THE RELATIONSHIP BETWEEN FINANCIAL LITERACY AND RETIREMENT PLANNING, NELSON MANDELA BAY

XL Antoni
Rhodes University
Email: x.antoni@ru.ac.za
Orcid ID: 0000-0001-7789-1444

M Saayman
Nelson Mandela University
Email: michvier.mo@gmail.com
Orcid ID: 0000-0003-4741-8597

N Vosloo
Nelson Mandela University
E-mail: busman@Mandela.ac.za

─Abstract ─

One of the most common reasons that people fail to plan for retirement properly is that they have low levels of financial literacy. This study investigated the relationship between financial literacy and retirement planning of government employees who are members of the government's retirement plan in the Nelson Mandela Bay. A quantitative research design was adopted, which used a closed-ended questionnaire to collect the primary data from the respondents. A total of 122 government employees in the Nelson Mandela Bay participated in the study. To determine the validity of the factor of retirement planning, exploratory factor analysis and Cronbach's Alpha was used. While to establish the relationship between financial literacy and retirement planning, multiple regression analysis was used. The results revealed that most respondents had high levels of financial knowledge, as most of the respondents answered the questions about retirement products and investment concepts correctly. Also, it was revealed that most of the respondents had sufficient skills in financial numeracy. The main results of the study indicated that there is no relationship between financial knowledge and retirement planning; however, it was determined that the factor of financial numeracy has a positive relationship with retirement planning. It was recommended that trustees of retirement funds should attend to developing a financial education programme that will teach employees about financial concepts and improve their financial numeracy skills. This study contributes to the field of

financial planning in South Africa by providing empirical evidence on the importance of financial literacy for South African consumers.

Keywords: *Financial literacy, Retirement planning, Financial knowledge, Financial numeracy, Nelson Mandela Bay.*

JEL Classification: P46

1. INTRODUCTION

More than ten percent of South Africans realise they may need to work beyond their retirement age. South African consumers find themselves reaching retirement age without planning adequately for it (Botha, Du Preez, Geach, Goodall, Palframan & Rabenowitz 2014:143). For instance, in a study among pre-retired individuals in the Nelson Mandela Bay, Zeka (2017:22) found that most of the individuals were uncertain about their financial preparedness for retirement age. Similarly, in their study of individuals working in the Nelson Mandela Bay, Zeka and Matchaba-hove (2016:436) found that only 36.4% of these individuals were confident that they would have adequate retirement savings for retirement age. In addition, Nkoutchou and Eiselen (2012:40) surveyed individuals working in a single financial organisation in Johannesburg and found that only a few individuals believed that they would have saved adequate retirement income to be able to cover living expenses during their retirement period. These studies support the results that the majority of South African will reach retirement age with inadequately retirement income (Willows 2019:1; Bulter 2011:51). The reasons for this may be that consumers do not understand the need to plan for their retirement income, neither do they understand how much money they will need in order to retire comfortably (Bechard 2015; Botha *et al.* 2014:143). In the Nelson Mandela Bay, for instance, Zeka and Matchaba-hove (2016:439) found that the retirement knowledge of individuals has a positive relationship with retirement intentions. This means that individuals who are working in the Nelson Mandela Bay and who are knowledgeable about retirement funds are more likely to seek help for their retirement planning and to make provisions for retirement age. Zeka (2016:455) also found that financial literacy and time perspective has a positive relationship with retirement savings. This suggests that individuals who have high levels of financial literacy and who think about the future are more likely to contribute towards their retirement savings.

These results are cause for concern since individuals who reside in the Eastern Cape province have the lowest levels of financial literacy (Nanziri & Leibbrandt

2018:7). In addition, many authors have linked financial literacy to retirement planning (Lusardi & Mitchell 2006; Guiso & Jappelli 2008:17). This includes Nelson Mandela Bay, wherein retirement knowledge and financial literacy have been associated with retirement savings/intention (Zeka 2016:455; Zeka & Matchaba-hove 2016:439). However, none of the studies conducted in the province have investigated government employees in the Nelson Mandela Bay. This is particularly important in light of the fact that the government employee pension fund (GEPF) is the biggest retirement fund in South Africa (GEPF 2018:3). Furthermore, government employees also fail to make informed financial decisions regarding their retirement savings (Masombuka 2015; Matshediso 2015).

