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Original Article

Financial Literacy Competencies on Retirement Planning Among Public Sector Employees at Mzinga Corporation, Tanzania

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This study explores the impact of financial literacy competencies on personal retirement planning among public sector employees at Mzinga Corporation, Tanzania. It examines the relationships between financial knowledge, computational capability, financial education, and risk attitudes in shaping retirement preparedness. The research employs a positivist philosophy and a quantitative approach, utilising a causal-effect research design. A total of 65 employees participated in the study, with data collected via structured questionnaires. Descriptive and inferential statistics, including Pearson correlation and multiple regression analysis, were used to analyse the data. The findings indicate strong, positive, and significant relationships between all independent variables and personal retirement planning. Specifically, financial knowledge, computational skills, and financial education significantly enhance employees' ability to plan for retirement, while risk attitude showed a positive but statistically insignificant impact. The regression model demonstrated that 92% of the variance in retirement planning is explained by these competencies. The study highlights the critical role of computational skills, particularly in projecting savings and assessing financial goals. The findings suggest that workplace-based financial literacy programs are essential for improving retirement preparedness, particularly in the absence of robust pension systems. The study concludes by offering policy recommendations to enhance financial literacy through targeted education and training, aimed at equipping public sector employees with the tools to secure their financial future.

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INTRODUCTION

Financial literacy entails one's ability to use the acquired knowledge and skills over the years to make sound financial decisions in managing financial resources and their applicability in financial-related matters (Karakara et al., 2022; Lusardi & Mitchell, 2023). Financial literacy increases one's understanding when it comes to financial matters and, in turn, makes one concerned about making better decisions when it comes to personal finances (Karakara et al., 2022). However, globally, financial literacy remains a significant concern. In the United States, only 34% of adults answered four out of five basic financial literacy questions correctly, reflecting a widespread competency gap (Lusardi & Mitchell, 2017). Efforts to address this issue, such as the National Strategy for Financial Literacy, have promoted workplace financial education programs, yet many public sector employees remain unprepared for retirement (Klapper et al., 2022). Similarly, in Australia, despite government initiatives and workplace programs, 63% of employees lack confidence in managing their finances (Commonwealth Bank of Australia, 2021), highlighting the challenge of translating financial knowledge into practical financial behaviours. Even in well-established systems like Germany, where 54% of public sector employees understand financial products, gaps remain in effectively navigating complex systems and applying financial literacy in daily life (OECD, 2020).

In Africa, financial literacy levels vary significantly, with many countries facing challenges in improving financial knowledge despite concerted efforts. In Nigeria, only 26% of adults possess basic financial knowledge, while in South Africa, 42% of employees struggle with debt management despite various educational programs (CBN, 2021; FINMARK Trust, 2019). Similarly, in Ghana, despite campaigns by the Bank of Ghana, only 31% of the population is financially literate (World Bank, 2022). Countries like Kenya and Uganda also face challenges, with Kenya's financial literacy rate among public employees standing at just 38% (FinAccess, 2020) and Uganda's at 25% (Bank of Uganda, 2021). These statistics demonstrate that financial literacy remains an ongoing issue in many African countries, exacerbated by barriers such as low digital literacy, cultural resistance to formal financial systems, and inconsistent program implementation.

Tanzania, like many African nations, continues to grapple with financial literacy challenges despite significant policy interventions. While programs from the Bank of Tanzania and partners like the Tanzania Institute of Bankers aim to improve financial competencies, only 30% of public sector employees exhibit adequate financial literacy (NBS Tanzania, 2023). This issue is compounded by low digital literacy, limiting access to emerging financial technologies, and reliance on informal lending systems, especially among rural employees (World Bank, 2022). The Tanzanian government's National Financial Inclusion Framework (NFIF) seeks to address these challenges, but the impact is

diminished by the lack of customisation in financial education programs and inconsistent delivery (Klapper et al., 2022).

In Tanzania, particularly within public sector organisations like Mzinga Corporation, the lack of financial literacy has led to significant challenges, with employees struggling to manage debt, plan for retirement, and make sound financial decisions, leaving them vulnerable to financial insecurity (NBS Tanzania, 2023). This deficiency not only affects personal financial stability but also impacts organisational productivity, as employees dealing with financial stress are likely to perform poorly at work (Bank of Tanzania, 2022). Despite government initiatives such as the National Financial Inclusion Framework (NFIF) and programs by the Bank of Tanzania, financial literacy levels remain alarmingly low, with only 30% of public sector employees demonstrating basic financial literacy (Finscope Tanzania, 2024). At Mzinga Corporation, the inability to plan for retirement or make informed investment choices exacerbates the risk of financial distress, forcing employees to rely on informal lending systems (Bank of Tanzania, 2022). Additionally, structural challenges such as limited access to tailored financial education, low digital literacy, and geographical disparities further hinder employees' ability to effectively navigate financial products and policies, necessitating a focused approach to address these issues and enhance financial stability (NBS Tanzania, 2023). Thus, this study assesses the effect of financial literacy competencies on retirement planning among employees in Tanzania at Mzinga Corporation.

THEORETICAL REVIEW

Expected Utility Theory

Expected Utility Theory, initially developed by pioneers like Pierre de Fermat, Blaise Pascal, and Christian Huygens (Huygens, 1657; Benoulli, 1954), provides a mathematical framework for understanding how individuals make rational

decisions under uncertainty. This theory posits that individuals maximise their utility, rather than simply focusing on expected monetary value, by weighing the potential outcomes of their decisions based on probabilities and utilities (Thorsten et al., 2010). In the context of personal retirement planning, especially for public sector employees at Mzinga Corporation, Expected Utility Theory helps explain how individuals navigate uncertainties like life expectancy, future income, inflation, and investment returns. According to the theory, individuals aim to minimise potential losses and maximise benefits, aligning with rational decision-making (Ackert et al., 2010). The study's variables, financial knowledge, computation capability, financial education, and risk attitudes are central to this process, as they influence how employees evaluate financial instruments and make retirement decisions (Lusardi & Mitchell, 2017; Van Rooij et al., 2011). For example, financial literacy enhances portfolio diversification, reducing risks and maximising expected utility (Van Rooij, 2011), while risk attitudes shape decision-making by influencing perceptions of financial products (Bateman et al., 2014). By integrating these factors, Expected Utility Theory provides a robust framework to analyse retirement decision-making, identify gaps in financial literacy, and offer insights into improving retirement preparedness.

