973754	1.000000		1.000000	0.867911	0.453549	0.912821
4	0.982727	0.999999	1.000000		0.897091	0.488265	0.937483
5	0.999995	0.839255	0.867911	0.897091		0.974274	0.999985
6	0.956801	0.420006	0.453549	0.488265	0.974274		0.918659
7	1.000000	0.886710	0.912821	0.937483	0.999985	0.918659	

Source: Statistica

FIGURE 4.10 SCATTER PLOT: FINANCIAL LITERACY IN RELATION TO JOB LEVEL
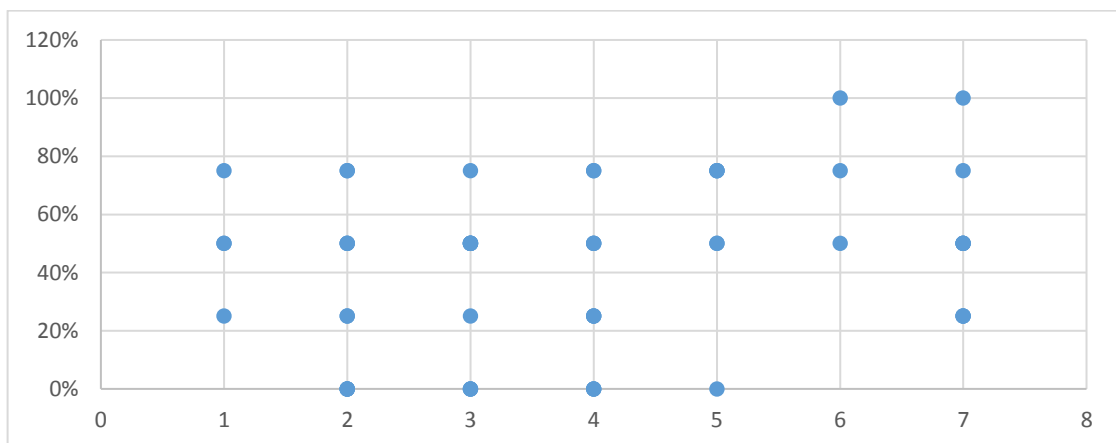
Source: Own construction

4.3.3.4   Education

A Chi-square was conducted to investigate whether education groups differ with regard to financial literacy. The results in Table 4.9 reveal that the education groups in this sample do not differ significantly with regard to financial literacy levels. The scatter plot in Figure 4.11 supports the results in Table 4.9. The hypothesis H4 is therefore not supported by the empirical results. This result means that the education groups in this sample do not differ significantly as far as their financial literacy levels are concerned.

The independent variable of education and its link to financial literacy is discussed below. The correlation between education and financial literacy is indicated in the scatter plot in Figure 4.11 below. In this survey, 64% or the majority of respondents, has a secondary education or less, as discussed in Chapter Three. In this instance, the correlation coefficient (r) equals 0.02. No correlation is detected and it is not possible to continue with regression analysis.

TABLE 4.9: THE RELATIONSHIP BETWEEN EDUCATION AND FINANCIAL LITERACY

Case	Observed vs. Expected Frequencies. Chi-Square = 71.76667 df = 54 p = 0.053272			
	observed EDUC	expected FLIT	O - E	(O-E)**2 /E
Sum	144.0000	148.0000	-4.00000	71.76667

Source: Statistica

FIGURE 4.11 SCATTER PLOT: FINANCIAL LITERACY IN RELATION TO EDUCATIONAL LEVEL
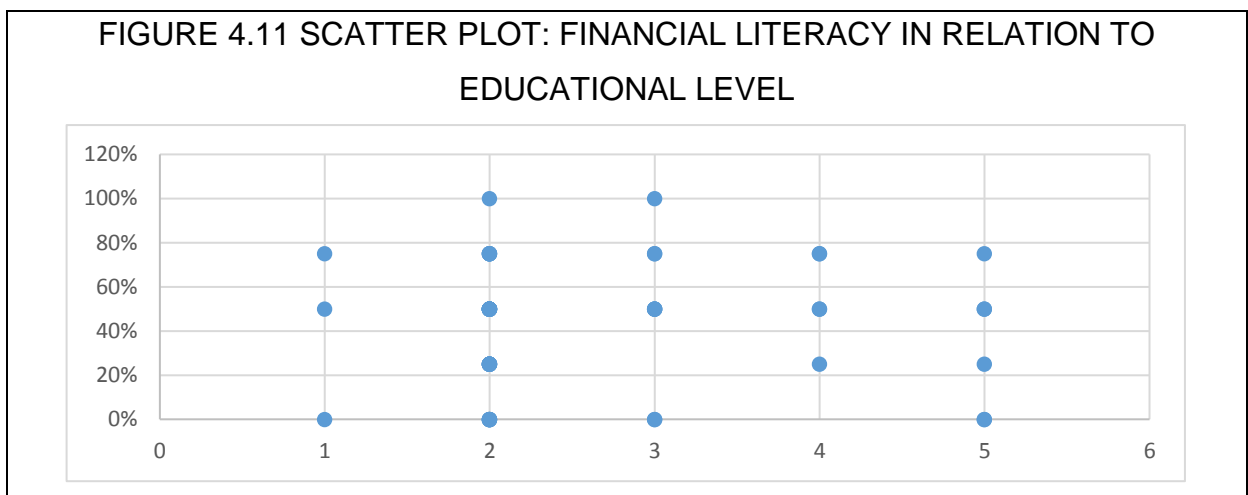
Source: Own construction

4.3.3.5   Access to digital information

The independent variable of access to information was assessed via the statements in Table 4.10 below. A total of 36% of the respondents have access to the internet, whereas 51% do not. Only 31% access the internet via a mobile device more often, in comparison to 24% who do this via a personal computer more often. The majority of respondents does not have access to the internet and does not use a mobile device or a personal computer to access the internet.

Whereas 82% of the respondents have a bank account, only 38% use internet banking. Nine per cent of the respondents indicated that they do not have a bank account and 51% do not use internet banking. The majority of respondents was more comfortable going into a brick and mortar bank, whereas 36% preferred to perform their banking transactions online.

The mean scores of this variable ranged from 2.19 to 4.56 with the average mean score of 3.05. The average mean score indicates that the responses provided showed a slight tendency towards an agreement. Figure 4.12 graphically represents the trend of the responses received. As can be seen, the strong agreement to the statement of "I have a bank account" has affected the overall mean.

The standard deviations for this variable ranged from 1.13 to 1.80. A low standard deviation indicates that the data points tend to be very close to the mean, whereas a high standard deviation shows that the data points are spread out over a larger range of values. The broader standard deviations in this variable depict the range of answers provided.   In statements, DIGI1, DIGI2 and DIGI3 and DIGI5, the majority of the respondents disagreed with the statement.

TABLE 4.10 DESCRIPTIVE STATISTICS ON ACCESS TO DIGITAL INFORMATION

Code	Statement	Disagree	Neutral	Agree	Missing	Mean	Std Dev.
		Percentage					
DIGI1	I have access to the internet.	51%	9%	36%	4%	2.75	1.80
DIGI2	I access the internet on a mobile device most often.	45%	24%	31%	0%	2.76	1.63
DIGI3	I access the internet on a personal computer most often.	60%	15%	24%	2%	2.19	1.53
DIGI4	I have a bank account.	9%	4%	82%	5%	4.56	1.13
DIGI5	I make use of internet banking.	51%	11%	38%	0%	2.82	1.78
DIGI6	I prefer to go into the bank to perform banking transactions.	36%	18%	45%	0%	3.22	1.55
AVERAGE MEAN SCORE						**3.05**	

Source: Own construction

FIGURE 4.12 HISTOGRAM ON ACCESS TO DIGITAL INFORMATION
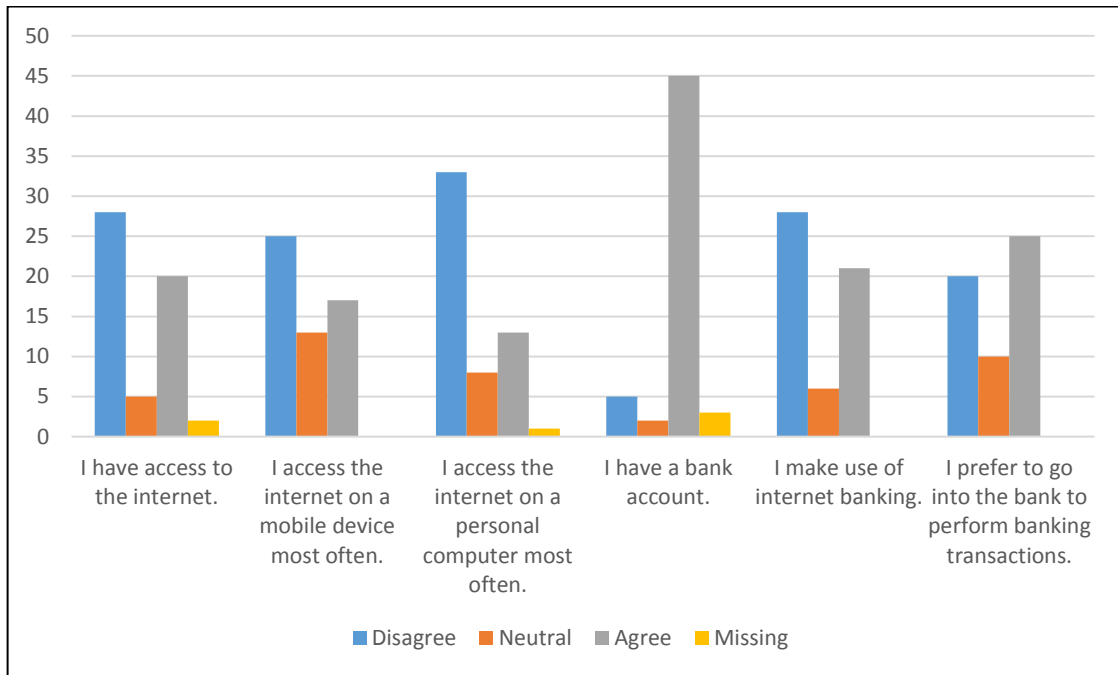
Source: Own construction

The Pearson correlation between access to digital information and financial literacy is indicated graphically on the scatter plot in Figure 4.13 below. The correlation coefficient (r) equals 0.37, which highlights no correlation between the level of financial literacy and access to digital information. Thus, access to digital information does not have an impact on the level of financial literacy, in the context of this study.