2. RESEARCH OBJECTIVES

Therefore, the primary objective of this study was to investigate the relationship between financial literacy and retirement planning amongst government employees of the Nelson Mandela Bay. In order to achieve this primary objective, the following secondary objectives were defined:

- To measure the financial literacy levels of government employees in the Nelson Mandela Bay.
- To measure the retirement planning levels of government employees in the Nelson Mandela Bay.

3. DESCRIPTION OF FINANCIAL LITERACY

Financial literacy has been defined as a specific form of knowledge, the ability or skills to apply that knowledge, perceived knowledge, responsible financial behaviour and financial experiences (Hung, Parker & Yoong 2009). Atkinson and Messy (2012:14) suggest that financial literacy is a combination of the awareness, financial knowledge, skills, attitude and behaviour necessary to make sound financial decisions and achieve financial goals. Another definition suggests that financial literacy is having the requisite financial knowledge and skills on particular issues in order to confidently take effective action that best realises an individual's personal and financial goals (National Financial Educators Council 2012:8, in Beale, Calder, Hayes, Johnson & Rose 2015). Buckland (2010:360) supports that financial literacy is influenced by an individual's aptitude to manage his/her finances in order to achieve his/her financial goals. For the purpose of this study, financial literacy refers to financial knowledge and financial skills such as financial numeracy.

3.1. Financial knowledge

Financial knowledge is one of the core elements of financial literacy and refers to the understanding of financial concepts that allow consumers to make informed financial decisions (Wilhem & Chao 2005:20). This means that a consumer needs to be knowledgeable on basic financial and economic concepts such as savings and investments, time value of money, debt management and insurance (Walstad, Rebeck & McDondald 2010:46; Skagerlund, Lind, Strömbäck, Tinghög, and Västfjäll, 2018:19). The components of financial knowledge may include savings and investments (Swart 2012:229). This may also include questions relating to the risk and return relationship, risk diversification and how stocks function (Lusardi & Mitchell 2011:8). Another component of financial knowledge is retirement planning, which includes questions about retirement concepts (Zeka 2017:20).

3.2. Financial numeracy

Skagerlund, *et al.* (2018:19) indicates that numeracy refers to consumers' ability to understand numbers, percentages and calculation procedures. Lusardi (2012:12) highlights that financial numeracy relates to the consumer's capacity to do calculations that assist in his/her financial decision making. In contrast, Huhmann and McQuitty (2009:273) indicate that financial numeracy refers to financial capacity and financial literacy. Financial capacity is the consumer's ability to comprehend information and statistics related to financial products, whereas financial literacy refers to consumers having sufficient knowledge of financial concepts. In this study, financial numeracy will refer to the consumer's ability to do financial calculations. These financial calculations may include an individual's ability to perform simple calculations, understand how compounded interest works, understand the effect of inflation and to understand the time value of money (Lusardi & Mitchell 2009).

4. FINANCIAL LITERACY AND RETIREMENT PLANNING

According to Botha *et al.* (2014), retirement planning consists of three stages. The first stage is planning for retirement, in which the individual works and makes financial provision towards his/her retirement age. The second stage is planning at retirement, in which the individual deals with issues such as the tax implications of withdrawing benefits immediately prior to retirement. The third stage is planning after retirement (post-retirement stage), in which the individual needs to ensure that he/she has adequate capital and preserves it during the retirement period (Botha *et al.* 2014:957).