Behavioural Finance Theory

Behavioural Finance Theory, advanced by Kahneman and Tversky (1979) through prospect theory and later expanded by Thaler (1999), explains how psychological biases and emotions influence financial decision-making. The theory assumes that individuals are not fully rational; instead, they rely on heuristics and are influenced by risk aversion, framing effects, and limited confidence when making financial decisions (Barberis & Thaler, 2003). In relation to the present study, this theory directly informs the role of risk attitudes toward financial products, since employees' willingness or reluctance to engage with

financial instruments is shaped by their aversion to risk and their confidence levels. Similarly, financial knowledge interacts with behavioural factors, as individuals with limited awareness of investment options may display stronger biases such as procrastination or present bias, ultimately undermining retirement planning.

Despite criticisms that Behavioural Finance is fragmented and context-dependent, it remains central for understanding how individuals' subjective behaviours shape financial outcomes. For Mzingira Corporation employees, it helps explain why even those with financial education or some computation capability may fail to save adequately for retirement if their risk perceptions are skewed or they lack confidence in financial products. This makes the theory highly relevant for retirement planning, as it highlights the behavioural barriers that affect rational decision-making. By incorporating these behavioural insights, the study acknowledges that retirement outcomes are not only a product of knowledge and skills but also of attitudes and biases that guide financial choices.

Life-Cycle Hypothesis

The Life-Cycle Hypothesis (LCH), formulated by Modigliani and Brumberg (1954), posits that individuals aim to smooth consumption across their lifespan by borrowing in early years, saving during peak earning years, and dissaving in retirement. Its key assumption is that individuals act rationally, anticipate future income needs, and plan systematically to secure their standard of living in old age (Modigliani, 1986). Within the current study, this theory strongly connects with computational capability, since the ability to calculate interest rates and estimate retirement income enables employees to project long-term needs and align savings accordingly. Similarly, financial knowledge, such as understanding investment instruments and saving options, empowers employees to implement life-cycle saving strategies effectively.

Although the LCH has been critiqued for being overly idealised and ignoring behavioural biases, it remains valuable for retirement research because it provides a structured model of how financial planning should occur. For Mzingira Corporation employees, the framework shows how financial education equips individuals with the literacy and background knowledge needed to plan across their lifespan, while risk attitudes affect whether employees actually act on such plans. Thus, the LCH complements Behavioural Finance by grounding retirement planning in rational projections, while also acknowledging that without sufficient competencies, individuals may struggle to translate knowledge and skills into effective saving behaviour. The combination of these theories helps explain both the rational and behavioural dimensions of retirement planning.

LITERATURE REVIEWS

Financial Instruments in Tanzania: Mobile Money

Mobile money services have transformed the financial landscape in Tanzania since their introduction in 2008. As defined by UNCTAD (2012), mobile money allows individuals to store money using a Subscriber Identity Module (SIM) card on a mobile phone, which acts as an identifier instead of a traditional bank account. The Alliance for Financial Inclusion (AFI, 2012) further elaborates that mobile money is a mobile-based transactional service, enabling the transfer of money electronically through mobile networks. In Tanzania, mobile money has experienced impressive growth, with 29.7 million mobile money subscriptions recorded in 2020 and a transaction value of USD 81 billion. By June 2020, 272 million mobile money transactions were carried out, totalling USD 4.6 billion (BOT & Tanzania Investment, 2020). This growth underscores the significant role of mobile money in the Tanzanian financial ecosystem.

Six major operators in Tanzania provide mobile money services: Vodacom's M-Pesa, Tigo's Tigo Pesa, Airtel's Airtel Money, and others, with M-Pesa leading the market with a 39% share (BOT & Tanzania Investment, 2020). According to the FinScope Tanzania 2023 Survey, 89% of Tanzanian adults have access to formal financial services, with 76% actively using them, largely driven by mobile money platforms (FSDT, 2023). By 2024, approximately 44.6% of Tanzanians aged 15 and older owned a mobile money account, marking a steady increase from previous years (Statista, 2024).

Mobile money platforms have evolved beyond basic services such as domestic remittances and airtime top-ups. They now offer more sophisticated financial products, including savings, credit, and insurance. These products significantly contribute to financial inclusion by providing services to individuals without access to traditional banking infrastructure (Tanzania Invest, 2024). The market share for the three dominant operators, M-Pesa, Tigo Pesa, and Airtel Money, now accounts for 89% of Tanzania's mobile money market (TCRA, 2024), reflecting the market consolidation and its essential role in Tanzania's financial services. As mobile money platforms expand their offerings, they continue to bridge the gap for Tanzanians who previously had limited access to formal financial products.

In addition to mobile money services, UTT AMIS (Unit Trust of Tanzania Asset Management and Investor Services) plays an important role in encouraging savings and investments in Tanzania. UTT AMIS manages collective investment schemes, allowing individuals to pool their funds into a diversified portfolio of securities. These funds are primarily invested in equities, fixed-income securities, and money market instruments, such as treasury bills and commercial papers. UTT AMIS offers several investment products, including the Bond Fund, which is a low-risk option focusing on government and corporate bonds, and the Umoja Fund, which balances stocks and bonds for

moderate risk and long-term growth. Other offerings, such as the Liquid Fund and Watoto Fund, cater to different investment goals and risk levels, with minimum investments as low as TZS 5,000, making these services accessible to a wide range of investors.