FIGURE 4.13 SCATTER PLOT: FINANCIAL LITERACY IN RELATION TO ACCESS TO DIGITAL INFORMATION
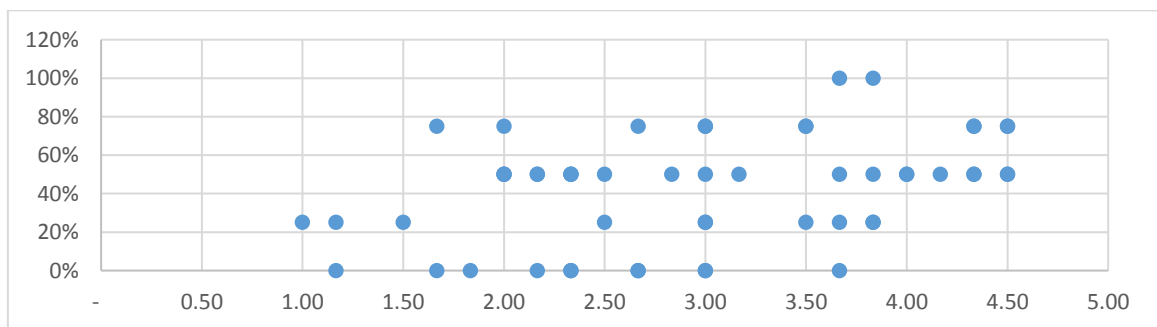
Source: Own construction

4.3.4 The relationship between financial literacy and financial intelligence

Financial intelligence is defined as the employee's knowledge about budgeting, his/her saving cultures and his/her knowledge about debt management.

4.3.4.1   Financial literacy and knowledge of budgeting

The nominal variable of budgeting was assessed via the statements in Table 4.11 below. A total of 64% of respondents understand what a budget is and 60% prepare a monthly budget to manage their personal finances, whereas 22% do not understand a budget and 24% do not prepare budgets. There is an equal spread of answers regarding whether respondents can stick to a budget. Only 31% indicated that they can stick to a budget. A substantial total of 85% of respondents think financial institutions should assist with users' understanding of budgeting.

The mean scores of this variable ranged from 2.85 to 4.47 with the average mean score of 3.67. The average mean score indicates that the responses provided showed a tendency towards an agreement. Figure 4.14 graphically represents the trend of the responses received. As can be seen, most respondents agreed with the statements regarding budgeting.

The standard deviations for this variable ranged from 1.0 to 1.5. A low standard deviation indicates that the data points tend to be very close to the mean, whereas a high standard deviation shows that the data points are spread out over a larger range of values. These standard deviations are relatively close to one another, which points to the answers being close to the mean.

TABLE 4.11 DESCRIPTIVE STATISTICS ON BUDGETING

Code	Statement	Disagree	Neutral	Agree	Missing	Mean	Std Dev.
		Percentage					
BUDG1	I understand what a budget is.	22%	13%	64%	2%	3.78	1.50
BUDG2	I prepare a monthly budget to manage my personal finances.	24%	11%	60%	5%	3.56	1.39
BUDG3	I am able to stick to the monthly budget set.	38%	31%	31%	0%	2.85	1.46
BUDG4	I think financial institutions should assist with users understanding of budgeting.	5%	9%	85%	0%	4.47	1.00
AVERAGE MEAN SCORE						**3.67**	

Source: Own construction

FIGURE 4.14 HISTOGRAM ON BUDGETING
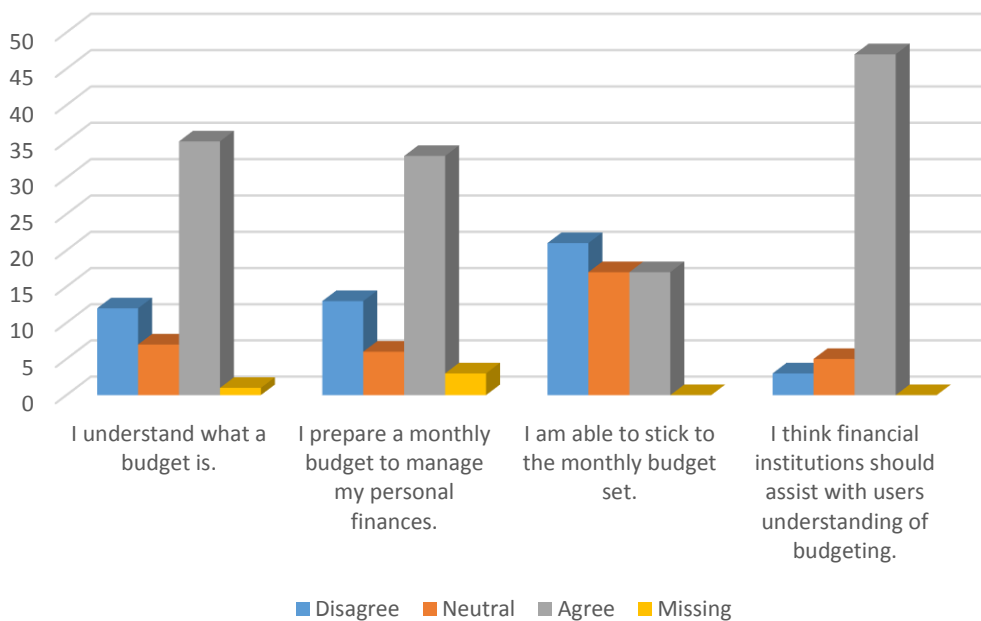
Source: Own construction

An ANOVA was conducted to investigate the relationship between financial literacy and knowledge about budgeting. The empirical results in Table 4.12 and financial literacy is indicated in the scatter plot in Figure 4.15 below. The p-value equals 0.96, which highlights no significant relationship between the level of financial literacy and budgeting. Thus, budgeting does not have an impact on the level of financial literacy, in the context of this study.

TABLE 4.12: THE RELATIONSHIP BETWEEN FINANCIAL LITERACY AND KNOWLEDGE OF BUDGETING

Effect	Univariate Tests of Significance for BBUDG. Sigma-restricted parameterization Effective hypothesis decomposition				
	SS	Degr. of Freedom	MS	F	p
Intercept	413.8273	1	413.8273	447.2982	0.000000
FLIT	0.5528	4	0.1382	0.1494	0.962424
Error	46.2585	50	0.9252		

Source: Statistica

The results in Table 4.12 reveal that the knowledge of budgeting in this sample do not differ significantly with regard to financial literacy levels. The scatter plot in Figure 4.15 supports the results in Table 4.12. The hypothesis H6 is therefore not supported by the empirical results. The empirical results show no significant relationship.

FIGURE 4.15 SCATTER PLOT: FINANCIAL LITERACY IN RELATION TO BUDGETING
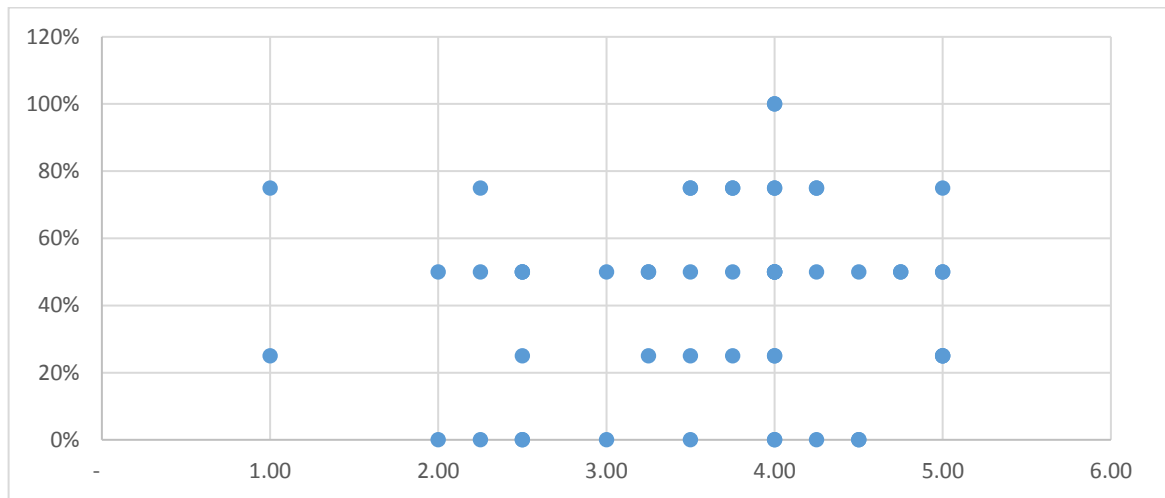
Source: Own construction

4.3.4.2   Saving culture

The nominal variable of a savings culture was assessed via the statements in Table 4.13 below. Altogether 71% of the respondents indicated that they would like to save more monthly, although 9% disagreed with this statement, which would imply that they believe that they are saving enough already. When asked whether they were prepared or preparing for retirement, 47% agreed that they were. However, 18% were not sure whether they were prepared or preparing and 35% disagreed with the statement. The majority of respondents contributes toward a retirement fund and 25% indicated that they did not.

The mean scores of this variable ranged from 3.13 to 4.11 with the average mean score of 3.64. The average mean score indicates that the responses provided showed a tendency towards an agreement. Figure 4.16 graphically represents the trend of the responses received. As can be seen, most respondents agreed with the statements regarding a savings culture.

The standard deviations for this variable ranged from 1.18 to 1.64. A low standard deviation indicates that the data points tend to be very close to the mean, whereas a high standard deviation shows that the data points are spread out over a larger range

of values. These standard deviations are relatively close to one another, which indicates that the answers are close to the mean.