One of the most prevalent reasons that people fail to properly plan for retirement is that they have low levels of financial literacy. In their investigation of the relationship between financial literacy and retirement planning, Lusardi and Mitchell (2011:2) found that financial literacy is strongly and positively associated with retirement planning. It was also found that financial knowledge is crucial for planning, as those who could not answer financial questions are less likely to plan and to succeed in their planning. Furthermore, it was found that those who have a better grasp of compounded interest and who understand risk diversification have higher wealth holdings (Lusardi & Mitchell 2011:15). Van Rooij, Lusardi and Alessie (2011:593) examined the relationship between financial knowledge and retirement planning in the Netherlands. Van Rooij *et al.* (2011:595) found that financially knowledgeable households are likely to plan for retirement. Brown and Craf (2013) investigated the relationship between financial literacy and retirement planning among households in Switzerland; they found that individuals who plan for retirement are more likely to have high levels of financial literacy.

5. RESEARCH HYPOTHESES

H_0: Financial literacy has no significant positive relationship with retirement planning.

H_1: Financial literacy has a significant positive relationship with retirement planning.

6. RESEARCH METHODOLOGY

6.1. Sampling and data collection

This study adopted a positivist research paradigm and implemented a quantitative research design. The target population for this study is all government employees in the Nelson Mandela Bay. This study used a non-probability sampling technique, namely, convenience sampling which allows for the selection of respondents who are the easiest to reach. The sample selection process continues until the required sample size has been reached (Lewis, Saunders & Thornhill 2009:241). The sample of this study consisted of individuals employed in the following government departments: Basic Education; Home Affairs; Labour; Social Development; South African Police Service; Correctional Services; Health; South African Revenue Services as well as the Telecommunications and Postal Services. Sample size refers to the minimum number of responses that must be provided by the respondents of the study (Wiid & Diggines 2013:242). Therefore, the minimum sample size of this study is equal to the five-point scale multiplied

by 40 statements; this means that the study requires a total of 200 respondents who are employed by the government and who are members of the government's retirement fund.

6.2. Questionnaire design

A close-ended questionnaire was used in this study. The questionnaire consisted of a cover letter and four sections, titled A, B, C and D. Section A ascertains the demographic information of the respondents, such as their age, gender, ethnicity, income level, highest qualification, government department and period of employment, as well as their channels for retirement planning advice. This section made use of a nominal scale. Section B also used a nominal scale to determine each respondent's financial knowledge. The columns were coded from true (1), false (2) and don't know (3). Section C aimed to determine each respondent's financial numeracy by making use of multiple choice questions. Various options were listed as possible answers, with each answer coded from one to four for the purpose of data analysis. Four statements were used to measure financial numeracy. Section D sought to ascertain each respondent's views and actions toward retirement planning. Section D utilises a five-point Likert scale in which respondents were asked to rate each statement between one and five, where one represented "strongly disagree" and five represented "strongly agree".

6.3. Data analysis

This study used content and construct validity for all statements measuring financial knowledge and financial numeracy. In order to assess content validity, experts in the field of financial planning were asked to scrutinise the statements in the questionnaire so as to confirm whether they are measuring financial knowledge and financial numeracy. Another form of validity that is important in business research is construct validity. Exploratory Factor Analysis (EFA) is used to identify the factor structure or model for a set of variables (Vogt 2008:309). For the purpose of this study, EFA was used to assess the construct validity of the retirement planning construct. A factor loading 0.5 or greater is perceived as having sufficient evidence of validity (Autio, Mustakallio & Zahra 2002:212).

Reliability is concerned with the results of the research that is undertaken. It refers to the absence of differences in findings if the research were to be undertaken again. This study used Cronbach's alpha to establish the reliability of the retirement planning construct; the construct was considered reliable if it has a Cronbach's alpha value of 0.7 or above. (Wiid & Diggines 2013:238).

In this study, multiple regression analysis was used to test the relationship between financial literacy and retirement planning. Multiple regression analysis ascertains the influence of two or more independent variables on a single dependent variable (Zikmund, Babin, Carr and Griffin 2010:584; Tredoux & Durrheim 2002:339).

7. EMPIRICAL RESULTS

The questionnaires were distributed to local government institutions in the Nelson Mandela Bay. Of the 200 questionnaires distributed, only 123 were returned, and only 122 questionnaires were usable for statistical purposes. Therefore, a response rate of 61% was achieved.