Mobile money operators in Tanzania also offer a range of additional financial products and services. Vodacom's M-Pesa, for example, enables users to send money, pay bills, receive salaries, and access short-term loans, making it one of the most widely used financial tools across the country (Vodacom Tanzania, 2024). In addition, products like M-Pawa, a savings and loan service, and M-Koba, a digital fundraising platform, have expanded the scope of mobile financial services in Tanzania. Similarly, Tigo Pesa's Kibubu and Airtel's Kamilisha services offer users the ability to save, earn interest, and access overdraft loans. These services cater to a wide array of financial needs, from simple savings to more complex credit products, and have been instrumental in increasing access to financial services for Tanzania's population. This growing diversification of mobile money services continues to support Tanzania's shift towards a digital economy, offering users greater convenience and financial security.

Empirical Literature Reviews

Existing research on financial literacy competencies and retirement planning presents both converging and conflicting evidence. Tan and Singaravelloo (2019), examining Malaysian government officers, reported that while financial literacy levels were relatively high, retirement planning behaviour was still inadequate. This suggests that knowledge alone does not necessarily translate into action, raising questions about the role of behavioural and contextual factors in bridging the knowledge–practice gap. Similarly, Safari et al. (2021), in the Democratic Republic of Congo, emphasised the importance of financial knowledge and computation capability, while downplaying the significance of financial education and attitudes toward financial

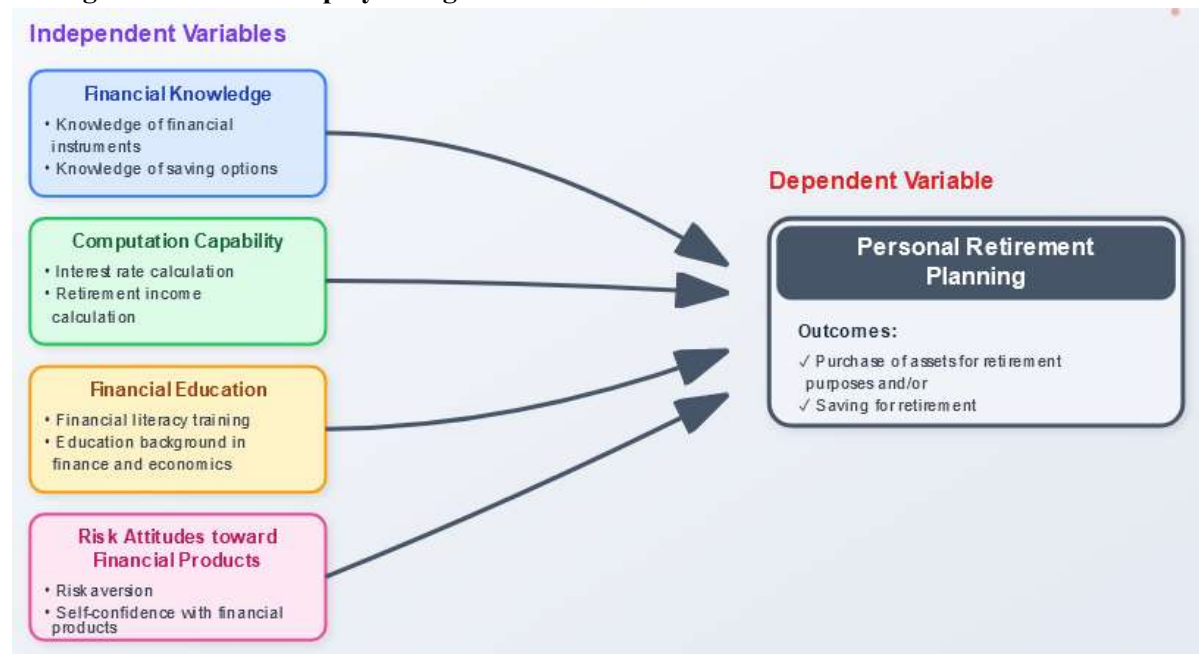
products. Their findings suggest that technical skills may have stronger predictive power than formal education, but they do not account for why some knowledgeable employees still fail to plan effectively. In contrast, Rostamkalaei et al. (2019) observed that Canadian self-employed workers, despite having comparable knowledge to salaried employees, were less likely to plan for retirement because of overconfidence and the absence of structured saving schemes. This highlights the behavioural biases that knowledge-based models tend to ignore. Supporting the importance of literacy, Boisclair et al. (2015) showed that low financial literacy among 42% of Canadians correlated strongly with poor retirement saving. Likewise, Clark et al. (2016) in the U.S. demonstrated that workplace financial education improved both participation in retirement plans and the quality of portfolio decisions, underlining the value of structured education. Collectively, these findings reveal both consistencies (that knowledge and skills matter) and contradictions (that they are sometimes insufficient) in explaining retirement preparedness.

Other studies highlight more nuanced roles of financial education and risk attitudes, though their findings are not always consistent. For example, Bačová et al. (2017) found that non-professionals with higher self-rated financial literacy were more competent in retirement planning than professionals with objectively higher knowledge, suggesting that confidence and perception may be as important as technical skill. Yet, Kalmi and Ruuskanen (2017) showed that in Finland, high financial literacy did not necessarily lead to active retirement planning because generous public pensions reduced individual incentives, especially among women and less educated groups. This contradiction highlights the influence of institutional and cultural factors,

which may override individual competencies. In Italy, Ricci and Caratelli (2015) discovered that both literacy and trust in financial institutions increased participation in pension schemes, pointing to the importance of attitudinal factors beyond technical skills. Studies focusing on risk tolerance, such as Agunga et al. (2017) and Tesfaye (2022), found that even financially literate employees avoided high-yield investments if they were risk-averse, showing that risk attitudes can moderate the literacy–planning relationship. Herrador-Alcaide et al. (2021) confirmed this by demonstrating that higher risk tolerance strongly predicted retirement preparedness through investment diversification. From this review, two critical gaps emerge. First, much of the existing literature is fragmented, often emphasising one competency over another without systematically considering how they interact. Second, most evidence comes from developed economies or select African countries, but little is known about public sector employees in Tanzania, who face unique institutional, cultural, and behavioural constraints. The current study addresses these gaps by examining how financial knowledge, computation capability, financial education, and risk attitudes jointly influence retirement planning among employees of Mzingira Corporation.

