AOSIS

Assessing the role of education and financial literacy in shaping the success of spaza shops: Case study of Gamalakhe Township, KwaZulu-Natal, South Africa

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Authors:
Mondli B. Mkhize[1]
Shame Mugova[2]

Affiliations:
[1]Department of Entrepreneurial Studies and Management, Faculty of Management Sciences, Durban University of Technology, Durban, South Africa

[2]College of Accountancy, Finance and Economics, Faculty of Business, Law and Social Sciences, Birmingham City University, Birmingham, United Kingdom

Corresponding author:
Shame Mugova,
shame.mugova@bcu.ac.uk

Background: This study examined how education influences financial literacy (FL) and subsequent business success among spaza shop owners in Gamalakhe Township, KwaZulu-Natal.

Aim: This study aimed to investigate whether the level of education is a significant factor in determining the FL skills needed to run spaza shop businesses by surveying 100 spaza shop owners.

Setting: The study setting was Gamalakhe Township, KwaZulu-Natal.

Methods: The quantitative data were analysed via correlations and ordinal logistic regression.

Results: The findings of descriptive statistics and correlations reveal that education significantly predicts FL levels, which in turn drives improved decision-making and business outcomes.

Conclusion: The ordinal logistic regression revealed that education level influences the level of FL.

Contribution: The findings emphasise the importance of developing experiential learning and mentorship programmes to address FL gaps among township entrepreneurs.

Keywords: financial literacy; education level; spaza shops; entrepreneurial success; small business management; township economy; Gamalakhe township; financial decision-making.

Introduction

Spaza shops represent a significant segment of South Africa's informal economy, serving as vital retail outlets within township communities by supplying everyday essentials. Originating during the apartheid era as a response to the socio-economic restrictions imposed on black South Africans, these often-home-based micro-enterprises have evolved to become entrenched in predominantly black urban and peri-urban areas (Yesufu 2021). Their presence plays a crucial role in alleviating poverty and unemployment by fostering grassroots economic participation and offering employment opportunities (Hare & Walwyn 2019). They help reduce some aspects of unemployment in these areas by facilitating access to basic requirements and providing jobs and local economic activity (Perks 2010). Despite their socio-economic contributions, many spaza shops are run by individuals with limited financial acumen. The level of financial literacy (FL) of these small business owners influences their ability to grow and have successful businesses (Musie 2015). The financial management of small businesses largely depends on the skills and FL of the owners. Owners who possess strong financial knowledge are better equipped to handle budgeting, financial planning, risk management and investment decisions capabilities that are essential for effective financial control (FC) and long-term viability (Chiloane-Tsoka & Rankhumise 2019; Fatoki 2021). In a simple sense, FL empowers spaza shop owners by helping them understand how money works in a business and make informed decisions that support the operational and strategic health of their businesses.

Financial literacy is a crucial entrepreneurial skill that helps businesses navigate and survive in volatile environments. Eniola and Entebang (2016) state that FL leads to several positive impacts on businesses, such as equipping individuals with the financial knowledge necessary to create

Note: Additional supporting information may be found in the online version of this article as Online Appendix 1.

household budgets, initiating saving plans, making strategic investment decisions and paying bills on time and proper debt management, all of which can have positive results and improve the creditworthiness of potential debtors to support business performance. According to Lusardi and Mitchell (2014), FL enables investors to assess and compare different financial products, such as bank accounts, savings options, credit and loans, payment methods, investments and insurance, to make informed decisions. Furthermore, FL education equips individuals with essential knowledge, skills and confidence to make informed financial decisions and identify viable business opportunities, which can significantly enhance business performance. Recent studies emphasise that FL is a key driver of sustainable business development, as it supports effective resource allocation, strategic financial planning and risk mitigation (Lusardi & Mitchell 2020; OECD 2023). This competency is particularly important for SMEs facing volatile economic environments (Miller et al. 2009, as cited in Aziz & Cassim 2020).