7.1. Demographic information

The majority of the respondents belong to a retirement fund (92.62%) and are female (58%). The majority of the respondents are between 41 and 50 years old (30%) while and equal amount (22%) of respondents are between the ages of 31 to 40 and 51 to 60. In terms of population, the majority (78%) of the respondents are white and 14% of the respondents are black. Of the 122 respondents, 22 respondents only have a Matric Certificate. Most of the respondents' highest qualification is a Bachelor in Education (26%), with 16 respondents indicating that they had obtained a postgraduate qualification such as Honours and Masters degrees. Most of the respondents (65%) are employed by the Department of Basic Education. The South African Police Service employs 15 percent of the respondents who participated in the study. The majority (27%) of the respondents have been employed for a period of 21 to 30 years.

7.2. Financial knowledge of respondents

Table 1, below, shows the statements that the respondents answered correctly.

Table 1: Actual financial knowledge

Category	**Correct**		**Incorrect**		**Don't know**		**Not willing to say**	
Statements	**Freq.**	**%**	**Freq.**	**%**	**Freq.**	**%**	**Freq.**	**%**
1/3 of pension fund	74	60.66	7	5.74	40	32.79	1	0.82
Retirement annuity membership	72	59.02	29	23.77	20	16.39	1	0.82
Risky investment decisions	92	75.41	16	13.11	14	11.48	0	0
withdrawal in provident fund	55	45.08	35	28.69	32	26.23	0	0
Time value of money	59	48.36	42	34.43	21	17.21	0	0
Contributions to retirement	92	75.41	16	13.11	13	10.66	1	0.82

Category	Correct		Incorrect		Don't know		Not willing to say	
annuity & tax								
Employees' contributions to retirement funds & deductions	90	73.77	15	12.30	15	12.30	2	1.64
Diversification of investments	73	59.84	21	17.21	27	22.13	1	0.82
Relationship between risk and return	90	73.77	19	15.57	12	9.84	1	0.82
Unit trust versus shares	64	52.46	19	15.57	38	31.15	1	0.82

Of those respondents who indicated that they have a retirement fund, only 74 (60.66%) knew that an employee can take 1/3 of their benefits in cash, and 90 (73.77%) knew that employees' contributions to a retirement fund are deducted from their salaries on a monthly basis. The majority of the respondents (59.02%) know that one does not need to be employed in order to have a retirement annuity. Once again, this is different from a pension fund/provident fund. The respondents (75.41%) knew that contributions to a retirement annuity fund qualify for a tax deduction. Thirty-five (28.69%) respondents are under the impression that one cannot take the entire lump-sum from a provident fund in cash. In terms of retirement knowledge, most respondents were considered knowledgeable of retirement concepts. In terms of general financial knowledge, only 48.36 percent of the respondents are aware that inflation reduces the worth of one rand today, in the future. Out of the 122 respondents, 75.41 percent knew that investing money in a savings account is less risky than investing it in shares. However, only 52.46 percent of the respondents knew that investing money in a unit trust is less risky than investing it in shares. Most of the respondents (73.77%) knew that the higher the investment risk, the higher the expected investment return, but only 59.84 percent knew that the diversification of investment types reduces one's chances of losing money.

Figure 1: Actual financial knowledge of respondents

Figure 1 shows that only ten respondents scored 90 percent for questions measuring financial knowledge, while one respondent scored 0 percent for questions measuring financial knowledge. Furthermore, 23 respondents scored 50 percent, which means that most of the respondents have average levels of financial knowledge. Thirty-four respondents scored less than 50 percent, which suggests that these respondents have low levels of financial knowledge. Overall, 88 of the respondents (72%) scored 50% and above, which means that most of the respondents have adequate levels of financial knowledge.

7.3. Financial numeracy of respondents

Table 2, below, shows how many respondents answered the questions correctly.