TABLE 4.13 DESCRIPTIVE STATISTICS ON SAVING CULTURE

Code	Statement	Disagree	Neutral	Agree	Missing	Mean	Std Dev.
		Percentage					
CULT1	I would like to save more every month.	9%	20%	71%	0%	4.11	1.18
CULT2	I am prepared/preparing for retirement.	35%	18%	47%	0%	3.13	1.58
CULT3	I contribute towards a retirement fund.	25%	13%	62%	0%	3.67	1.64
AVERAGE MEAN SCORE						**3.64**	

Source: Own construction

FIGURE 4.16 HISTOGRAM ON SAVINGS CULTURE
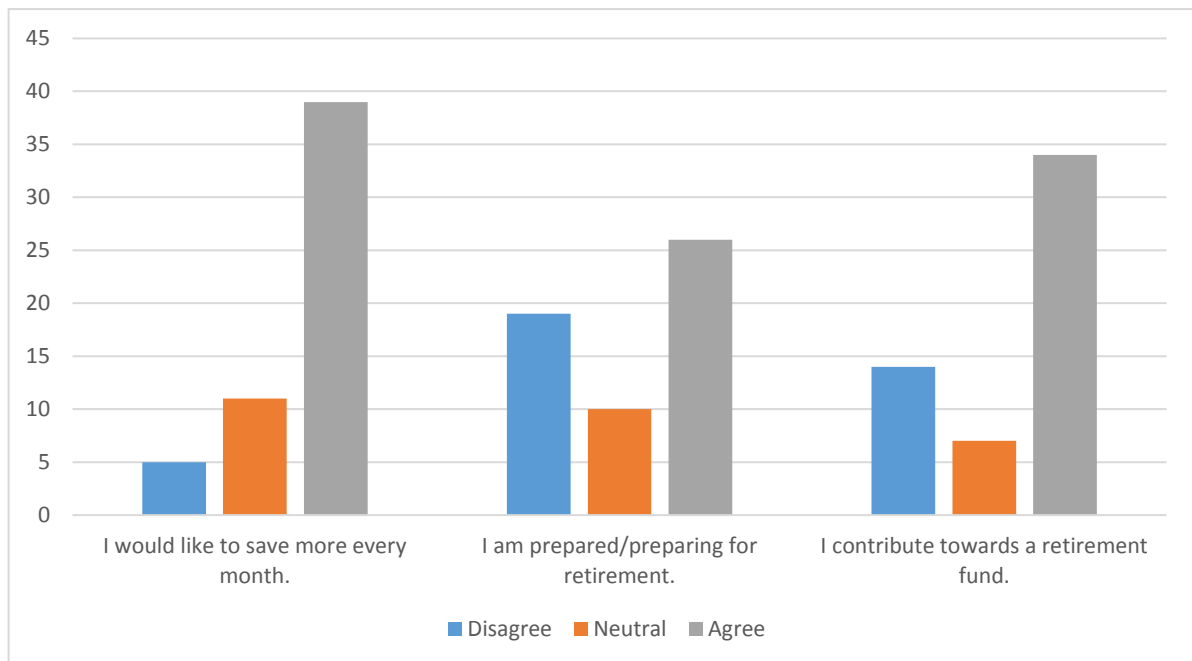
Source: Own construction

An ANOVA was conducted to investigate the relationship between financial literacy and savings culture. The empirical results in Table 4.14 and financial literacy is indicated in the scatter plot in Figure 4.17 below. The p-value equals 0.19, which indicates a non-significant relationship between the level of financial literacy and savings culture. Thus, savings culture does not have an impact on the level of financial literacy, in the context of this study. The empirical results show no significant relationship.

TABLE 4.14 : RELATIONSHIP BETWEEN FINANCIAL LITERACY AND SAVING CULTURE

	Univariate Tests of Significance for CCULT. Sigma-restricted parameterization Effective hypothesis decomposition				
Effect	SS	Degr. of Freedom	MS	F	p
Intercept	403.6602	1	403.6602	371.6954	0.000000
FLIT	6.8719	4	1.7180	1.5819	0.193618
Error	54.2999	50	1.0860		

Source: Statistica

FIGURE 4.17 SCATTER PLOT: FINANCIAL LITERACY IN RELATION TO SAVING CULTURE
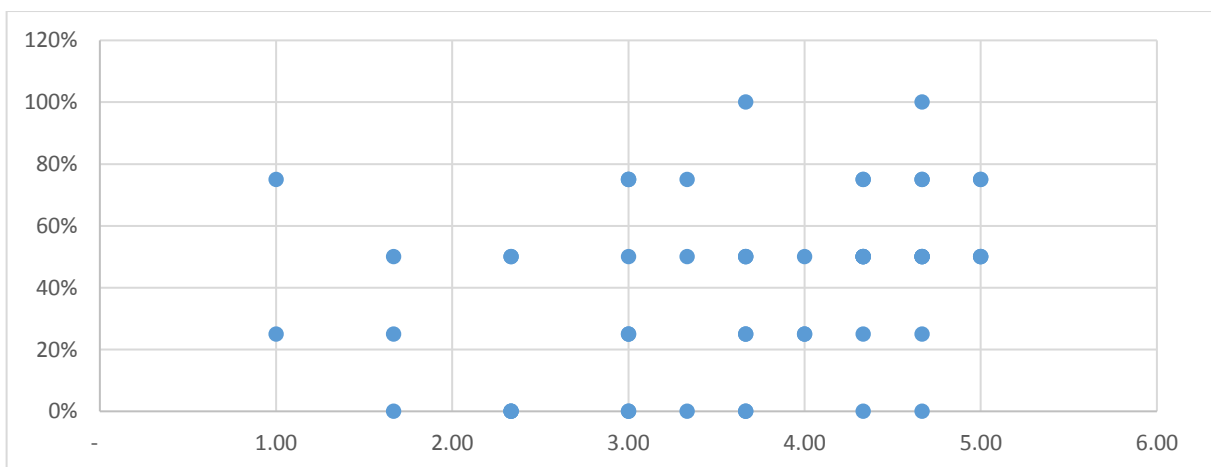
Source: Own construction

4.3.4.3   Debt management

The nominal variable of debt management was assessed via the statements in Table 4.15 below. A total of 44% of the respondents indicated that they did not understand how the interest calculation on credit cards is derived, whereas 25% were unsure of how to answer. This is very disturbing considering the levels of household debt in South Africa.

Similarly, only 33% of the respondents indicated that they understood how the interest calculation on mortgage bonds is derived, whereas the majority did not or was unsure of how to answer. A substantial total of 78% of the respondents understand the monthly account statements sent to them by the firms they owe money to and 82% try to pay their monthly bills timeously. Altogether 84% of the respondents indicated that it is a priority for them to pay their debts first before paying for anything else.

The mean scores of this variable ranged from 2.56 to 4.45, with the average mean score of 3.64. The average mean score indicates that the responses provided showed a tendency towards an agreement. Figure 4.18 graphically represents the trend of the responses received. As can be seen, for statements DMAN3, DMAN4 and DMAN5 most respondents agreed with the statements regarding debt management.

The standard deviations for this variable ranged from 1.09 to 1.61. A low standard deviation indicates that the data points tend to be very close to the mean, whereas a high standard deviation shows that the data points are spread out over a larger range of values. These standard deviations are broad and not close to one another, which indicates that the answers are not close to the mean.

TABLE 4.15 DESCRIPTIVE STATISTICS ON DEBT MANAGEMENT

Code	Statement	Disagree	Neutral	Agree	Missing	Mean	Std Dev.
		Percentage					
DMAN1	I understand how the interest calculation works on credit cards.	44%	25%	27%	4%	2.68	1.61
DMAN2	I understand how the interest calculation works on mortgage bonds.	49%	18%	33%	0%	2.56	1.57
DMAN3	I understand monthly account statements sent to me by the firms I owe.	15%	7%	78%	0%	4.18	1.36
DMAN4	I try to pay my accounts on time every month.	13%	5%	82%	0%	4.33	1.29
DMAN5	It is a priority for me to pay my debts first before paying for anything else.	9%	7%	84%	0%	4.45	1.09
AVERAGE MEAN SCORE						**3.64**	

Source: Own construction

FIGURE 4.18 HISTOGRAM ON DEBT MANAGEMENT
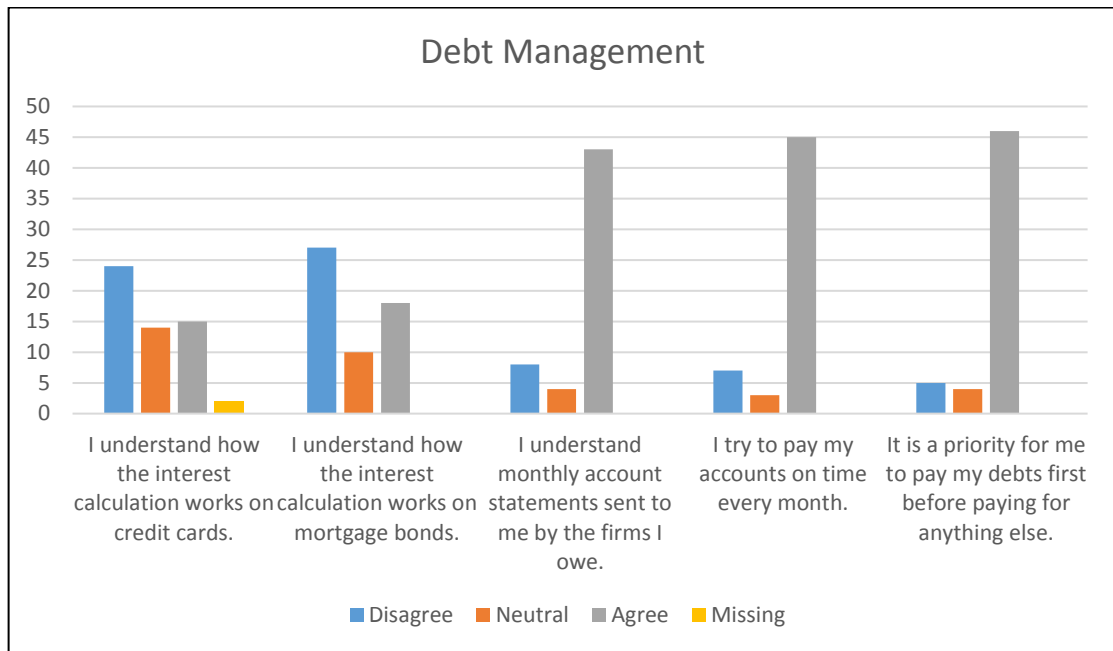
Source: Own construction

An ANOVA was conducted to investigate the relationship between financial literacy and knowledge about debt management. The empirical results in Table 4.16 and financial literacy is indicated in the scatter plot in Figure 4.19 below. The p-value equals 0.30, which highlights no significant relationship between the level of financial literacy and debt management. Thus, budgeting does not have an impact on the level of financial literacy, in the context of this study. The empirical results show no significant relationship.