Therefore, it can be argued that small businesses such as spaza shops led by financially literate entrepreneurs are more likely to achieve business success than those run by less knowledgeable people. Research indicates that entrepreneurs with higher levels of FL are better equipped to manage cash flow, access financing and make strategic decisions, all of which contribute to improved business performance and sustainability (Amponsah & Osei-Assibey 2023; Lusardi 2022; OECD 2023). Studies suggest a strong association between FL and improved financial behaviour, though the direction of causality remains a subject of ongoing research. While individuals with higher FL tend to exhibit better budgeting, saving and borrowing practices, some scholars argue that positive financial behaviour may also lead to greater financial knowledge over time (Kaiser & Menkhoff 2021; Lusardi 2022; OECD 2023). Individuals with FL are less likely to be overwhelmed by the complexities of the financial system. Numerous studies have shown that FL positively influences entrepreneurial success (Atkinson & Messy 2012; Lusardi & Mitchell 2014). Nonetheless, there are instances where financially illiterate individuals successfully manage businesses. For example, in Kenya, many informal sector SMEs, such as those in the Jua Kali and farming sectors, are run by financially illiterate entrepreneurs who still achieve significant success (Kinyanjui 2014; Moyi 2013).

Financial literacy has garnered growing interest globally because of its impact on financial decision-making. We investigate whether education level predicts FL skills and how these skills influence financial management decisions, such as budgeting, financing and investing. This study explores the FL and financial management practices of township spaza shops located in the KwaZulu-Natal lower South Coast area of KwaGamalakhe Township. The aim of this article is to investigate how FL affects business success using educational attainment as a key determinant of literacy. We analysed FL and financial management concepts such as financial planning, budgeting, financing, managing financial

risks, FC and investing decisions, which helped establish the role and use of financial concepts in township spaza shop businesses. The application of financial management has led to the survival and success of township spaza shops, and the identification of FL challenges and management skills inadequacies is necessary to ascertain the support required for the growth of these small informal businesses in South Africa. The hypothesis behind the study is that FL influences the success rate of small informal businesses in townships.

Literature review
Education and financial literacy

Further research is needed to examine whether entrepreneurs can achieve even greater business performance with enhanced FL, as emerging studies suggest a positive but still evolving relationship between advanced financial skills and entrepreneurial success (Amponsah & Osei-Assibey 2023; Lusardi 2022; OECD 2023). Adopting an effective financial management strategy is crucial for businesses to successfully navigate and adapt to the challenges of a fluctuating business landscape (Ross, Westerfield & Jaffe 2016).

Effective financial management is crucial for ensuring business sustainability and growth. Implementing an appropriate financial management strategy is one of the most effective ways to enhance business performance (Hamdan, Adiyanto & Sunaryo 2024). Financial management is a multifaceted process that involves gathering, organising, overseeing and utilising funds and financial resources effectively (Ross et al. 2016). Proper financial management practices are crucial for optimising financial performance and ensuring long-term business stability (Brealey et al. 2018). Making the right financial decisions can assist spaza shops and small, and medium enterprises (SMEs) in managing risks and generating value for their stakeholders. However, despite the critical role of financial management in achieving business success, many spaza shops continue to face difficulties in handling their finances. Some large companies have gone bankrupt because of poor financial management, a lack of understanding of financial practices and inadequate financial planning. Moreover, a dynamic and highly competitive business environment significantly influences financial management practices, as rapid changes often require firms to adapt their financial strategies and make swift, coordinated decisions to maintain stability and growth. Recent research highlights the fact that external market volatility, technological advancements and global economic shifts compel businesses to continuously reassess and adjust their financial policies (Kliestik et al. 2022; PwC 2023; World Economic Forum 2023). Adopting an effective financial management strategy is crucial for businesses to successfully navigate and adapt to the challenges of a fluctuating business landscape (Ross et al. 2016).

The level of FL of small business owners influences their ability to grow and have successful businesses (Musie 2015). The financial management of small businesses largely depends on

the skills and FL of the owners. Drexler, Fischer and Schoar (2014) highlighted the fact that education improves not only FL but also the ability to manage business finances effectively. Their research, which focused on micro-enterprises, revealed that business owners with higher educational levels were more adept at tracking cash flows, budgeting and accessing external financing, all of which are critical for business success. A financially literate entrepreneur is more likely to improve a firm's resilience. Hamid et al. (2023) reported that FL gives business owners the ability to comprehend business cycles and make wise decisions, both of which are critical for overcoming economic obstacles. The claim that entrepreneurs with more FL are better equipped to endure financial shocks and uncertainties is bolstered by research showing a robust association between FL and firm resilience (Hamid et al. 2023). Additionally, Dahmen and Rodríguez (2014) state that mastering FL enables small business owners to properly comprehend financial statements and ratios, which are essential for determining the health of their companies.