Conceptual Framework

The conceptual framework in Figure 1 highlights key factors influencing personal retirement planning among public sector employees aged 50 to 60. It identifies four independent variables: financial knowledge (understanding instruments and saving options), computation capability (skills for financial projections), financial education (training and background), and risk attitudes (risk aversion and confidence in using products).

Figure 1: Conceptual Framework Highlights Key Factors Influencing Personal Retirement Planning among Public Sector Employees Aged 50 to 60

Source: *Empirical and Theoretical Review, 2024*

METHODOLOGY

This study adopts a positivist research philosophy, focusing on objective, quantifiable data to examine the relationship between financial knowledge, computational capability, financial education, and risk attitudes toward financial products in influencing personal retirement planning among public sector employees aged 50 to 60 years at Mzinga Corporation, Tanzania. Using a causal-effect research design, the study employs structured questionnaires and statistical methods, such as regression and correlation analysis, to explore the cause-and-effect relationships between the independent variables and the dependent variable, retirement planning. A quantitative approach is applied to ensure objective, reliable, and generalizable findings that provide actionable insights to enhance financial literacy and retirement preparedness. The study population comprises 77 public sector employees at Mzinga Corporation, excluding those outside the target age group or working in non-government sectors. The research aims to generate relevant insights into improving

retirement planning and financial decision-making within Tanzania's public sector workforce, particularly among those nearing retirement.

Sample Size

Sample size refers to the number of items to be selected from the population to represent a sample (Kothari, 2004). It consists of some elements in a population that the researcher wishes to make a sound conclusion regarding the entire population. It is recommended that the sample size to be used should not be extremely large nor too small. It has to be optimal (Kiugu, 2010). With regards to this specific study, researchers used the Yamane formula to get a sample size since the population of 77 is finite and known.

$$n = \frac{N}{1 + N(e)^2}$$

Whereby

n = sample size, N = the population, e = level of confidence interval, the researcher used 95% as confidence level; $e = 0.04$ and $N=77$.

$$n = \frac{77}{1+77(0.04)^2}; n = 67.5 \approx 68$$

Table 1: Sample Size

n/s	Department	Number of Employees	Sample size
1	Internal Audit	1	0
2	Administration	12	11
3	Finance	1	0
4	Engineering	23	22
5	Research	1	0
6	Production A	8	7
7	Production B	9	8
8	Marketing	9	8
9	Hospital	13	12
	Total	77	68

Unit of Analysis and Measurement

The unit of analysis for this study is the individual public sector employee within Mzinga Corporation. Each employee's financial literacy competencies, perceptions of retirement planning, and the factors

influencing their financial decisions are the primary focus of measurement. Quantitative data were measured on 5-point itemised Likert scales. This approach ensures a comprehensive understanding of how these variables impact personal retirement planning among employees aged 50 to 60 years.

Table 2: Measurement of Variables

Variables	Items to be studied	Scale adopted	Measurement
Retirement Planning (Dependent variable)	<ul style="list-style-type: none"> Purchase of assets Saving for retirement 	5= <i>Strongly Disagree</i> 4= <i>Disagree</i> 3= <i>Neutral</i> 2= <i>Agree</i> 1= <i>Strongly Agree</i>	Five-item Likert scale
Financial knowledge (Independent variable)	<ul style="list-style-type: none"> Knowledge of financial instruments Knowledge of saving options 	5= <i>Strongly Disagree</i> 4= <i>Disagree</i> 3= <i>Neutral</i> 2= <i>Agree</i> 1= <i>Strongly Agree</i>	Five-item Likert scale
Computation capability (Independent variable)	<ul style="list-style-type: none"> Interest rate calculation Retirement income calculation 	5= <i>Strongly Disagree</i> 4= <i>Disagree</i> 3= <i>Neutral</i> 2= <i>Agree</i> 1= <i>Strongly Agree</i>	Five-item Likert scale
Financial education (Independent variable)	<ul style="list-style-type: none"> Financial literacy training Education background in finance and economics 	5= <i>Strongly Disagree</i> 4= <i>Disagree</i> 3= <i>Neutral</i> 2= <i>Agree</i> 1= <i>Strongly Agree</i>	Five-item Likert scale
Risk attitudes (Independent variable)			

Variables	Items to be studied	Scale adopted	Measurement
	<ul style="list-style-type: none"> Risk aversion Self-confidence 	5= <i>Strongly Disagree</i> 4= <i>Disagree</i> 3= <i>Neutral</i> 2= <i>Agree</i> 1= <i>Strongly Agree</i>	Five-item Likert scale

Sampling Technique and Data Collection

For this study, the researcher used the Stratified Simple Random Sampling technique to select 65 respondents from various departments within Mzinga Corporation, ensuring proportional representation from departments like Internal Audit, Administration, Finance, Engineering, Research, Production, Marketing, and Hospital. The population was first divided into strata based on departmental roles, and then simple random sampling was applied within each stratum, giving every individual an equal chance of selection. This approach guarantees a representative, unbiased sample and enhances precision by minimising variability within each department. The data collection was carried out using a structured questionnaire distributed physically to employees, allowing for efficient and uniform collection of data on financial knowledge, computational capability, financial education, risk attitudes, and retirement planning. This method ensures convenience, reliability, and comprehensive insights while minimising bias and maximising response rates across Mzinga Corporation's diverse workforce.

Data Validity and Accuracy

To ensure data validity and accuracy in this study, a combination of expert feedback and methodological triangulation was employed. Validity, defined as the degree to which findings accurately reflect the phenomena being studied (Mugenda & Mugenda, 2003), was achieved by consulting experts in financial literacy and retirement planning to refine the research tools and methodology. Triangulation was used by collecting data from employees across various departments within Mzinga Corporation to

ensure comprehensive and credible results, with incomplete or inconsistent questionnaires excluded to maintain data integrity. For reliability, Cronbach's alpha method was used to assess the internal consistency of the questionnaire. The study aimed for Cronbach's alpha values between 0.7 and 0.95, ensuring the instrument's reliability in capturing data on financial knowledge, computational capability, financial education, risk attitudes, and personal retirement planning (Kothari, 2004; Tavakol & Dennick, 2011). This approach ensured that the data collection tools were both valid and reliable, providing consistent and trustworthy results.