TABLE: 4.16 RELATIONSHIP BETWEEN FINANCIAL LITERACY AND DEBT MANAGEMENT

Effect	Univariate Tests of Significance for DDMAN (Perine data4) Sigma-restricted parameterization Effective hypothesis decomposition				
	SS	Degr. of Freedom	MS	F	p
Intercept	402.7172	1	402.7172	500.2712	0.000000
FLIT	3.9974	4	0.9993	1.2414	0.305477
Error	40.2499	50	0.8050		

Source: Statistica

FIGURE 4.19 SCATTER PLOT: FINANCIAL LITERACY IN RELATION TO DEBT MANAGEMENT
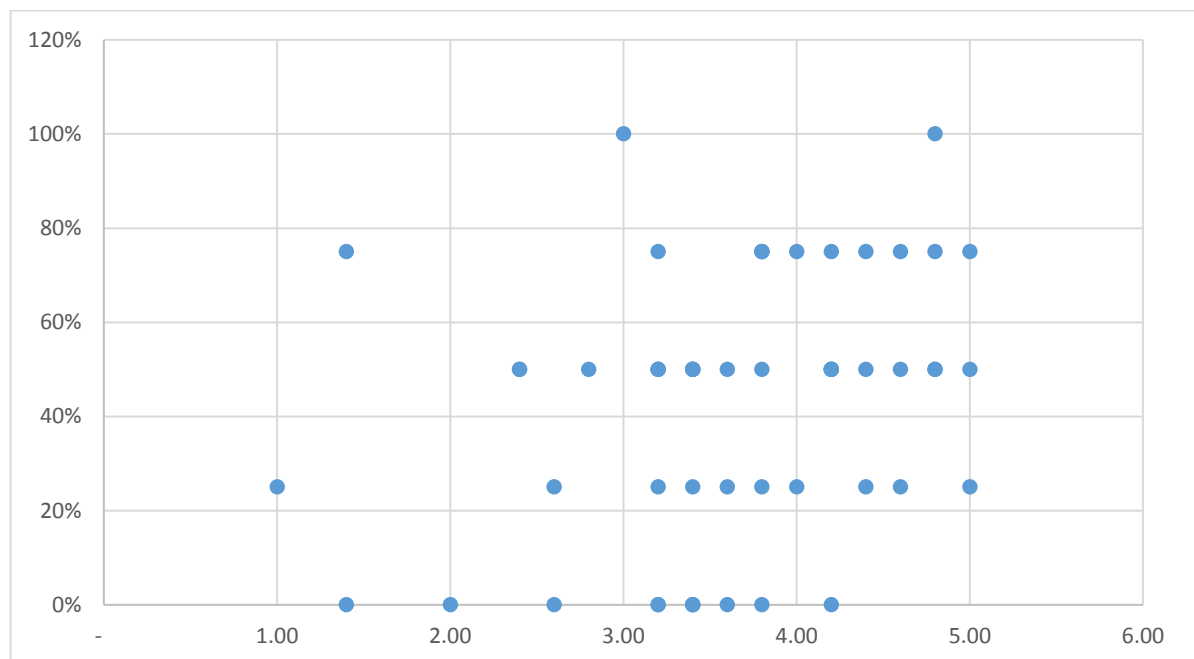
Source: Own construction

4.3.5 Additional data analyses

4.3.5.1   Impact of financial concerns on employees in the workplace

As the purpose of this study is to develop strategies to improve the financial intelligence of employees, the researcher found it prudent to enquire how the respondents perceive financial strain as having an impact upon their performance in the workplace. The statements in Table 4.17 were included in the questionnaire to garner insight into this aspect.

The majority of the respondents, namely 60%, finds that concerns of a financial nature have an impact on their personal well-being. That being said, 47% of respondents disagree that they find themselves demotivated in the workplace due to financial concerns, whereas 38% agree with this statement. A total of 76% of the respondents do not research financial-related information during working hours, whereas only 7% indicated that they do. Figure 4.20 graphically represents the trend of the responses received.

TABLE 4.17 DESCRIPTIVE STATISTICS ON IMPACT

Code	Statement	Disagree	Neutral	Agree	Missing	Mean	Std Dev.
			Percentage				
IMPA1	I find that concerns of a financial nature impact my personal well-being.	22%	16%	60%	2%	3.72	1.50
IMPA2	I find myself demotivated in the workplace due to financial concerns.	47%	15%	38%	0%	2.84	1.58
IMPA3	I research financial-related information during working hours.	76%	15%	7%	2%	1.74	1.14
AVERAGE MEAN SCORE						**2.77**	

Source: Own construction

FIGURE 4.20 HISTOGRAM ON IMPACT
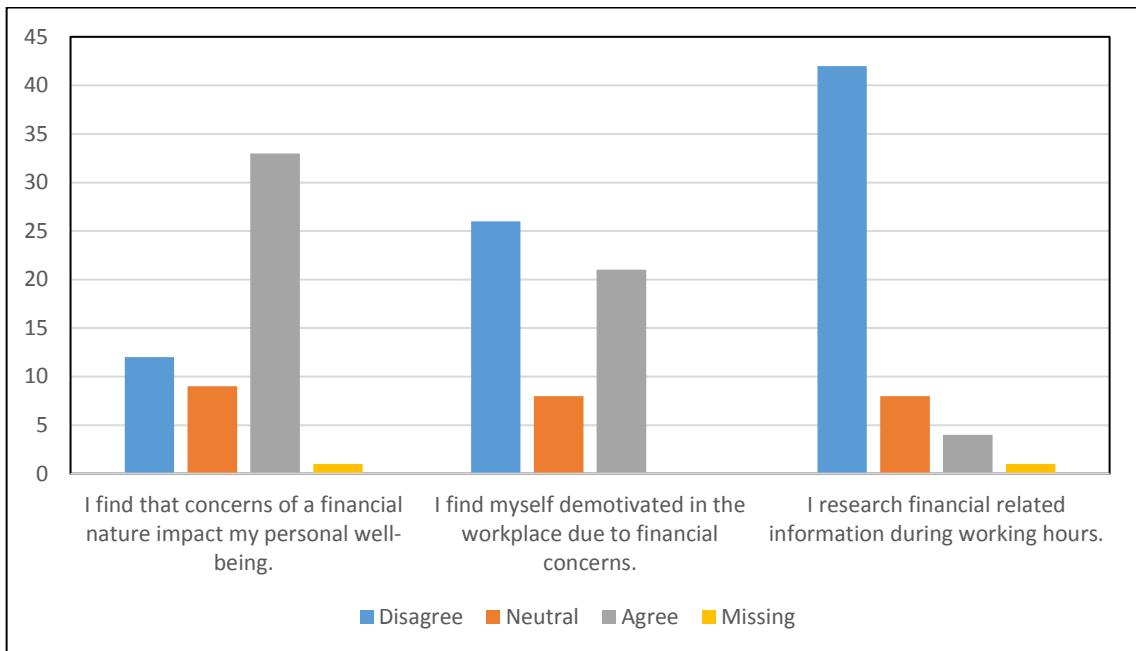
Source: Own construction

4.3.5.2   Financial satisfaction per job level

Additional statements were included in the questionnaire, which relate to the employees' perceptions of their job and their income earned. These are indicated in Table 4.18 below.

The statement, JOBL1, requests the respondents to rate whether or not they feel financially secure. The majority of respondents disagreed. A percentage of 53% reflects the responses which were in disagreement, 29% were neutral, whereas only 16% felt that they were financially secure. Similarly, 60% thought that they did not earn enough money to support their lifestyles and 89% wanted to earn a higher salary.

When asked if the respondents felt that they were fairly compensated for the roles they perform, 40% agreed, whereas 53% disagreed. Interestingly, 40% of the respondents believed that their level of education did not have an impact on their levels of financial literacy, whereas 44% felt that education had an impact.

TABLE 4.18 DESCRIPTIVE STATISTICS ON HOW EMPLOYEES PERCEIVE
THEIR INCOME EARNED IN THE WORKPLACE

Code	Statement	Disagree	Neutral	Agree	Missing	Mean	Std Dev.
		Percentage					
JOBL1	I feel financially secure.	53%	29%	16%	0%	2.28	1.31
JOBL2	I earn enough to support my lifestyle.	60%	22%	15%	4%	2.11	1.22
JOBL3	I would like to earn a higher salary.	5%	0%	89%	5%	4.73	0.89
JOBL4	I feel that I am fairly compensated for the work I perform.	53%	7%	40%	0%	2.64	1.63
JOBL5	I am of the opinion that my level of education influences my level of financial literacy.	40%	16%	44%	0%	2.93	1.59
AVERAGE MEAN SCORE						**2.94**	

Source: Own construction

FIGURE 4.21 HISTOGRAM ON HOW EMPLOYEES PERCEIVE THEIR INCOME
EARNED IN THE WORKPLACE
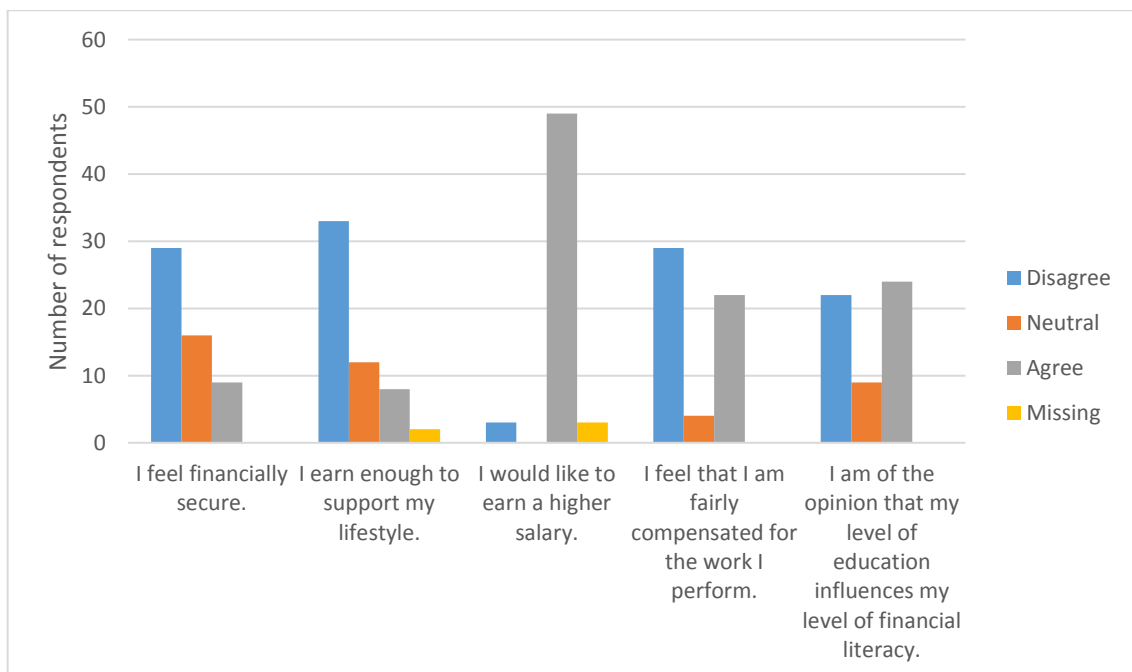
Source: Own construction

Figure 4.21 above reflects the graphical representation of the responses received. A clear outlier, where an overwhelming majority of the respondents is in agreement, is the statement that the respondents would like to earn a higher salary.