Financial literacy and small business success

Financial literacy is increasingly recognised as a crucial determinant of small business success. It encompasses the knowledge and skills necessary for individuals to make informed financial decisions, manage resources effectively and manage the complexities of business finance. The relationship between FL and small business performance has been the subject of extensive research, highlighting its impact on various aspects of business management, resilience and growth. A significant body of literature underscores the importance of FL in enhancing the resilience of small businesses. Hamid et al. (2023) argued that FL equips entrepreneurs with the necessary skills to understand business cycles and make informed decisions, which is essential for navigating economic challenges. This assertion is supported by findings that indicate a strong correlation between FL and business resilience, suggesting that entrepreneurs with higher FL are better positioned to withstand financial shocks and uncertainties (Hamid et al. 2023). Furthermore, Dahmen and Rodríguez (2014) emphasise the fact that small business owners who master FL can effectively interpret financial statements and ratios, which are critical for assessing business health and making strategic decisions.

The impact of FL extends beyond mere survival; it significantly influences business growth and profitability. Munyuki and Jonah (2021) conducted a mixed-method analysis and revealed that young entrepreneurs with high FL levels experienced substantial increases in sales revenue and profits. This aligns with the findings of Nyagope and Nyagope (2024), who highlighted the fact that effective financial management, facilitated by FL, is crucial for the growth and sustainability of micro, small, and medium enterprises (MSMEs). Similarly, Erhomosele and Obi (2022) reported that entrepreneurs with advanced FL are more likely to pursue growth objectives, thereby increasing their business success.

Moreover, FL plays a pivotal role in fostering sound financial behaviour among small business owners. Budiasa, Pratiwi and Maharani (2022) noted that a lack of financial knowledge can lead to suboptimal financial conditions, underscoring the necessity for business owners to possess robust financial management skills. This sentiment is echoed by Mashizha, Maumbe and Sibanda (2019), who assert that FL is a prerequisite for effective decision-making in SMEs, ultimately influencing their operational performance and growth trajectory.

The implications of FL are particularly pronounced in the context of financial inclusion. Togun et al. (2022) reported that FL not only enhances the performance of SMEs but also mediates the relationship between financial inclusion and business success. This highlights the need for targeted FL programmes that can empower small business owners, particularly in underserved communities, to access financial resources and improve their operational capabilities. Financial literacy emerges as a fundamental component of small business success. It equips entrepreneurs with the necessary tools to manage finances effectively, enhances resilience against economic fluctuations and fosters growth and profitability. As such, there is a pressing need for policymakers and business support organisations to prioritise FL initiatives, ensuring that small business owners are well-equipped to manage the complexities of the business environment and achieve sustainable success.

Informal business challenges in townships

In South African townships, the informal business sector faces numerous obstacles that have a substantial impact on its growth and viability. Small, medium and micro-enterprises (SMMEs) operating in these sectors face a challenging environment because of the diverse nature of these challenges, which include economic, social and regulatory aspects. Limited access to financial resources remains a major challenge for entrepreneurs, particularly those operating informal businesses such as township enterprises. Recent studies show that stringent lending criteria, collateral requirements and perceived high risks continue to restrict informal businesses from securing financing from mainstream financial institutions (Fatoki 2021; International Finance Corporation 2023; World Bank 2022). Their capacity to invest in infrastructure, technology and inventory is restricted by this financial exclusion, which eventually impedes their ability to thrive (Malgas & Zondi 2020). Additionally, these enterprises' informal characteristics frequently make it impossible to build credit histories, which makes their financial issues even worse (Malgas & Zondi 2020).