Data Analysis

Once the data were collected, it was processed systematically through editing, cleaning, and coding to prepare them for analysis using the Statistical Package for Social Sciences (SPSS) version 27.0. Descriptive statistics were employed to summarise the sample's characteristics and key variables, including financial knowledge, computational capability, financial education, risk attitudes, and personal retirement planning. Measures like means, standard deviations, frequencies, and percentages were calculated to provide insights into the distribution of the data and respondent demographics. For the inferential analysis, multiple regression analysis was used to examine the relationship between the independent variables (financial knowledge, computational capability, financial education, and risk attitudes) and the dependent variable (personal retirement planning). This method enabled the determination of the strength and significance of these relationships. The regression model was specified as:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \epsilon \dots \dots \dots (1)$$

Where: Y: personal retirement planning (dependent variable); β_0 : Intercept; X_1 : Financial Knowledge; X_2 : Computational Capability; X_3 : Financial Education; X_4 : Risk Attitudes. $\beta_1, \beta_2, \beta_3, \beta_4$: Coefficients of the independent variables; ϵ : Error term.

Ethical Considerations

Before data collection, the researcher obtained approval from the Mzinga Corporation to ensure compliance with formal ethical oversight. Following this, all participants were provided with detailed information about the study's objectives, procedures, and their right to withdraw at any time without penalty, and informed consent was obtained (Saunders et al., 2019). During the data collection process, confidentiality and anonymity were strictly maintained by coding responses and securely storing all data to prevent individual identification. Additionally, the researcher ensured consistent reporting of the sample size throughout the study, further enhancing transparency and reliability. These sequential measures collectively reinforced the ethical integrity, credibility, and trustworthiness of the research.

RESULTS

The questionnaire distributed to employees at Mzinga Corporation achieved a high response rate of 95.6%, with 65 out of 68 respondents completing the survey. This strong engagement likely reflects the relevance of the research topic to employees aged 50-60, who are more focused on retirement planning. The 4.4% non-response rate was primarily due to factors like health issues, unavailability, or concerns over confidentiality, as well as some difficulties in understanding the questionnaire. Despite these minor limitations, the high response rate enhances the reliability of the data and validates the effectiveness of the survey process (Creswell & Creswell, 2018).

Demographic Characteristics of Respondents

The demographic characteristics of the respondents reveal a balanced gender distribution, with a slightly higher percentage of male participants (58.5%) compared to female participants (41.5%), which suggests that male employees may constitute a larger portion of the workforce or are more engaged in the study. Marital status shows that the majority of respondents are married (69.2%), which indicates the presence of financial responsibilities beyond personal needs, influencing their approach to retirement planning. A significant portion of respondents is also widowed (16.9%) or divorced (13.9%), pointing to the varied financial challenges faced by individuals in different marital statuses, such as managing single-income households or adjusting to changes in financial security following the loss of a spouse or divorce.

Education levels indicate that the majority of employees at Mzinga Corporation are well-educated, with 56.9% holding a Bachelor's Degree, followed by 15.3% with a Diploma. This reflects a workforce with a relatively high level of formal education, which could positively influence their financial literacy and decision-making abilities. However, a small portion of respondents (6.1% with Standard Seven and 9.2% with Form Four education) face challenges in understanding complex financial concepts, suggesting the need for tailored financial literacy programs to address these gaps. The distribution of working experience also indicates that many employees are in their mid to late-career stages, with 40% having over 30 years of experience.

The financial behaviour data shows that employees at Mzinga Corporation predominantly rely on formal saving methods, with 72.31% using bank savings, followed by 12.31% using mobile money and 10.77% utilising SACCOS. This suggests a strong preference for secure, formal savings methods, possibly driven by trust in established financial institutions. However, only a small percentage (4.61%) engage with collective

investment schemes, indicating limited participation in more diversified investment options. Additionally, the majority of respondents (41.5%) have purchased pension or retirement products, indicating awareness of the need for long-term financial security. On the other hand, investments in shares and stocks are minimal,

highlighting a potential gap in financial literacy regarding capital market investments. These findings suggest that while employees are focused on retirement planning, there is an opportunity to enhance education on diversified financial products and investment strategies to further improve their retirement preparedness.

Table 3: Demographic Characteristics of Respondents

Category	Frequency	Percent
Gender		
Male	38	58.5%
Female	27	41.5%
Marital Status		
Married	45	69.2%
Divorced	9	13.9%
Widowed	11	16.9%
Education Level		
Standard Seven	4	6.1%
Form Four	6	9.2%
High School	5	7.7%
Diploma	10	15.3%
Bachelor's Degree	37	56.9%
Master's Degree	2	3.1%
Doctorate (PhD)	1	1.5%
Working Experience		
20-25 years	16	24.6%
26-30 years	23	35.4%
Above 30 years	26	40%
Employment Designation		
Junior Staff	12	18.5%
Middle Management	33	50.8%
Senior Management	20	30.8%
Monthly Income Range		
500,000-900,000 TZS	11	16.9%
1,000,000-1,500,000 TZS	31	47.6%
1,600,000-2,000,000 TZS	18	27.6%
Above 2,000,000 TZS	3	4.6%
Asset Purchases with Reference to Retirement Plans		
Land	18	27.6%
Real Estate Properties	12	18.5%
Shares	2	3.07%