The mean scores of this variable ranged from 2.11 to 4.73 with the average mean score of 2.94. The average mean score indicates that the responses provided showed a slight tendency towards an agreement. The standard deviations for this variable ranged from 0.89 to 1.63. A low standard deviation indicates that the data points tend to be very close to the mean, whereas a high standard deviation shows that the data points are spread out over a larger range of values. The broader standard deviations in this variable indicate the range of answers provided. In statements, JOBL1, JOBL2 and JOBL4, the majority of the respondents disagreed with the statement. However, the strong, positive answer for statement JOBL3 has skewed the results.

4.3.6 Strategies to improve the financial intelligence of employees

As the purpose of this study is to develop strategies to improve the financial intelligence of employees, the researcher found it prudent to enquire of the respondents as to what strategies they think will assist them in improving their financial literacy. The statements in Table 4.19 were included in the questionnaire to gather insight into this aspect.

An overwhelming majority of the respondents, namely 76%, agrees that financial literacy courses should be offered by employers, whereas 51% believe that research undertaken by themselves could increase their financial literacy. A strong majority thinks employee wellness programmes, such as debt counselling, could improve the financial literacy of employees.

The response to whether respondents are aware of an employee wellness programme offered by their employer, which assists employees with debt management, are almost evenly spread. Altogether 51% of the respondents indicated that they would consider completing an online course, which would improve their level of financial literacy, and similarly, 51% said that they learned their money management from their parents or

someone older than themselves. Figure 4.22 graphically represents the trend of the responses received.

TABLE 4.19 DESCRIPTIVE STATISTICS ON STRATEGIES

Code	Statement	Disagree	Neutral	Agree	Missing	Mean	Std Dev.
			Percentage				
STRA1	Financial literacy courses should be offered by employers.	13%	11%	76%	0%	4.13	1.29
STRA2	I think research undertaken by employees themselves could increase their financial literacy.	18%	29%	51%	2%	3.59	1.31
STRA3	I think employee wellness programmes, such as debt counselling, could improve the financial literacy of employees	18%	7%	75%	0%	4.13	1.47
STRA4	I am aware of an employee wellness programme offered by my employer which assists employees with debt management.	38%	27%	35%	0%	3.02	1.46
STRA5	I would consider completing an online course which would improve my level of financial literacy.	22%	27%	51%	0%	3.49	1.41

STRA6	I learned my money management from my parents or someone older than myself.	35%	13%	51%	2%	3.24	1.69
AVERAGE MEAN SCORE						**3.60**	

Source: Own construction

FIGURE 4.22 HISTOGRAM ON STRATEGIES
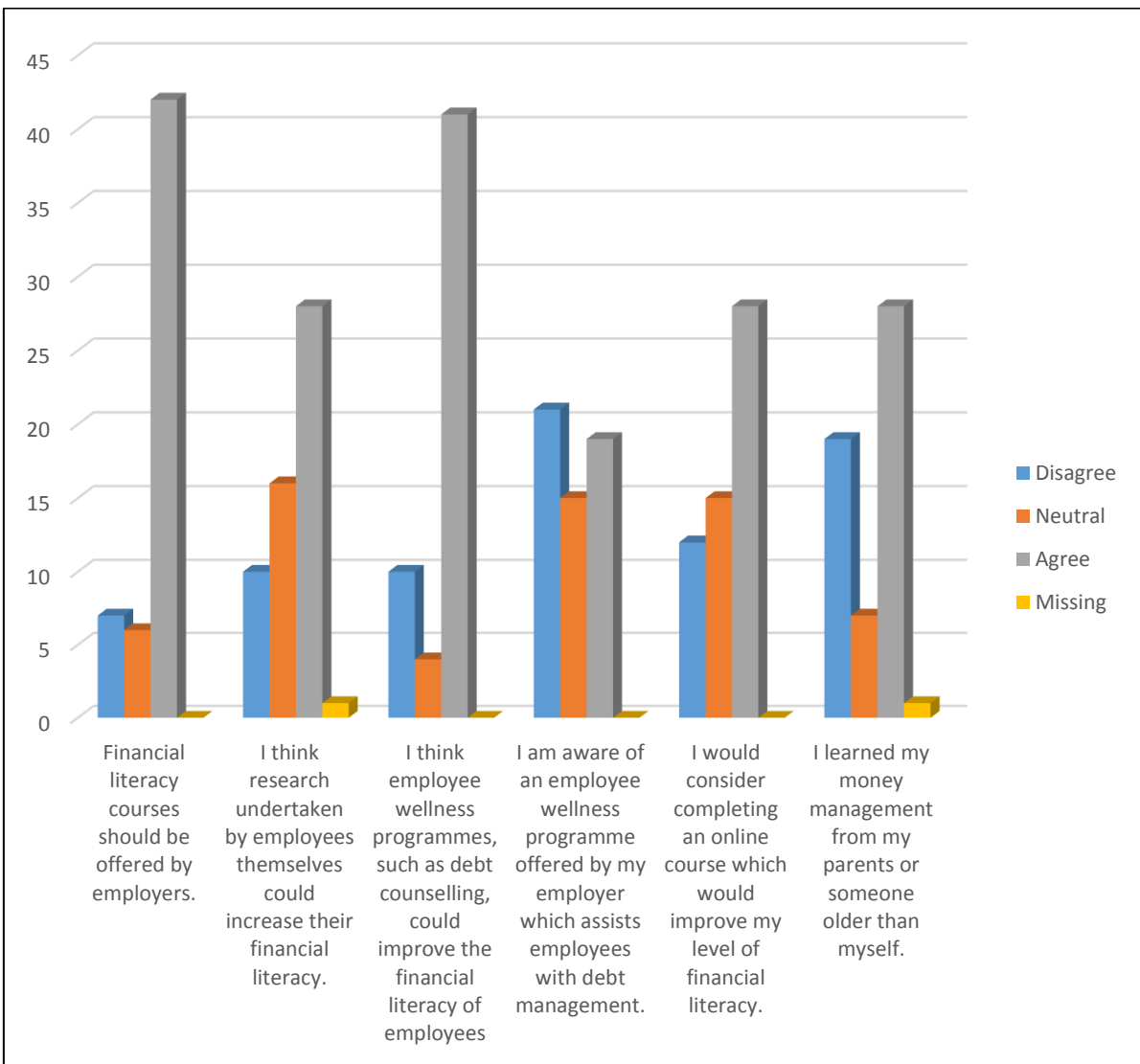
Source: Own construction

4.4 CHAPTER SUMMARY

This chapter sought to analyse, present and discuss the results from the data collected during the study. The data analysis approach was outlined, including how the research instrument was constructed. An empirical study was determined to the one most suited to the research. A questionnaire was constructed which included variables which addressed the research questions. The questionnaire was then distributed to employees of a State-Owned Enterprise.

The empirical results were presented and depicted in tables and graphs. Statistical correlations between the independent and dependent variables as well as between the nominal and dependent variables were discussed and data analysed. The analysis revealed that only 24% of the respondents were financially literate. A staggering 76% were not financially literate.

Chapter Five will include the formulation of conclusions and recommendations drawn from the data analysed.

CHAPTER 5 - RECOMMENDATIONS AND CONCLUDING REMARKS

5.1 INTRODUCTION

This chapter summarises the research methodology which has been utilised in the study. The results from the empirical analysis and the descriptive statistics provided in Chapter Four will be linked with the research objectives and hypotheses. The purpose of this chapter is to present conclusions that are drawn from the study and implications for management. The conclusions will be linked to recommendations for improving employees' financial intelligence. Limitations of the study will also be noted and future research areas will be considered.

Figure 5.1 provides a layout of the treatise.

Figure 5.1: Layout of treatise

| Chapter 1 Background & introduction | Chapter 2 Literature review | Chapter 3 Research methodology | Chapter 4 Research results | Chapter 5 Conclusion |
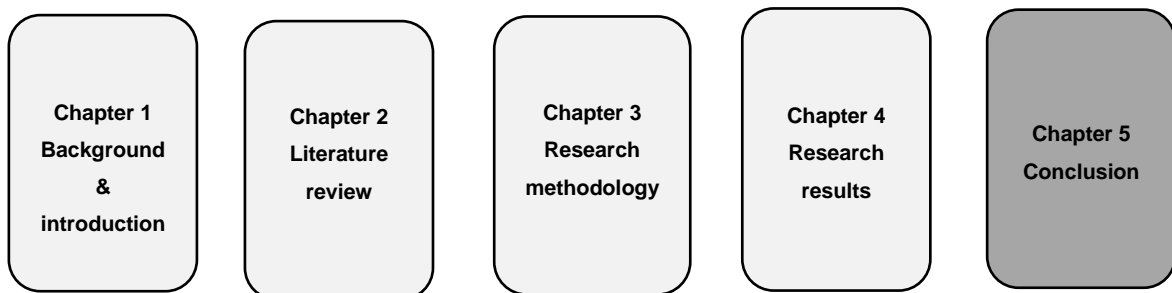
Source: Own construction

5.2 STUDY OVERVIEW

This research study aimed to determine what influences the level of financial intelligence of employees and then to develop strategies to address this level of financial intelligence. To do so, the level of financial intelligence had to be determined.

Chapter One stated the main problem statement and hypothesised the relationships to be investigated. Chapter Two detailed the literature reviewed to address the problem statement, as mentioned in Chapter One, whereas Chapter Three highlighted the research methodology applied for this study. Chapter Four provided the empirical results obtained from the survey conducted.

The research questions relevant to this study are listed below. The recommendations and conclusions to each of these questions will be detailed in the following section.

RQ 1   What is the relationship between age and the level of financial literacy?

RQ 2   What is the relationship between gender and the level of financial literacy?

RQ 3   What is the relationship between job level and the level of financial literacy?