Township enterprises must overcome logistical obstacles in addition to financial obstacles to survive. The operational capacity of small merchants in townships can be significantly hampered by logistical inefficiencies and poor supply chain management, as noted by Eicker and Cilliers (2016). Poor infrastructure exacerbates these

logistical problems by affecting transportation and the timely delivery of goods, which in turn affects sales and customer satisfaction (Eicker & Cilliers 2016). These companies' capacity to compete with larger, more established stores is made more difficult by the absence of dependable transit choices (Eicker & Cilliers 2016).

The difficulties experienced by unofficial enterprises in townships are also influenced by social factors. Local business owners frequently face a hostile environment because of competition from foreign-owned companies, which can cause tensions and, in certain situations, xenophobic sentiments (Lamb, Kunene & Dyili 2019). As foreign-owned companies may have access to superior networks and resources, enabling them to offer a greater variety of items at cheaper rates, this rivalry may make it more difficult for local businesses to survive (Lamb et al. 2019). Furthermore, complicating the business environment and making it challenging for businesses to operate safely and profitably are the socio-economic circumstances in townships, which include high rates of unemployment and crime (Seseni 2023). Furthermore, the distinct features of township economies call for specialised intervention and support plans. According to studies, township SMMEs need particular interventions, such as training and capacity-building programmes, to address their particular problems (Bvuma & Marnewick 2020). Entrepreneurs can benefit from these programmes by developing their abilities, which helps them deal with the challenges of operating a business more successfully and sustainably (Bvuma & Marnewick 2020).

Research methods and design

Spaza shops within the Ray Nkonyeni Municipality in the Ugu district are spread across several areas, including Hibberdene, Port Shepstone, Shelly Beach, Margate, Ramsgate, Gamalakhe, Murchison and Izingolweni, collectively serving an estimated population of 362 134 people (Municipalities of South Africa: Ray Nkonyeni Municipality 2022). This study specifically focuses on spaza shops operating within Gamalakhe Township, which has a population of approximately 15 000 residents and is supported by more than 200 informal retail outlets (Impande's History 2019). As of December 2024, over 500 spaza shops were accounted for in the Ray Nkonyeni Municipality, contributing to Ugu District's significant share of KwaZulu-Natal's total 51 000 registered spaza shops (EWN 2024). This highlights the municipality's strong informal trade presence. The government-led registration drive, launched in November 2024 and extended to February 2025, aims to enhance food safety and business compliance (Daily Investor 2024). However, many shops remain unregistered because of non-compliance or lack of awareness, necessitating further research on its economic impact (AllAfrica 2024).

To account for the sample size of the targeted population, the researcher used

Slovin's formula to compute the sample size in a study given the total population and margin of error (Tejada 2012). Slovin's formula (Equation 1) is defined as follows:

$$n = \frac{N}{1 + Ne^2} \qquad \text{[Eqn 1]}$$

where:
n = Sample size
N = Total population (500 spaza shops within Ugu district)
E = Margin of error (0.09, which is calculated at the 90% confidence level)
For this study, the total population is disclosed to be 500 potential participants, and the margin of error to be used is 9%. These figures applied to the formula are as follows (Equation 2):

$$n = \frac{500}{1 + 500(0.09)^2} = 99 \qquad \text{[Eqn 2]}$$

To enhance data reliability and address potential challenges such as non-response, incomplete questionnaires and participant attrition, the researcher recruited approximately 140 individuals through purposive sampling and the analysis was conducted on 100 spaza shops as per the Slovin's formula calculation. This strategy aligns with the recommendations of Fowler (2014) and Creswell (2014), who advocate for oversampling to secure a final sample size that is adequate for rigorous analysis. Oversampling is particularly effective in addressing common limitations in survey-based research, including missing data and dropout, which may threaten the validity and reliability of the findings. Using the inclusion and exclusion criteria, data were collected from spaza shops in KwaGamalakhe Township, including both current and former owners from the past decade, while excluding shisanyama, vendor stalls, non-food outlets and informal fast-food businesses. Participation required formal consent, and efforts were made to ensure a balanced representation across different racial groups within the area (Creswell & Plano Clark 2011; Etikan, Musa & Alkassim 2016). To choose spaza shop owners in South African townships who could offer valuable insights into the connection between education, FL and company sustainability, a purposive sample technique was used. Township location, ownership and financial management responsibilities, minimal operating experience of at least 1 year and use of basic financial services were the main inclusion criteria.