Category	Frequency	Percent
Commercial Enterprises	16	24.6%
Farms	17	26.2%
Savings for Retirement		
Bank Saving	47	72.31%
SACCOS	7	10.77%
Mobile Money	8	12.31%
Collective Investment Scheme (e.g., UTT AMIS)	3	4.61%
Types of Financial Products Bought		
Pension or Retirement Product	27	41.5%
Investment Account (Unit Trust)	3	4.6%
Mortgage/Bank Loan (Secured)	7	10.8%
Unsecured Bank Loan	5	7.7%
Current/Checking Account	9	13.8%
Savings Account	11	1.9%
Stocks and Shares	2	3%
Prepaid Debit Card/Payment Card	1	1.5%

Correlation Analysis

Pearson correlation analysis was used to examine the relationship between financial literacy competencies (financial knowledge, computation capability, financial education, and risk attitude) and personal retirement planning among public sector employees at Mzinga Corporation. The results, as shown in Table 4, reveal strong, positive, and significant relationships between all independent variables and personal retirement

planning. Specifically, financial knowledge ($r = 0.890$, $p = 0.000$), computation capability ($r = 0.929$, $p = 0.000$), financial education ($r = 0.918$, $p = 0.000$), and risk attitude ($r = 0.773$, $p = 0.000$) all have a significant positive impact on employees' ability to plan effectively for retirement. These findings suggest that higher levels of financial knowledge, computational skills, financial education, and a balanced risk attitude significantly enhance employees' retirement planning efforts.

Table 4: Correlation Between Financial Literacy Competencies and Retirement Planning

		FINKNOW	COMPCAP	FINEDUCN	RISKATT	PERREPLANNING
FINKNOW	Pearson Correlation	1				
	Sig. (2-tailed)	.000				
COMPCAP	Pearson Correlation	.857**	1			
	Sig. (2-tailed)	.000				
FINEDUCN	Pearson Correlation	.868**	.873**	1		
	Sig. (2-tailed)	.000	.000			

FINKNOW COMPCAPFINEDUCNRISKATTPERREPLANNING						
RISKATT	Pearson Correlation	.772**	.758**	.744**	1	
	Sig. (2-tailed)	.000	.000	.000		
PERREPLANNING	Pearson Correlation	.890**	.929**	.918**	.773**	1
	Sig. (2-tailed)	.000	.000	.000	.000	

** . Correlation is significant at the 0.01 level (2-tailed).

Reliability Test

The reliability analysis of the questionnaire used in this study showed excellent internal consistency, with an overall Cronbach's Alpha of 0.9536, well above the acceptable threshold of 0.7 (Tavakol & Dennick, 2011). This indicates that the questionnaire items reliably assess the constructs of financial knowledge, computation capability, financial education, risk attitude, and personal

retirement planning. Each construct demonstrated strong reliability, with Cronbach's Alpha values ranging from 0.945 for personal retirement planning to 0.970 for risk attitude, the highest among the constructs. These results confirm that the questionnaire is a dependable tool for measuring the key variables, supporting the validity of the study's findings and ensuring the credibility of the statistical analyses.

Table 5: Reliability Analysis of Study Variables (Cronbach's Alpha)

Reliability	Cronbach's Alpha If Item Deleted
FINANCIAL_KNOWELDGE	0.952
COMPUTATION_CAPABILITY	0.950
FINANCIAL_EDUCATION	0.951
RISK_ATTITUDE	0.970
PERSONAL_RETIREMENT_PLANNING	0.945
OVERALL CRONBACH'S ALPHA	0.953

Diagnostic Test of Variables

Normality Test

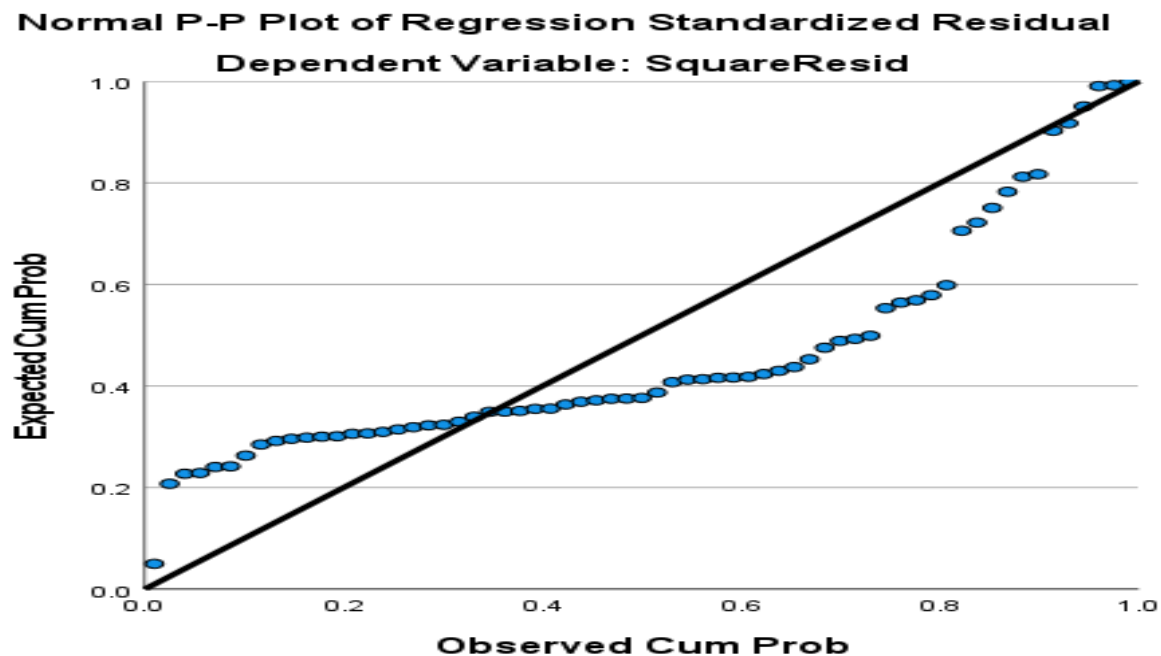
The normality test results for the variables financial knowledge, computation capability, financial education, risk attitude, and personal retirement planning show that the data distributions are slightly left-skewed and moderately peaked, with skewness values ranging from -1.495 to -1.920 and kurtosis

values between 0.998 and 2.161. According to Kim (2013), these values fall within acceptable ranges for normality in samples between 50 and 300. This confirms that the data meet the assumptions for parametric tests, such as correlation and regression analysis. Visual inspection of the normal P-P plots further supported normality, with data points closely following the line of best fit.