RQ 4   What is the relationship between education and the level of financial literacy?

RQ 5   What is the relationship between access to digital information and the level of financial literacy?

RQ 6   What is the relationship between financial literacy and employees' knowledge of budgeting?

RQ 7   What is the relationship between financial literacy and employees' saving culture?

RQ 8   What is the relationship between financial literacy and employees' knowledge of debt management?

5.3 CONCLUSIONS AND RECOMMENDATIONS

5.3.1 Financial literacy

To answer all the research questions, it was imperative that the level of financial literacy or intelligence be determined. As discussed in Chapter Two and Chapter Three, financial literacy can be assessed via four categories. These categories are

risk diversification, inflation, numeracy and compound interest. A person is defined as financially literate when he or she correctly answers at least three out of the four financial concepts described above (Klapper, Lusardi & Van Oudheusden, 2015). The assessment of financial literacy was included in the questionnaire.

5.3.1.1 Conclusion

Of the total of 55 respondents, only 13 obtained three or more correct answers. This equates to a percentage of just 24%. This percentage is far below the global average of 51% ((SAIA's financial literacy project a world first for South Africa, 2019) and the national South African average of 48% (Leibbrandt *et al.*, 2018).

The question which tested numeracy scored the highest positive result of the four questions. Altogether 56% of the respondents answered this question correctly. This trend is similar to those noted in other studies where the same assessment was done (Leibbrandt *et al.*, 2018). The question on numeracy is the easier question of the four.

The question which tested compound interest scored the second-best among the four questions. In this question, 42% of the respondents answered the question correctly. This is still, however, below the national South African and global averages.

The questions which tested risk diversification and inflation fared worse, with correct scores of 38% and 33% respectively. These scores are drastically below the pre-determined averages discussed above.

It can be concluded that most respondents are not financially literate.

5.3.2 Age

RQ 1: What is the relationship between age and the level of financial literacy?

This question was answered by obtaining the respondents' age and comparing it to their level of financial literacy, to determine if a correlation existed.

5.3.2.1 Conclusion

The respondents' ages varied from 20 to over 60 years, with 67% of them between the ages of 30 and 50 years. A Chi-square was calculated to investigate whether age groups differ with regards to financial literacy. The p –value equated to 0.29. Thus, the results indicate no correlation between age and financial literacy in the context of this study.

According to Klapper (2017) in Section 2.6.1, 63% of those aged 35 to 50 are financially literate. Although, for major emerging economies, it is indicated that the youth between the ages of 15 and 35 are the most financially literate. South Africa is considered to be a major emerging economy.

However, the results of this study are not aligned to that of previous studies. It can be concluded that in the context of South Africa, financial illiteracy is a matter, which should be addressed across all age groups.

5.3.3 Gender

RQ 2 What is the relationship between gender and the level of financial literacy?

This question was answered by obtaining the respondents' gender and comparing it to their level of financial literacy, to determine if a correlation existed.

5.3.3.1 Conclusion

Of the 55 respondents, 43 were males and 12 females. A two-sample t-test was conducted to investigate whether gender groups differ with regard to financial literacy. The results revealed no overall correlation between gender and financial literacy in the context of this study.

Globally, 35% of men are financially literate, compared to 30% of women. The gender gap is found in both emerging economies and advanced economies (Klapper *et al.*, 2015). However, a study done by the OECD indicates that in South Africa, this gender

gap is not apparent (OECD, 2017). A study done by Leibbrandt *et al.* (2018), however, indicates that South African women display a lower than average level of financial literacy.

It can be concluded that in the context of South Africa, financial illiteracy is to be addressed across all gender groups.

5.3.4 Job level

RQ 3 What is the relationship between job level and the level of financial literacy?

This question was answered by obtaining the respondents' job level and comparing it to their level of financial literacy, to determine if a correlation existed.

5.3.4.1 Conclusion

Of the 55 respondents, 83% were junior-level employees, whereas 17% were management employees. The job level is correlated to the pay scale at the state-owned entity. As the level increases, the respondents' salary rises. The results revealed that financial literacy levels are significantly different among the job levels in this sample.

A correlation between the amount of wealth and the level of financial literacy has been found, with wealthy adults having better financial skills than the poor (Klapper *et al.*, 2015). Kavanagh (2016) found that financial literacy is a significant issue at all income levels.

The data indicates that an additional focus should be placed on improving the financial literacy of not only the poor but all individuals.

5.3.5 Education

RQ 4 What is the relationship between education and the level of financial literacy?

This question was answered by determining the respondents' level of education and comparing it to their level of financial literacy, to determine if a correlation existed.

5.3.5.1 Conclusion

Of the 55 respondents, 58% have a secondary education, 36% a tertiary education and 11% hold a postgraduate qualification. This distribution is correlated to the educational demographics of South Africa (Stats SA, 2016). However, the results revealed no overall correlation between education level and financial literacy in the context of this study.

Other studies find that financial literacy drastically increases with educational attainment. Among those who have primary education, that is, up to eight years of schooling, only 31% are financially literate. A similar differential is noted between adults with secondary versus tertiary education. Among adults with tertiary education, 73% are financially literate. The education gaps are similar in the major emerging economies (Klapper *et al.*, 2015).

However, the results of this study indicated otherwise. The data shows that an additional focus should be placed on improving the financial literacy of all individuals, not only those who are uneducated.

5.3.6 Access to digital information

RQ 5 What is the relationship between access to digital information on the level of financial literacy?

This question was answered by determining whether the respondents' access to digital information has an impact on their levels of financial literacy, to determine if a correlation existed.

5.3.6.1   Conclusion

Of the 55 respondents, 36% have access to the internet, whereas 51% do not have access. Whereas 82% of respondents have a bank account, only 38% use internet banking. A majority of the respondents was more comfortable going into a brick and mortar bank, does not have access to the internet and does not use a mobile device or personal computer to access the internet. The results revealed no overall correlation between access to digital information and financial literacy in the context of this study.

The Fourth Industrial Revolution brings with it numerous technological advances. In such an evolving information technology landscape, financial information is more abundant than ever before. However, people often lack the financial knowledge to use the new information provided to them in the new age of information sharing (Schwab, 2016; Killins, 2017).

In the context of this study, no correlation was found between the respondents' level of financial literacy and their access to digital information, even though more information is available to individuals to enable them to make informed decisions. It can be concluded that individuals are not utilising the technologies available to them effectively.

5.3.7 Budgeting

RQ 6: What is the relationship between financial literacy and employees' knowledge of budgeting?

This question was answered by determining whether the respondents' knowledge of budgeting has an impact on their level of financial literacy, to determine if a correlation existed.

5.3.7.1   Conclusion

The majority of respondents understands what a budget is and prepares a monthly budget to manage their personal finances. However, 22% do not understand a budget

and 24% do not prepare budgets. There is an equal spread of answers regarding whether respondents can stick to a budget. The results revealed no overall correlation between budgeting knowledge and financial literacy in the context of this study.

A survey done by French and McKillop (2016) finds that budgeting is a particular weakness among their respondents; more people did not make detailed budgets and only a small majority was able to adhere to their budgets. Farinella *et al.* (2017) argue that budgeting, controlling debt, and maximising savings are the keys to financial success.

The data indicates that an additional focus should be placed on improving the financial literacy of all individuals, including those who can and cannot budget.

5.3.8 Saving culture

RQ 7 What is the relationship between financial literacy and employees' saving culture?

This question was answered by determining whether the respondents' savings culture has an impact on their level of financial literacy, to determine if a correlation existed.

5.3.8.1   Conclusion

Of the 55 respondents, 71% indicated that they would like to save more monthly, 47% agreed that they were preparing for retirement and the majority contributes toward a retirement fund. Despite the evidence of this positive savings culture amongst the respondents, no correlation could be found between a savings culture and the level of financial intelligence in the context of this study.

There is evidence that improved knowledge of financial matters, leads to wiser choices in investing and saving, in preparing for retirement (Lusardi & Mitchell, 2014). The importance of a savings culture lies in the fact that it not only nurtures a sensibility of financial management, but also one of life management (Muganza, 2013).

Tackling savings issues requires one to acknowledge the cultural, behavioural and perhaps most importantly, the underlying economic causes (Lawlor, 2018). It is evident that whereas the importance of a savings culture is imperative, much is to be done to develop such a culture.

5.3.9 Debt management

RQ 8 What is the relationship between financial literacy and employees' knowledge of debt management?

This question was answered by determining whether the respondents' management of debt has an impact on their level of financial literacy, to determine if a correlation existed.

5.3.9.1 Conclusion

Of the 55 respondents, the majority indicated that they did not understand how the interest on credit cards and mortgage bonds is derived. This is very disturbing considering the levels of household debt in South Africa. Most respondents endeavoured to pay their debts as they fell due. No correlation could be found between debt management and the level of financial intelligence in the context of this study.

5.4   SUMMARY OF RESEARCH FINDINGS

The conclusions which emanate from the detail above, indicate that age, gender, job grade, level of education, access to digital information, a savings culture, budgeting and debt management do not correlate significantly with the dependent variable of financial intelligence.

5.5   ACCEPTANCE OR REJECTION OF RESEARCH HYPOTHESES

Eight (8) hypotheses were formulated in this study, as included in Chapter One. The findings below provide detail as to whether or not the hypotheses are accepted or rejected.

Hypothesis 1 (H1)

H1: There is a positive relationship between age and the level of financial literacy.

The results revealed that age is not positively nor significantly related to financial literacy. The hypothesis is therefore rejected.

Hypothesis 2 (H2)

H2: There is a positive relationship between gender and the level of financial literacy.

The results revealed that gender is not positively nor significantly related to financial literacy. The hypothesis is therefore rejected.

Hypothesis 3 (H3)

H3: There is a positive relationship between job level and the level of financial literacy.

The results revealed that job level is not positively nor significantly related to financial literacy. The hypothesis is therefore rejected.

Hypothesis 4 (H4)

H4: There is a positive relationship between education level and the level of financial literacy.

The results revealed that education level is not positively nor significantly related to financial literacy. The hypothesis is therefore rejected.

Hypothesis 5 (H5)

H5: There is a positive relationship between access to digital information and the level of financial literacy.

The results revealed that access to digital information is not positively nor significantly related to financial literacy. The hypothesis is therefore rejected.

Hypothesis 6 (H6)

H6: There is a positive relationship between financial literacy e and employees' knowledge of budgeting.

The results revealed that knowledge of budgeting is not positively nor significantly related to financial literacy. The hypothesis is therefore rejected.