Table 2: Financial numeracy quiz

		Correct	
Items	**Statements**	**Freq.**	**%**
FINUM 1	If an investor receives an 8% interest rate on an investment and the inflation rate is 5%, the real rate of return is less than 13%	63	51.64
FINUM 2	Suppose you had R10 000 in a savings account and the interest rate was 3% per year. After 1 year, you would have exactly R10 300 in your savings account if you left the money to grow.	51	41.80
FINUM 3	Suppose John inherits R20 000 today and his brother inherits R20 000 three years from now. John is richer because of the inheritance.	77	63.12
FINUM 4	Suppose the interest rate on your savings account was 1% per year and the inflation rate was 2% per year. After one year, you would be able to buy less than today with the money in your account.	82	67.21

The respondents scored above average scores (50%) for the financial numeracy questions, except for the question relating to simple interest rates (FINUM 2),

with 41.80 percent. This means that the respondents do not understand the concept of simple interest rates. The respondents scored the highest (above 60%) for FINUM 3 and FINUM 4 which tested their numeracy levels in terms of inflation and actual investment returns, respectively. This means that the respondents understand that money has less value in future than it has today (time value of money). Furthermore, it also suggests that the respondents understand the concept of actual investment returns, as they indicate that saving money in an account with a lower interest rate than the inflation rate depletes the value of the money.

Figure 2: Actual financial numeracy of respondents

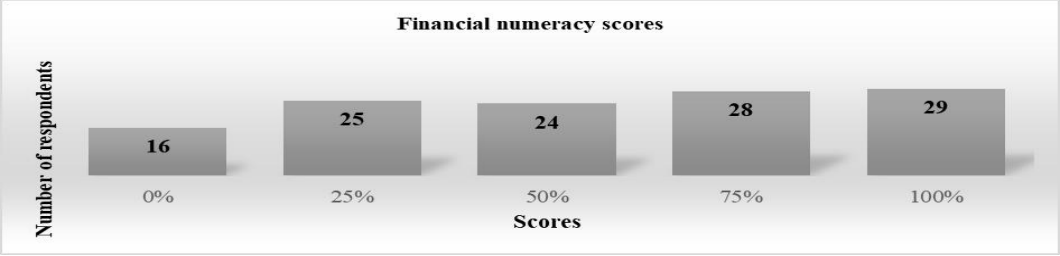

Figure 2 shows that the respondents have relatively adequate financial numeracy skills. Of the 122 respondents, 29 scored 100 percent and 16 scored zero percent. Only 81 respondents scored fifty percent and above, which means that only sixty-six percent of the respondents have sufficient financial numeracy skills. This suggests that although most of the respondents have sufficient financial numeracy skills, there are respondents with low levels of financial numeracy skills.

7.4. Results of validity and reliability analysis

Table 3, below, shows the results of the EFA for the dependent variable of this study.

Table 3: Validity and reliability of retirement planning

% Variance: 3.368		**Cronbach's Alpha: 0.842**		
Item	**Statements**	**Factor loading**	**Item-total correl.**	**CA after deletion**
RetPlan 1	I am planning for retirement.	0.683	0.562	0.827
RetPlan 2	I set specific goals for how much I will need to save for retirement.	0.868	0.772	0.786
RetPlan 3	I have carefully considered how my lifestyle will change during my retirement period.	0.709	0.571	0.825
RetPlan 4	I review my retirement plan regularly.	0.777	0.634	0.813
RetPlan 6	I have a clear vision of how I would like to live during retirement.	0.717	0.592	0.821
RetPlan 7	I continuously assess my retirement needs.	0.725	0.721	0.907

	Mean	**Std.Dev.**	**Disagree %**	**Neutral %**	**Agree %**
Retirement planning	3.59	0.82	25.41	47.54	27.05

Table 3 shows that six statements were loaded onto the factor *retirement planning*. All the statements had a factor loading of above 0.6. Two statements (RETPLAN 2 and RETPLAN 4) had the highest factor loading of 0.868 and 0.777, respectively. This means that all the statements measuring the concepts of *retirement planning* are valid. In terms of the reliability of the factor *retirement planning*, this factor scored a Cronbach's alpha coefficient of 0.842. This means that the factor *retirement planning* is reliable for this study. The descriptive statistics were then calculated for the dependent variable *retirement planning.* Table 4 shows that most (47.54%) of the respondents were neutral about the factor *retirement planning*. However, the mean score 3.59 shows that the respondents tend to agree with *retirement planning*. This is supported by the low standard deviation, which means that the responses were spread across different categories, namely, disagree, neutral and agree.