Table 6: Normality Test Results for Study Variables (Skewness and Kurtosis)

	Skewness	Std. Er	Kurtosis	Std. Er
FINANCIAL KNOWELDGE	-1.495	.297	.998	.586
COMPUTATION CAPABILITY	-1.563	.297	1.053	.586
FINANCIAL EDUCATION	-1.920	.297	2.161	.586
RISK ATTITUDE	-1.849	.297	2.006	.586
PERSONAL RETIREMENT PLANNING	-1.618	.297	1.474	.586

Figure 2 below revealed that personal retirement planning was normally distributed since the data lay along the line of best fit.

Figure 2: Normal P-P Plot for Personal Retirement Planning

Multicollinearity

The multicollinearity test using the Variance Inflation Factor (VIF) and Tolerance values showed no significant issues in this study. All VIF values were well below 10, ranging from 2.737 to 5.506,

and the mean VIF was 4.701, indicating no substantial correlation between the independent variables. Additionally, tolerance values for all variables were above the 0.2 threshold, further confirming the absence of multicollinearity.

Table 7: Multicollinearity Test Results (Tolerance and VIF Values)

Model	Collinearity Statistics	
	Tolerance	VIF
(Constant)		
FINANCIAL_KNOWLEDGE	0.189	5.280
COMPUTATION_CAPABILITY	0.189	5.280
FINANCIAL_EDUCATION	0.182	5.506
RISK_ATTITUDE	0.365	2.737
Mean VIF		4.701

Heteroscedasticity

The heteroscedasticity test using an ANOVA test showed no significant relationship between the independent variables and the error term variance, as the p-value of 0.433 was not statistically significant ($p > 0.05$). This confirms that the null hypothesis of heteroscedasticity can be rejected,

indicating homoscedasticity, where the variance of errors remains consistent across all observations. The absence of heteroscedasticity ensures the reliability and validity of the regression model, supporting the robustness of the relationships between financial literacy competencies and personal retirement planning, without interference from irregular error variances.

Table 8: ANOVA Test for Heteroscedasticity

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.057	4	.014	.966	.433b
	Residual	.890	60	.015		
	Total	.947	64			

a. Dependent Variable: SquareResid

b. Predictors: (Constant), RISK_ATTITUDE, FINANCIAL_EDUCATION, COMPUTATION_CAPABILITY, FINANCIAL_KNOWLEDGE

Multiple Regression Result

Multiple regression analysis was used to examine the combined effect of financial knowledge, computation capability, financial education, and risk attitude on personal retirement planning. The results revealed a strong positive correlation with an R-value of 0.959 and a coefficient of determination (R^2) of 0.920, indicating that 92% of the variance in retirement planning is explained by the independent variables. This high R^2 value aligns with findings

from similar studies on financial literacy and retirement planning (Meisa et al., 2023; Chen & Chen, 2023). The adjusted R^2 value of 0.915 confirms the model's robustness, while the standard error of 0.2921 suggests low deviation, supporting the model's accuracy. These findings underscore the significant role of financial competencies in effective retirement planning, with the remaining 8% of variance attributed to factors outside the study.

Table 9: Regression Model Summary for Financial Literacy Competencies and Retirement Planning

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.959 ^a	.920	.915	.29211775

a. Predictors: (Constant), RISK_ATTITUDE, FINANCIAL_EDUCATION, COMPUTATION_CAPABILITY, FINANCIAL_KNOWLEDGE

Analysis of Variance (ANOVA)

The ANOVA results confirm the validity of the regression model, showing a significant relationship between financial knowledge, computation capability, financial education, risk attitude, and personal retirement planning. With an F-value of 172.501 and a p-value of 0.000 (below the

significance threshold of 0.05), the model is statistically significant. The sum of squares for regression (58.880) indicates that the independent variables explain a large portion of the variation in retirement planning, further supported by the significantly larger mean square for regression (14.720) compared to residuals (0.085).

Table 10: ANOVA Results for Regression Model Significance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	58.880	4	14.720	172.501	.000 ^b
	Residual	5.120	60	.085		
	Total	64.000	64			

a. Dependent Variable: PERSONAL_RETIREMENT_PLANNING

b. Predictors: (Constant), RISK_ATTITUDE, FINANCIAL_EDUCATION, COMPUTATION_CAPABILITY, FINANCIAL_KNOWLEDGE

The regression results in Table 11 indicate that financial knowledge has a significant positive impact on personal retirement planning ($B = 0.181$, $t = 2.162$, $p = 0.035$). This finding suggests that employees who possess higher levels of financial knowledge are more likely to engage in effective retirement planning. Financial knowledge equips employees with an understanding of key concepts such as savings strategies, investment options, and the impact of economic factors like inflation on retirement funds. The results further show that computation capability has the strongest positive impact on personal retirement planning ($B = 0.444$, $t = 5.294$, $p = 0.000$). This indicates that employees

who are proficient in performing financial calculations are significantly better equipped to plan for their retirement. Computation capability allows employees to accurately project retirement savings, calculate the impact of interest rates, budget effectively, and assess the feasibility of long-term financial goals. Finally, the findings reveal that financial education significantly contributes to personal retirement planning ($B = 0.340$, $t = 3.973$, $p = 0.000$). Employees who have access to financial education resources are better equipped to understand complex financial products, evaluate investment options, and develop comprehensive retirement plans.