Hypothesis 7 (H7)

H7: There is a positive relationship between financial literacy and employees' savings culture.

The results revealed that savings culture is not positively nor significantly related to financial literacy. The hypothesis is therefore rejected.

Hypothesis 8 (H8)

H8: There is a positive relationship between financial literacy and employees' knowledge of debt management.

The results revealed that debt management is not positively nor significantly related to financial literacy. The hypothesis is therefore rejected.

5.6   STRATEGIES TO IMPROVE EMPLOYEE FINANCIAL INTELLIGENCE

The respondents indicated the following as possible strategies which could assist them in improving their levels of financial intelligence:
- Financial literacy courses offered by employers;

- Research should be undertaken by employees themselves which could increase their financial literacy;
- Employee wellness programmes, such as debt counselling, could improve the financial literacy of employees;
- Completion of online courses would improve the employees' level of financial literacy;
- Budgeting and money management courses;
- Financial advisors to be appointed by employers;
- Debt counselling of employees.

Many of these strategies relate to increasing the respondents' level of financial knowledge through education. As discussed above, studies find that financial literacy drastically increases with educational attainment (Klapper *et al.*, 2015). Even though the findings of this study are contrary to this statement, there is value in addressing the employees' concerns.

5.7   LIMITATIONS OF THE STUDY

The research was limited due to the following:

- The demarcation of the survey was distributed to employees of a state-owned entity in the Eastern Cape area of South Africa only. The findings of this research may not be the same in other regions or internationally;

- A larger sample could not be considered as a result of the limited timeframe that was associated with the study.

- Since just 24% of the respondents are considered financially literate, there is a corresponding impact on each of the hypotheses, which were tested.

- The questionnaire was based on face validity, which could not be tested as the sample was too small. It is recommended that another test be done with an

increased sample on each individual variable and a factor analysis could be done.

5.8   RECOMMENDATIONS FOR FUTURE STUDY

The limitations highlighted above, indicate that there is a need to conduct further studies in this field.   The sample size should be increased to obtain a greater disbursement of respondents.   Similarly, future studies could cover more than one region of South Africa.

5.9   CHAPTER SUMMARY

The purpose of this study was to develop strategies to improve employee financial intelligence.   To do this, the current level of employee financial literacy had to be determined.   This was done via four questions, which were included in the questionnaire, which would assess whether the respondent was financially literate.

A conceptual framework was formulated to determine the impact of the independent and nominal variables on financial intelligence.   A questionnaire was constructed to determine the impact of the independent and nominal variables on the dependent variable. The questionnaire was distributed and 55 questionnaires were returned. The results from the questionnaire were captured and submitted for statistical data analysis.   The results of the statistical analysis determined whether there were significant correlations between the independent, nominal and dependent variables.

Unfortunately, the results of this study indicated that none of the hypothesised relationships existed, despite the literature indicating otherwise. It is recommended that the state-owned entity's management take note of the results, which have emerged from the study and consider implementing the proposed strategies to improve employee financial intelligence.

REFERENCES

Agarwal, T. (2016). Twin pillars of Indian banking: Financial literacy and financial inclusion. SIES Journal of Management, 12(2), 3-12.

Arnolds, C. (2017). Research Project Proposal. Study Unit 8: Data Analysis.

Asli, D., Klapper, L., Singer, D. & Van Oudheusden, P. (2015). The Global Findex Database 2014: Measuring Financial Inclusion around the World, World Bank Policy Research Working Paper 7255.

"Budgeting" (2018). Retrieved from https://dictionary.cambridge.org/dictionary/english/budgeting.

Bannon, S., Ford, K. & Meltzer, L. (2014). Financial Literacy Programs in the Workplace. CPA Journal, 84(9), 67-71

Bhat, A. (2019). Data Collection: definition, methods, example and design. Retrieved from https://www.questionpro.com/blog/data-collection.

Chiang, C.A. & Price, P. (2019). Reliability and Validity of Measurement. Retrieved from https://opentextbc.ca/researchmethods/chapter/reliability-and-validity-of-measurement.

Chatterjee, S., Fan, L., Jacobs, B., & Haas, R. (2017). Risk Tolerance and Goals-Based Savings Behavior of Households: The Role of Financial Literacy. Journal Of Personal Finance, 16(1), 66-77.

Cornfield, J. (2014). Considerations for Employee Financial Literacy Programs. Retrieved from https://www.plansponsor.com/considerations-for-employee-financial-literacy-programs.

Debt Restructuring, (2017). Retrieved from http://www.maxlaw.co.za/services/debt-restructuring.

Emolument attachment orders, (2019). Retrieved from https://www.legalwise.co.za/help-yourself/quicklaw-guides/emoluments-attachment-orders.

Essays, UK. (November 2018). Research Onion – Explanation of the Concept. Retrieved from https://www.ukessays.com/essays/psychology/explanation-of-the-concept-of-research-onion-psychology-essay.php?vref=1.

Financial literacy programs. (2015). Small Business Advisor (1069-9619), 31(5), 11-12

Farinella, J., Bland, J., & Franco, J. (2017). The impact of financial education on financial literacy and spending habits. International Journal Of Business, Accounting, & Finance, 11(1), 1-12.

Gale, W. G., Harris, B. H., & Levine, R. (2012). Raising household Saving: Does financial education work ?. Social Security Bulletin, 72(2), 39-48

Grohmann, A., & Menkhoff, L. (2017). Financial literacy promotes financial inclusion in both poor and rich countries. DIW Economic Bulletin, 7(41), 399-407.

How to use good debt rather than bad debt, (2016). Retrieved from https://www.fin24.com/Debt/Managing-Debt/how-to-use-good-debt-rather-than-bad-debt-20160628

Hussey, J. C. R. (2014). Business Research (4th ed.): Macmillan Education.

Huston, S.J. (2010). Measuring Financial Literacy. The Journal of Consumer Affairs, Volume 44, No. 2, p296.

Kadlec, D. (2012). Proof That Workplace Financial Education Works. Retrieved from http://business.time.com/2012/07/19/new-evidence-says-workplace-financial-education-effective/

Kaiser, T., & Menkhoff, L. (2017). Does Financial Education Impact Financial Literacy and Financial Behavior, and If So, When?. World Bank Economic Review, 31(3), 611-630. doi:10.1093/wber/lhx018

Kavanagh, J. (2016). Building resilience through financial literacy. Journal Of The Australian & New Zealand Institute Of Insurance & Finance, 39(4), 7-10.

Killins, R. N. (2017). The financial literacy of Generation Y and the influence that personality traits have on financial knowledge: Evidence from Canada. Financial Services Review, 26(2), 143-165.

Klapper, L. Lusardi A. & van Oudheusden, P. (2015). Financial Literacy Around the World: Insights from the Standard & Poor's Ratings Services Global Financial Literacy Survey.

Lawlor, P. (2018). Why do we struggle to save? Retrieved from https://www.investec.com/en_za/focus/money/tackling-south-africas-savings-problems.html

Lehohla, P. (2016). Living Conditions Survey 2014/15. Retrieved from http://www.statssa.gov.za/?page_id=1856&PPN=P0277&SCH=6596.

Leibbrandt, M. & Nanziri, E.L. (2018) Measuring and profiling financial literacy in South Africa, South African Journal of Economic and Management Sciences. Authors: Elizabeth L. Nanziri1 Murray Leibbrandt.

Lusardi A. (2015). Financial literacy: Do people know the ABCs of finance? Public Understanding of Science, 24, 260-271.

Lusardi A. & de Bassa Scheresberg,C. (2013). Financial Literacy and High-Cost Borrowing in the United States, NBER Working Paper 18969.

Lusardi A., & Mitchell, O. (2014). The Economic Importance of Financial Literacy: Theory and Evidence, Journal of Economic Literature, American Economic Association, Vol. 52(1), pp. 5-44, March.

Lusardi A. & Tufano, P. (2015). Debt Literacy, Financial Experiences, and Over Indebtedness, Journal of Pension Economics and Finance, Vol. 14, special issue 4, pp. 332-328, October.

Marcolin, S. & Abraham, A. (2006).Financial Literacy Research: Current Literature and Future Opportunities. http://ro.uow.edu.au/commpapers/223/.

Malouf, M. (2012). A Global View of the Benefits of Employee Financial Wellness. Employee Benefit Plan Review, 66(11), pp. 15-17

Mboweni , O. (2017). S&P downgrades South Africa's credit rating to junk status. Retrieved from https://mg.co.za/article/2017-04-03-sp-downgrades-south-africas-credit-rating-to-junk-status

Nanziri, L.E. & Olckers, M. (2019) Financial literacy in South Africa.

Németh, E., Jakovác, K., Mészáros, A., Kollár, P., & Várpalotai, V. (2016). Insight and Blight - Initiatives on Enhancing Financial Literacy in Hungary. Public Finance Quarterly (0031-496X), 61(3), pp. 401-422.

OECD (2014) PISA 2012 Results: Students and Money: Financial Literacy Skills for the 21st Century. PISA. [Online]. OECD Publishing. URL http://www.oecd.org/pisa/keyfindings/PISA-2012-results-volume-vi.pdf

OECD (2017), PISA 2015 Results (Volume IV): Students' Financial Literacy, PISA, OECD Publishing, Paris, https://doi.org/10.1787/9789264270282-en.

"Personal Budgeting Pointers", 2018. Retrieved from https://www.standardbank.co.za/southafrica/personal/learn/personal-budgeting-pointers.

Principles of Research Ethics. (2019) Retrieved from http://dissertation.laerd.com/principles-of-research-ethics.php.

Riitsalu, L., & Põder, K. (2016). A glimpse of the complexity of factors that influence financial literacy. International Journal Of Consumer Studies, 40(6), pp. 722-731. doi:10.1111/ijcs.12291

SAIA's financial literacy project a world first for South Africa (2019) Retrieved from http://www.brightmedia.co.za/index.php/news/161-saia-s-financial-literacy-project-a-world-first-for-south-africa.html.

Saving in the South African context. (2019). Retrieved from https://www.alexanderforbes.co.za/articles/saving-in-the-south-african-context.

Smit, S. (2019). Unemployment rate at 29% - StatsSA. Retrieved from https://mg.co.za/article/2019-07-30-unemployment-rate-at-29-statssa.

South African consumer indebtedness should be a serious concern for policy makers, 2019. Retrieved from https://www.southafricanmi.com/sa-consumer-debt-16apr2019.html.