Ordinal regression

A statistical method for examining the associations between an ordinal dependent variable and one or more independent variables is ordinal regression, often known as the proportional odds model. It works especially well when the dependent variable is made up of categories that naturally occur in a certain order, but there is not a regular gap between them (Agresti 2010). The proportional odds model created by McCullagh (1980) is the most widely used framework for ordinal regression. The cumulative probability, or log chances of falling into a category, is represented in this model as a linear function of the predictors.

TABLE 1: Descriptive statistics.

Variable	Statistical measure	Statistic	SE
FL	Mean	3.04	0.04
	SD	0.38	-
FPB	Mean	3.11	0.06
	SD	0.57	-
F	Mean	2.60	0.06
	SD	0.63	-
MFR	Mean	2.76	0.07
	SD	0.71	-
FC	Mean	3.33	0.04
	SD	0.38	-
I	Mean	2.86	0.04
	SD	0.45	-
DPS	Mean	3.38	0.04
	SD	0.37	-
MSS	Mean	3.38	0.03
	SD	0.35	-

FL, financial literacy; FPB, financial planning and budgeting; F, financing; MFR, management of financial risk; FC, financial control; I, investment; DPS, demand and procurement of stock; MSS, market share sustainability; SD, standard deviation; SE, standard error.

Ordinal regression is based on the fundamental premise that there is a constant (or parallel) relationship between each predictor variable and the dependent variable across all dependent variable thresholds. This presumption guarantees that the predictors' coefficients are constant across category levels (Williams 2016). Alternative methods, like partial proportional odds models, may be required if this assumption is broken because it may produce biassed results (Peterson & Harrell 1990). The dataset's observations have to be unrelated to one another.

The maximum likelihood estimation (MLE) method remains the standard approach for estimating parameters in ordinal regression models. When the proportional odds assumption holds, MLE produces consistent, efficient and unbiased estimates by maximising the likelihood of the observed outcomes based on the model parameters (Agresti 2019; Williams 2021). Verifying that the proportional odds assumption is true is a crucial step in ordinal regression. The test of parallel lines determines if the predictors' coefficients are comparable across all thresholds of the ordinal dependent variable. The proportional odds assumption is routinely tested using statistical software such as SPSS and R. A significant test result indicates a violation of this assumption, prompting the need for alternative modelling approaches like generalised ordered logit models, while a non-significant result supports the validity of the proportional odds model (Fullerton & Anderson 2023; Williams 2021).

Descriptive statistics

Table 1 provides an analysis of the descriptive statistics for various financial and operational measures, including FL, financial planning and budgeting (FPB), financing (F), managing financial risk and FC, investment (I), demand and procurement of stock (DPS) and market share sustainability (MSS). The statistical measures presented include the mean, standard error, confidence intervals, median, variance, standard deviation, skewness and kurtosis.

The mean FL score is 3.04, indicating a moderate level of FL among respondents. The variance and standard deviation reflect moderate variability in the scores. The mean score for financial planning budgeting behaviour is 3.11, suggesting that respondents generally engage in some level of financial planning. The mean financing knowledge and application score is 2.60, indicating lower financing application. Overall, the data show that respondents exhibit moderate levels across most financial variables, with some variability in scores. Compared with other variables, FC, DPS and MSS tend to have higher means and exhibit less variability. Financing and managing financial risk show more variability. These descriptive statistics provide a foundational understanding of the respondents' FL and attitudes.

Correlations

To understand the relationships between FL and various financial behaviours and attitudes, a Pearson correlation analysis was conducted with results presented in Table 2. The variables included FPB, financing (F), managing financial risk, financial control (FC), investing (I), DPS and MSS. Financial literacy was found to have significant positive correlations with several key financial behaviours and attitudes.