Table 11: Regression Coefficients for Financial Literacy Competencies and Retirement Planning

Coefficients					
	Unstandardized Coefficients		Standardized Coefficients		
Model	B	Std. Error	Beta	t	Sig.
1(Constant)	1.225E-16	0.036		.000	1.000
FINANCIAL_KNOWELDGE	0.181	0.084	0.181	2.162	0.035
COMPUTATION_CAPABILITY	0.444	0.084	0.444	5.294	0.000
FINANCIAL_EDUCATION	0.340	0.086	0.340	3.973	0.000
RISK_ATTITUDE	0.043	0.060	0.043	0.712	0.479

a. Dependent Variable: PERSONAL_RETIREMENT_PLANNING

DISCUSSIONS

The analysis of the current study reveals a strong, positive, and significant relationship between

financial knowledge and personal retirement planning among public sector employees at Mzinga Corporation. Employees with higher financial

knowledge are better positioned to make informed decisions regarding savings, investments, and retirement adjustments. This finding is consistent with Boisclair et al. (2015), who found that financially literate individuals are more likely to engage in retirement planning, and Clark et al. (2016), who observed that financial literacy directly influences retirement plan participation, contribution levels, and portfolio allocation. Beyond these comparisons, the finding underscores the practical implication that enhancing employees' financial knowledge can lead to more effective retirement preparedness, particularly in contexts where organisational support for retirement planning may be limited. However, the study also notes a contextual limitation, as findings contrast with Tan and Singaravelloo (2019), who found no direct correlation between financial literacy and retirement planning, suggesting that organisational policies and systemic support may moderate this relationship.

Computation capability emerged as the strongest predictor of personal retirement planning in this study. Employees with strong numerical and analytical skills are better equipped to project retirement savings, calculate interest effects, and evaluate long-term financial goals. This aligns with prior research by Agunga et al. (2017) and Safari et al. (2021), who highlighted computation skills as critical for retirement planning, and Tesfaye (2022), who emphasised their role in assessing financial needs and future savings. The practical implication is clear: financial training programs should prioritise developing computational skills to empower employees to make precise and strategic financial decisions. A limitation, however, is that computation capability may interact with other factors such as access to financial tools and advisory services, which were not fully explored in this study.

Financial education was also found to have a strong, positive, and significant influence on personal retirement planning. Employees with access to

financial education are better able to understand complex financial products, evaluate investment options, and develop comprehensive retirement strategies. This finding supports Ricci and Caratelli (2015), who observed that financial education significantly shapes retirement planning decisions, and Kalmi and Ruuskanen (2017), who reported similar benefits even in countries with robust social security systems. In the Tanzanian context, where public pension systems are limited, the practical implication is that financial education is essential for bridging knowledge gaps and enhancing employees' retirement readiness. Nevertheless, the study is limited by its focus on employees within a single corporation, which may restrict generalizability to other sectors or regions.

CONCLUSION AND RECOMMENDATIONS

Conclusion

This study demonstrates that financial literacy competencies, including financial knowledge, computation capability, and financial education, play a critical role in enhancing personal retirement planning among public sector employees at Mzinga Corporation. Beyond confirming their positive impact, the study highlights that gaps remain in areas such as diversified investment knowledge and risk management strategies, which can limit employees' long-term financial security. The research contributes to both theory and practice by emphasising the practical importance of integrating financial literacy into workplace development programs and showing how these competencies can influence retirement preparedness, especially in contexts with limited public pension systems. Furthermore, the study provides a foundation for future research on sector-specific financial behaviours and the effectiveness of tailored financial education interventions.

Recommendations

Based on the findings of this study, it is recommended that organisations implement targeted financial education programs that focus on

retirement planning, investment diversification, and risk management to equip employees with the knowledge and skills necessary for informed financial decision-making and long-term financial security. Strengthening employees' computational and numerical skills through practical workshops and exercises is also essential, as these skills enable accurate projection of savings, calculation of interest impacts, and evaluation of long-term financial goals, particularly in contexts with limited access to advisory support. In addition, organisations should provide continuous access to financial advisory services and resources to allow employees to adapt their retirement strategies to personal or economic changes, reinforcing the practical application of financial literacy competencies. Policymakers should also integrate financial literacy initiatives into public sector employment programs to promote a broader culture of financial preparedness. Finally, future research should adopt multi-sector and longitudinal designs to examine the long-term effects of financial literacy interventions on retirement planning, thereby enhancing both the generalizability of findings and the practical applicability of strategies aimed at improving retirement readiness.

Policy Implications

This study calls for the implementation of comprehensive workplace-based financial literacy programs that aim to improve employees' understanding of key financial concepts, such as financial markets, investment diversification, and risk management strategies. These programs should be designed to provide employees with the knowledge and skills necessary to make informed financial decisions, particularly regarding retirement planning. Policymakers should also advocate for the provision of professional financial advice and resources within the workplace to ensure that employees have access to expert guidance when navigating complex financial products and investment opportunities. Additionally, strengthening access to collective investment

schemes and promoting participation in such schemes can help employees diversify their investments, providing more opportunities for long-term wealth accumulation. Offering tax incentives or matching contributions for structured retirement products, such as pension plans or 401(k)-type schemes, would further encourage employees to save consistently for retirement, ensuring greater financial security in their later years. Furthermore, organisations should prioritise training programs that focus on improving employees' practical computational skills, enabling them to accurately assess and plan for future financial needs, such as retirement savings projections and budgeting. Integrating risk management programs into these educational initiatives will also be crucial, as it will equip employees with the necessary tools to balance potential financial risks and rewards, eventually enhancing their overall financial preparedness and ability to plan effectively for retirement.

Areas for Further Studies

Despite its valuable contributions, this study has some limitations. The sample was limited to employees at Mzingira Corporation, which may affect the generalizability of the findings to other public sector organisations. Additionally, while the study explored the relationship between financial literacy competencies and retirement planning, it did not account for broader socio-economic factors that may influence retirement behaviour. Future research could examine the long-term impact of financial literacy programs on retirement outcomes and explore how demographic factors like gender, age, and income influence financial decision-making. Furthermore, investigating the role of risk attitude in retirement planning and the effect of organisational support, such as employer-sponsored retirement plans, would provide deeper insights into how to enhance retirement preparedness across different groups.

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