StatsSA. (2016). P0211 - Quarterly Labour Force Survey (QLFS), 4th Quarter 2016. Retrieved from http://www.statssa.gov.za/?page_id=1854&PPN=P0211.

Van Sittert, C. (2013). The incidence of and undesirable practices relating to "Garnishee Orders".

Ventruella, G. (2017). One graph shows how bad South Africa's consumer debt is. Retrieved from https://businesstech.co.za/news/business/128445/one-graph-shows-exactly-how-bad-south-africas-consumer-debt-crisis-has-become.

Visser, A. (2018). How to tackle debt. Retrieved from
https://www.fin24.com/Finweek/Personal-finance/how-to-tackle-debt-20180510.

Wegner, T (2016). Applied Business Statistics (4th ed.): Juta and Company Ltd.

What are research instruments? (2019). Retrieved from
https://lib.dmu.edu/db/cinahl/instruments.

ANNEXURES

ANNEXURE 1: THE COVERING LETTER OF THE QUESTIONNAIRE

4 October 2018

Dear Respondent

I am studying towards my MBA (Master in Business Administration) degree at the Nelson Mandela University Business School. I am conducting research on strategies to improve the financial intelligence of employees. I believe that my study will make an important contribution to the staff development in the organisation.

You are part of our sample of respondents whose views we seek on the above-mentioned matter. We would therefore appreciate it if you could answer a few questions. It should not take more than twenty minutes of your time and we want to thank you in advance for your co-operation.

There are no correct or incorrect answers. Please answer the questions as accurately as possible. For each statement, tick the number which best describes your experience or perception. For example, if you strongly agree with the statement, tick the number 5. If you strongly disagree with the statement, tick the number 1 and if not sure, tick the number 3. **Tick only one answer for each statement and answer all questions please.** Please note also that your participation in this study is entirely voluntary and that you have the right to withdraw from the study at any stage. We also guarantee your anonymity and the confidentiality of information acquired by this questionnaire. Neither your name nor the name of your firm will be mentioned in the study.

Thank you very much.

Contact details: Perine Vencencie at (0837915055) or (perine.vencencie@transnet.net).To verify the authenticity of the study, please contact Prof CA Arnolds at 041-5043807 and cecil.arnolds@mandela.ac.za.

ANNEXURE 2: MEASURING INSTRUMENTS

<u>**SECTION A**</u>

No.	Statement	Strongly disagree ——————— Strongly agree				
Please indicate the extent to which you disagree/ agree with the following statements:						
1	I feel financially secure.	1	2	3	4	5
2	I would like to save more every month.	1	2	3	4	5
3	I understand what a budget is.	1	2	3	4	5
4	Financial literacy courses should be offered by employers.	1	2	3	4	5
5	I have access to the internet.	1	2	3	4	5
6	I find that concerns of a financial nature impact my personal well-being.	1	2	3	4	5
7	I understand how the interest calculation works on credit cards.	1	2	3	4	5
8	I am prepared/preparing for retirement.	1	2	3	4	5
9	I earn enough to support my lifestyle.	1	2	3	4	5
10	I think research undertaken by employees themselves projects could increase their financial literacy.	1	2	3	4	5
11	I access the internet on a mobile device most often.	1	2	3	4	5
12	I find myself demotivated in the workplace due to financial concerns.	1	2	3	4	5
13	I understand how the interest calculation works on mortgage bonds.	1	2	3	4	5
14	I prepare a monthly budget to manage my personal finances.	1	2	3	4	5

15	I would like to earn a higher salary.	1	2	3	4	5
16	I think employee wellness programmes, such as debt counselling, could improve the financial literacy of employees	1	2	3	4	5
17	I access the internet on a personal computer most often.	1	2	3	4	5
18	I contribute towards a retirement fund.	1	2	3	4	5
19	I have a bank account.	1	2	3	4	5
20	I understand monthly account statements sent to me by the firms I owe.	1	2	3	4	5
21	I feel that I am fairly compensated for the work I perform.	1	2	3	4	5
22	I am aware of an employee wellness programme offered by my employer which assists employees with debt management.	1	2	3	4	5
23	I am able to stick to the monthly budget set.	1	2	3	4	5
24	I am of the opinion that my level of education influences my level of financial literacy.	1	2	3	4	5
25	I make use of internet banking.	1	2	3	4	5
26	I try to pay my accounts on time every month.	1	2	3	4	5
27	I would consider completing an online course which would improve my level of financial literacy.	1	2	3	4	5
28	I research financial related information during working hours.	1	2	3	4	5
29	I learned my money management from my parents or someone older than myself.	1	2	3	4	5
30	I think financial institutions should assist with users understanding of budgeting.	1	2	3	4	5
31	I prefer to go into the bank to perform banking transactions.	1	2	3	4	5
32	It is a priority for me to pay my debts first before paying for anything else.	1	2	3	4	5

SECTION B

CLASSIFICATION DATA:

Please mark your selection to the following questions with an (X).

1 Do you meet the requirements for participating in this survey, namely (1) you are currently an employee of an SOE?

Yes		1
No		2

2 Please indicate your gender (for statistical purposes only)

Male		1
Female		2

3 Please indicate your educational level

Primary school		1
Senior secondary		2
Diploma		3
Bachelor degree		4
Post-graduate		5

4 Please indicate your age group

20-29		1
30-39		2
40-49		3
50-59		4
60+		5

5

Please indicate your years in service at the SOE

0-5 years		1
6-10 years		2
11-20 years		3
21-30 years		4
More than 30 years		5

6   Please indicate your job grade

L		1
K		2
J		3
I		4
H		5
G		6
F and above		7

7   Please indicate number of dependents

1		1
2		2
3		3
4		4
More than 4		5

8   Please indicate your marital status

Married		1
Living with spouse but unmarried		2
Single		3
Divorced / Separated		4
Widowed		5

SECTION C

Please mark your selection to the following questions with an (X).

1   I make use of store credit cards.

Yes		1
No		2

2.   Percentage of my income, on average, spent on debt repayments (including mortgage loans)?

Less than 30%		1
30%		2
40%		3
50%		4
More than 50%		5

3.   I have a garnishee order deducted from my salary.

Yes		1
No		2

4.   I rent or own a property (Please indicate the correct answer)

Rent		1
Own		2

5.   I would like to own a property but am not able to afford it.

Yes		1
No		2
Not Applicable		3

6. I have a mortgage bond

Yes		1
No		2

7. Suppose you have some money. Is it safer to put your money into one business or investment, or to put your money into multiple businesses or investments?

one business or investment;		1
multiple businesses or investments		2
don't know		3

8. Suppose over the next 10 years the prices of the things you buy double. If your income also doubles, will you be able to buy less than you can buy today, the same as you can buy today, or more than you can buy today?

less		1
the same		2
more		3
don't know		4

9. Suppose you need to borrow R100. Which is the lower amount to pay back:

R105		1
R100 plus 3 % interest		2
don't know		3

10. Suppose you put money in the bank for two years and the bank agrees to add 15 percent per year to your account. Will the bank add more money to your account the second year than it did the first year, or will it add the same amount of money both years?

more		1
the same		2
don't know		3

11. What type of educational offering do you believe would improve the level of financial literacy of employees in the workplace? Please write your response in the table below.

THANK YOU VERY MUCH FOR YOUR KIND CO-OPERATION!

ANNEXURE 3: ETHICS CLEARANCE

![Nelson Mandela Metropolitan University for tomorrow]

FORM E

ETHICS CLEARANCE FOR TREATISES/DISSERTATIONS/THESES

Please type or complete in black ink

FACULTY: *Business & Economic Sciences.*

SCHOOL/DEPARTMENT: Business School

I, (surname and initials of supervisor) *Poisat, P.*

the supervisor for (surname and initials of candidate) P.A. Botha

(student number) 200327186

a candidate for the degree of MBA

with a treatise/dissertation/thesis entitled (full title of treatise/dissertation/thesis):

Strategies to improve employee financial intelligence

considered the following ethics criteria *(please tick the appropriate block):*

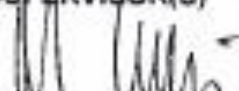|	YES	NO
1. Is there any risk of harm, embarrassment of offence, however slight or temporary, to the participant, third parties or to the communities at large?		x
2. Is the study based on a research population defined as 'vulnerable' in terms of age, physical characteristics and/or disease status?		x
2.1 Are subjects/participants/respondents of your study:		
(a) Children under the age of 18?		x
(b) NMMU staff?		x
(c) NMMU students?		x
(d) The elderly/persons over the age of 60?		x
(e) A sample from an institution (e.g. hospital/school)?		x
(f) Handicapped (e.g. mentally or physically)?		x

3. Does the data that will be collected require consent of an institutional authority for this study? (An institutional authority refers to an organisation that is established by government to protect vulnerable people)		x
3.1 Are you intending to access participant data from an existing, stored repository (e.g. school, institutional or university records)?		x
4. Will the participant's privacy, anonymity or confidentiality be compromised?		x
4.1 Are you administering a questionnaire/survey that:		
(a) Collects sensitive/identifiable data from participants?		x
(b) Does not guarantee the anonymity of the participant?		x
(c) Does not guarantee the confidentiality of the participant and the data?		x
(d) Will offer an incentive to respondents to participate, i.e. a lucky draw or any other prize?		x
(e) Will create doubt whether sample control measures are in place?		x
(f) Will be distributed electronically via email (and requesting an email response)?		x
Note: • If your questionnaire **DOES NOT** request respondents' identification, is distributed electronically and you request respondents to return it *manually* (print out and deliver/mail); **AND** respondent anonymity can be guaranteed, your answer will be NO. • If your questionnaire **DOES NOT** request respondents' identification, is *distributed via an email link and works through a web response system (e.g. the university survey system)*; **AND** respondent anonymity can be guaranteed, your answer will be NO.		

Please note that if ANY of the questions above have been answered in the affirmative (YES) the student will need to complete the full ethics clearance form (REC-H application) and submit it with the relevant documentation to the Faculty RECH (Ethics) representative.
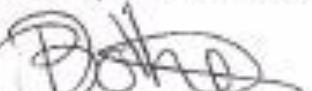
and hereby certify that the student has given his/her research ethical consideration and full ethics approval is not required.

_____   27-08-2017.
SUPERVISOR(S)   DATE

_____   29-08-2017.
HEAD OF DEPARTMENT   DATE

_____   18-08-2017
STUDENT(S)   DATE

Please ensure that the research methodology section from the proposal is attached to this form.