The correlation between FL and FC was the strongest, with a Pearson correlation coefficient of 0.698 ($p < 0.001$). This finding indicates a strong positive relationship, suggesting that individuals with greater FL tend to exhibit greater confidence in their FC decision-making. A moderate positive correlation was found between FL and the FPB, with a Pearson correlation coefficient of 0.577 ($p < 0.001$). These findings suggest that individuals with greater FL are more likely to engage in effective FPB. The correlation coefficient between FL and MFR (Management of financial risk) is as follows: 0.480 ($p < 0.001$), indicating a moderate positive relationship. These findings suggest that greater FL is associated with better management of monetary risk.

Financial literacy also showed a moderate positive correlation with financing decisions (F), with a coefficient of 0.410 ($p < 0.001$). This highlights the fact that individuals with greater FL tend to possess more financing knowledge or financing methods. Investment (I): The correlation coefficient between FL and investment was 0.384 ($p < 0.001$), indicating a moderate positive relationship. This suggests that greater FL is associated with greater tolerance for investing in business funds. Demand and procurement of stock: FL was also positively correlated with DPS, with a Pearson correlation coefficient of 0.338 ($p < 0.001$). This implies that individuals with greater FL are more likely to have effective strategies for the procurement of stock. Market share sustainability was the only variable that did not show a significant correlation with FL. The correlation coefficient between FL and MSS was −0.010 ($p = 0.919$), indicating that there was no meaningful relationship. This suggests that MSS is not directly related to an individual's level of FL.

TABLE 2: Financial literacy correlations.

Variable and statistic	Correlations							
	FL	FPB	F	MFR	FC	I	DPS	MSS
FL								
Pearson correlation	1	0.58**	0.41**	0.48**	0.70**	0.38**	0.34**	-0.01
Sig. (two-tailed)	-	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.919
N	100	100	100	100	100	100	100	100
FPB								
Pearson correlation	0.58**	1	0.41**	0.22*	0.60**	0.16	0.23*	0.13
Sig. (two-tailed)	< 0.001	-	< 0.001	0.027	< 0.001	0.122	0.021	0.194
N	100	100	100	100	100	100	100	100
F								
Pearson Correlation	0.41**	0.41**	1	0.01	0.42**	0.10	0.17	-0.00
Sig.(two-tailed)	< 0.001	< 0.001	-	0.879	< 0.001	0.298	0.099	0.982
N	100	100	100	100	100	100	100	100
MFR								
Pearson Correlation	0.48**	0.22*	0.01	1	0.68**	0.53**	0.29**	-0.06
Sig. (two-tailed)	< 0.001	0.027	0.879	-	< 0.001	< 0.001	0.003	0.575
N	100	100	100	100	100	100	100	100
FC								
Pearson Correlation	0.70*	0.60*	0.42**	0.68**	1	0.38**	0.35**	0.073
Sig. (two-tailed)	< 0.001	< 0.001	< 0.001	< 0.001	-	< 0.001	< 0.001	0.470
N	100	100	100	100	100	100	100	100
I								
Pearson Correlation	0.38**	0.16	0.10	0.53**	0.38**	1	0.21*	0.05
Sig. (two-tailed)	< 0.001	0.122	0.298	< 0.001	< 0.001	-	0.036	0.592
N	100	100	100	100	100	100	100	100
DPS								
Pearson Correlation	0.34**	0.23*	0.17	0.29**	0.35**	0.21*	1	0.409**
Sig. (two-tailed)	< 0.001	0.021	0.099	0.003	< 0.001	0.036	-	< 0.001
N	100	100	100	100	100	100	100	100
MSS								
Pearson Correlation	-0.010	0.131	-0.002	-0.057	0.073	0.054	0.409**	1
Sig. (two-tailed)	0.919	0.194	0.982	0.575	0.470	0.592	< 0.001	-
N	100	100	100	100	100	100	100	100

FL, financial literacy; FPB, financial planning and budgeting; F, financing; MFR, Management of financial risk; FC, financial control; I, investment; DPS, demand and procurement of stock; MSS, market share sustainability.

*, Correlation is significant at the 0.05 level (two-tailed); **, Correlation is significant at the 0.01 level (two-tailed).