7.5. Multiple regression analysis

Multiple regression analysis (MRA) was used to assess whether the independent variables, financial knowledge and financial numeracy, have any significant relationship with the dependent variable *retirement planning*. Table 4, below, highlights the relationships between the independent variables (*financial*

knowledge and financial numeracy) and the dependent variable (*retirement planning*).

Table 4: MRA results of independent and dependent variables

Dependent variable: Retirement planning		
Independent variable	**Regression coefficient**	**P-value**
Financial knowledge	0.143	0.148
Financial numeracy	0.219	0.027*
R^2= 9.68%; *p<0.05		

Table 4 indicates a non-significant (b* = 0.143; p = 0.148) relationship between *financial knowledge* and *retirement planning.* However, a positive significant relationship (b* = 0.219; p = 0.027) between *financial numeracy* and *retirement planning* has been found to exist. This means that the relationship between *financial numeracy* and *retirement planning* is supported, while the relationship between *financial knowledge* and *retirement planning* is rejected. Therefore, H_1 is not supported. Those respondents who answered the statements on *financial numeracy* correctly tend to plan for retirement, set specific retirement goals, consider how their lifestyle will change during their retirement period, review their retirement plan regularly, have a clear vision of how they would like to live during retirement and continuously assess their retirement needs

9. DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

This study found that the majority of the respondents scored 50% and above for financial knowledge (66%) and financial numeracy (72%). In addition, the majority of the respondents tend to agree with statements measuring retirement planning. Moreover, a positive relationship between financial numeracy and retirement planning was found to exist, while it was determined that no relationship exists between financial knowledge and retirement planning. This means that the hypothesis of the study, namely, that there is a relationship between financial literacy and retirement planning, was rejected. This is in contrast to the findings of Lusardi and Mitchell (2011:2) who determined that there is a relationship between financial literacy and retirement planning. In addition, Van Rooij *et al.* (2011:595) also found that there is a relationship between financially knowledge and retirement planning. The reason why this study may not have found a relationship between financial knowledge and retirement planning might be because financial knowledge predicts financial

numeracy; thus, financial numeracy might mediate the relationship between financial knowledge and retirement planning.

Therefore, in order to improve retirement planning, the trustees of the government's retirement fund will have to improve the financial numeracy of government employees. Therefore, trustees should initiate a financial education programme that focusses specifically on improving the financial numeracy skills of government employees. Government employees should be taught about basic financial numeracy, such as the time value of money, compounded interest and inflation. Government employees should also be taught about financial concepts such as, diversification and investment risk. These are the concepts for which the respondents scored the lowest in terms of financial knowledge. Therefore, to promote retirement planning amongst beneficiaries of the government retirement fund, the trustees should put financial education programmes in place that will focus on basic financial concepts, financial numeracy skills and retirement planning. In addition, future researchers should consider including other components of financial literacy – such as financial attitude and financial behaviour – when determining retirement planning of government employees. Future studies should include financial numeracy as a factor when investigating the relationship between financial literacy and retirement planning. This study has shown that financial numeracy has a positive relationship with retirement planning. This study also has limitations since it used a small and convenient sample. Future studies should target a larger sample, and use probability sampling, so that they are able to generalise the results. However, this study makes a valuable contribution to the field of financial planning by providing evidence of the relationship between financial numeracy and retirement planning

REFERENCES

Alessie, R.J.M., Lusardi, A. & Van Rooij, M., (2011). Financial literacy and stock market participation. *Journal of Financial Economics,* 101(2):449-472.