Correlations between variables

Financial planning and budgeting showed moderate positive correlations with both financing (F) ($r = 0.411$, $p < 0.001$) and FC ($r = 0.603$, $p < 0.001$). This finding indicates that better financial planning is associated with effective financing and better FC measures. Management of financial risk had a strong positive correlation with FC ($r = 0.676$, $p < 0.001$), suggesting that individuals who use financial risk management tools tend to feel more confident in their FC measures. Demand and Procurement of Stock was moderately correlated with FC ($r = 0.350$, $p < 0.001$) and MSS ($r = 0.409$, $p < 0.001$), indicating that the effective procurement of stock is associated with both greater FC and greater sustainability of their market share.

The correlation analysis highlights the significant relationships between FL and several important financial management tools. Financial literacy is strongly associated with FC and is moderately linked to behaviours such as financial planning, the MFR and demand and procurement strategies. The analysis also suggests that while FL is important, its relationship with the sustainability of market share is negligible, implying that other factors may

TABLE 3: Model fitting information.

Model	-2 Log Likelihood	Chi-square	df	Sig.
Intercept-only	154.45	-	-	-
Final	134.21	20.25	3	< 0.001

Note: Link function: Logit.
df, degrees of freedom; Sig., significance.

be more influential in this domain. These findings underscore the critical role of FL in shaping positive financial management, suggesting that efforts to improve FL could have widespread benefits across various aspects of financial well-being.

Ordinal logistic regression

To investigate the relationship between individuals' level of education and their FL, an ordinal logistic regression model was used. This model estimates the likelihood that higher levels of education are associated with greater FL.

The model fitting information presented in Table 3 revealed that the inclusion of education level as a predictor significantly improved the model. The -2 log likelihood for the final model (which includes education level) was 134.206, whereas it was

TABLE 4: Goodness-of-fit.

Statistic	Chi-square	*df*	Sig.
Pearson	62.778	36	0.004
Deviance	70.877	36	< 0.001

Note: Link function: Logit.
df, degrees of freedom; Sig., significance.

TABLE 5: Pseudo *R*-square.

Statistical measure	Value
Cox and Snell	0.18
Nagelkerke	0.18
McFadden	0.04

Note: Link function: Logit.

154.452 for the intercept-only model. The Chi-square statistic for the improvement in fit was 20.247 with three degrees of freedom ($p < 0.001$). This significant p value indicates that education level is a significant predictor of FL, and its inclusion in the model provides a substantially better fit than a model without it.

Ethical considerations

The Durban University of Technology-Institutional Research Ethics Committee provided ethical approval under IREC 052/23. All participants completed informed consent forms. Data were collected via closed-ended questions based on a five-point Likert scale questionnaire self-administered to participants. Participation was entirely voluntary.

Results

Reliability of questionnaire was tested through a pilot study and computation of Cronbach alpha. The level of education referred to general education such as completing matric and participants' identities were kept anonymous to protect their privacy. The quantitative data were analysed via the Statistical Package for the Social Sciences (SPSS).

However, the goodness-of-fit statistics presented in Table 4 revealed mixed results. The Pearson Chi-square test yielded a value of 62.778 (degree of freedom [*df*] = 36, $p = 0.004$), and the deviance Chi-square test returned a value of 70.877 ($df = 36$, $p < 0.001$). These significant p values suggest a potential lack of perfect fit. However, given the sensitivity of these tests to sample size, these results do not necessarily invalidate the model but suggest that it may not capture all the complexities of the data.

The model's explanatory power was assessed via pseudo-R-square measures presented in Table 5. The Cox and Snell R-square was 0.183, the Nagelkerke R-square was 0.185 and the McFadden R-square was 0.041 (see Table 5). These values indicate that the level of education explains approximately 18.5% of the variance in FL according to the Nagelkerke R-square, with the McFadden R-square suggesting that approximately 4.1% of the variance is explained by the model. While these values demonstrate that education level has a notable effect, they also imply that other factors are likely influencing FL.