Atkinson, A. & Messy, F., (2012). Measuring financial literacy: Results of the OECD / International Network on Financial Education (INFE) Pilot Study. *OECD Working Papers on Finance, Insurance and Private Pensions*, 15(1):1-73 OECD Publishing. http://dx.doi.org/10.1787/5k9csfs90fr4-en.

Autio, E., Mustakallio, M. & Zahra, S.A., (2002). Relational and contractual governance in family firms: Effects on strategic decision making. *Family Business Review*, 15(3):205-222.

Beale, R., Calder, C., Hayes, Z., Johnson, L. & Rose, S., (2015). Retirement financial literacy: The role of culturally sensitive financial education workshops. *Proceedings of the Academy of Economics and Economic Education*, 18(1):1-7.

Bechard, M., (2015). *How much is enough to retire on?* [Online]. Available: http://www.iol.co.za/business/personal-finance/retirement/how-much-is-enough-to-retire-on-1.1893842 [Accessed 8 November 2015].

Botha, M., du Preez, L., Geach, W., Goodall, B., Palframan, J. Rossini, L. & Rabenowitz, P., (2014). *Fundamentals of financial planning*. Cape Town: LexisNexis.

Brown, M. & Graf, R., (2013). Financial literacy and retirement planning in Switzerland. *Numeracy*, 6(2):1-21.

Buckland, J., (2010). Are low income Canadians financially literate? *Placing Financial Literacy in the Context of Personal and Structural Constraints*, 60(4):357.

Butler, M., (2011). Retirement adequacy targets for South African households. In 2011 Convention, Johannesburg. 8-9 November 2011, 51 (83). [Online]. Available: https://www.actuarialsociety.org.za/wp-content/uploads/2019/04/2011-Convention-Butler.pdf [Accessed 5 September 2019].

Collis, J. & Hussey, R., (2009). *Business research: A practical guide for undergraduate and postgraduate students*. 3rd edition. New York: Palgrave Macmillan.

GEPF., (2018). *Annual report*. [Online]. Available: http://www.gepf.gov.za/uploads/annualReportsUploads/AR_2018_(20181128)_Final_Submitted-min.pdf [Accessed 5 September 2019].

Gordon, S., Roberts, B., Struwig, J., Viljoen, J. & Wentzel, M., (2012). Financial literacy in South Africa: Results on baseline national survey. [Online]. Available: ftp://ftp.fsb.co.za/public/Consumer%20Education/FSB%20FINANCIAL%20LITERACY%2020120903.pdf [Accessed 18 March 2016].

Guiso, L., Jappelli, T., (2008). Financial Literacy and Portfolio Diversification. Tech. Rep., CSEF Working Paper 212. [Online]. Available: https://econpapers.repec.org/paper/sefcsefwp/212.htm [Accessed 5 September 2019].

Hopkins, J. & Littell, D.A., (2016). Gauging America's retirement income planning literacy: A method for determining retirement knowledgeable clients. *Journal of Personal Finance,* 15(1):7-20.

Huhmann, B.A., & McQuitty, S., (2009). A model of consumer financial numeracy. *International Journal of Bank Marketing*, 27(4):270-293.

Hung, A., Parker, A.M. & Yoong, J., (2009). Defining and measuring financial literacy. [Online]. Available at: https://www.rand.org/content/dam/rand/pubs/working_papers/2009/RAND_WR708. [Accessed 22 March 2016].

Kruger, S.J. & Welman, J.C., (2001). *Research methodology for business and administrative science.* 2nd edition. Cape Town: Oxford University Press.

Lewis, P., Saunders, M. & Thornhill, A., (2009). *Research methods for business students*. London: Pitman.

Lusardi, A. & Mitchell, O.S., (2006). Financial literacy and planning: Implications for retirement wellbeing. *Pension research council working paper 1*. The Wharton School.

Lusardi, A. & Mitchell, O.S., (2009). How ordinary consumers make complex economic decisions: Financial literacy and retirement readiness. *NBER working paper series*, [s.a.].

Lusardi, A. & Mitchell, O.S., (2011). Financial literacy around the world: An overview. *Journal of pension economics and finance,* 10(4):497-508.

Lusardi, A., (2012). *Numeracy, financial literacy, and financial decision-making*. National Bureau of Economic Research. [Online]. Available: https://www.nber.org/papers/w17821 [Accessed 9 September 2019].

Masombuka, S., (2015). Teachers resigning en masse over pension reforms. [Online]. Available: http://www.timeslive.co.za/local/2015/02/10/teachers-resigning-en-masse-over-pension-reforms [Accessed 23 November 2016].

Matshediso, M., (2015). Retirement benefits still intact for government employees. [Online]. Available: http://www.sanews.gov.za/south-africa/retirement-benefits-still-intact-government-employees [Accessed 23 November 2016].

Nanziri, E.L. & Leibbrandt, M., (2018). Measuring and profiling financial literacy in South Africa. *South African Journal of Economic and Management Sciences*, 21(1):1-17.

News24Wire., (2015). Most South Africans are nowhere near ready for retirement. [Online]. Available: http://businesstech.co.za/news/wealth/91096/most-south-africans-are-nowhere-near-ready-for-retirement/ [Accessed 19 January 2016].

Nkoutchou, H. & Eiselen, R., (2012). Retirement saving behaviour of young adults in the financial services sector. *Journal of Economic and Financial Sciences, 5*(1):31-48.

Reyers, M., (2018). Perceptions of Retirement Adequacy: Evidence from South Africa. *Journal of Financial Counselling and Planning*, 29(2):343-356.

Skagerlund, K., Lind, T., Strömbäck, C., Tinghög, G. and Västfjäll, D., (2018). Financial literacy and the role of numeracy–How individuals' attitude and affinity with numbers influence financial literacy. *Journal of Behavioral and Experimental Economics*, 74:18-25.

Swart, N., (2012). Personal financial management: The Southern African guide to personal financial planning. 3rd edition. Claremont: Juta.

Tredoux, C. & Durrheim, K. 2002. Numbers, hypotheses and conclusions: A course in statistics for the social sciences. Cape Town: UCT Press.

Van Rooij, M., Lusardi, A. & Alessie, R.J. 2011. Financial literacy, retirement planning, and household wealth. [Online]. Available: http://www.nber.org/papers/w17339.pdf [Accessed 3 December 2015].

Vogt, W.P., (2008). *Selecting research methods*. Vol.3. London: Sage.

Walstad, W.B., Rebeck, K. & McDonald, R.A., (2010). The effect of financial education on the financial knowledge of high school students. *Journal of Consumer Affairs*, 44(02):336-357.

Wiid, J. & Diggines, C., (2013). *Marketing research*. 2nd edition. Cape Town: Juta.

Wilhelm, W.J. & Chao, C., (2005). Personal financial literacy: Shaping Education Policy. *The Delta Pi Epsilon Journal,* 47(1):20-35.

Wilhelm, W.J. and Chao, C., (2005). Personal financial literacy: Shaping education policy. *Delta Pi Epsilon Journal*, 47(1): 20-35.

Willows, G.D., (2019). South African individual retirement savings: An analysis of the social factors. *Risk Management and Insurance Review*, 22(2): 1-26.

Zeka, B. & Matchaba-hove, M., (2016). *Determining the retirement intentions: A study of working individuals in the Eastern Cape, South Africa*. 24th International Academic conference, 28 June 2016, Barcelona.

Zeka, B., (2016). *Factors influencing the retirement savings of individuals in the Eastern Cape, South Africa.* 24th International Academic conference, 28 June 2016, Barcelona.

Zeka, B., (2017). Exploring the retirement attitudes of pre-retired individuals in the Eastern Cape, South Africa. *International Journal of Management and Applied Science (IJMAS), 3*(9):19-24.

Zikmund, G.W., Babin, B.J., Carr, J.C. & Griffin, M., (2010). *Business research methods*. 8th edition. Canada: South-Western, Cengage Learning.