Discussion

This study examines the relationship between educational attainment and FL among spaza shop owners and analyses how FL influences business management. Our research question is whether the level of education is a significant factor in determining the FL skills needed to run the spaza shop business. The results revealed that education level is a significant predictor of FL, with higher education levels generally associated with higher FL scores. Moreover, while educational level influences FL scores, other factors must also be considered. This finding aligns with that of Lusardi and Mitchell (2011), who reported a strong positive correlation between education and FL, where individuals with higher educational attainment demonstrated better financial decision-making skills. Their study emphasised that formal education equips individuals with basic numeracy and problem-solving skills essential for understanding financial concepts, which are crucial for running small businesses such as spaza shops. In the context of small businesses, Drexler et al. (2014) highlighted the fact that education improves not only FL but also the ability to manage business finances effectively. Their research, which focused on micro-enterprises, revealed that business owners with higher educational levels were more adept at tracking cash flows, budgeting and accessing external financing, all of which are critical for business success.

However, as indicated in the current study, the relationship between education and FL is not entirely linear, as other factors, such as age, experience and access to financial resources, also play a role. According to a study by Van Rooij, Lusardi and Alessie (2011), individuals with more life experience and exposure to financial products tend to display higher FL levels, even when formal education is limited. This suggests that FL can be enhanced through practical experience, not just formal education. Furthermore, Cole, Sampson and Zia (2011) explored the impact of financial education programmes on entrepreneurs in developing countries and reported that while education is a significant factor, the effectiveness of FL depends on how education is delivered and applied in real-life situations. This echoes the call in the present study for further investigation into how education interacts with other variables to influence FL, especially in different social and economic contexts. The results reveal a significant link between education and FL and its influence on financing decisions and affirm that education is a key determinant of FL.

We sought to determine whether the level of education significantly influenced the application of FL skills. The results, as shown by the logistic regression model, revealed that education level does indeed have a considerable effect on how FL is applied. The model also suggested that while education is a key factor, other elements, such as experience, contribute to the effective application of FL skills. Lusardi and Mitchell (2011) reported that while formal education improves basic financial knowledge, the practical

application of FL often depends on real-world experience and exposure to financial decision-making environments. Similarly, Fernandes, Lynch and Netemeyer (2014) argue that although education is crucial, experiential learning, such as managing finances over time, can significantly improve one's ability to apply FL concepts effectively. Likewise, Huston (2010) highlights the fact that financial education programmes alone may not be sufficient to ensure skilful financial decision-making, unless paired with ongoing practical experience. This aligns with the findings of the present study, reinforcing the idea that education enhances FL but must be complemented by factors such as experience for better application.

Many Spaza store owners operate their companies to satisfy their basic requirements rather than simply to maximise profits. Because spaza owners sometimes depend on stokvels or informal lenders, which raises capital costs, traditional banks consider these tiny township firms to be high-risk. Profitability is impacted by high crime rates, which deter investment in expansion (e.g., stock theft, vandalism). Competition is heightened by the rise of foreign-owned spaza stores with stronger supply chain connections. Operations are disrupted by inadequate transportation, inadequate storage facilities and unstable electricity.

Conclusion

This study investigated how education may improve FL and how it affects the performance of spaza stores in Gamalakhe Township. The findings showed that formal education is essential for giving storeowners the fundamental knowledge and abilities needed for FL. Highly educated store owners showed a greater understanding of financial principles and procedures, which resulted in superior financial management choices regarding cash flow management, investing and budgeting. As a result, small businesses with financially savvy owners have a greater chance of success and operational stability. Our findings are enhance the theory of resource-based view and human capital among small business owners. The success of spaza store owners frequently depends less on outside finance and more on their financial acumen and knowledge. We also expand the theory of planned behaviour in entrepreneurship. Therefore, improving FL can change mindsets, increasing the intention and actual behaviour to grow the business sustainably.

To enhance FL and decision-making in spaza shops, training programmes focused on improving FL should be prioritised for spaza shop owners. Training programmes could provide entrepreneurs with the skills to evaluate and select better financing options and higher-level investment opportunities as financially literate individuals are more likely to make sound financial decisions. Our findings show that while education plays a critical role in enhancing FL, real-world experience is just as important in its application. Therefore, combining formal financial education with experiential

learning opportunities, such as mentorship or financial management workshops, would better equip spaza shop owners to apply their FL in practice. Free or subsidised FL training programmes aimed at informal entrepreneurs should be implemented because many FL workshops and courses have fees that low-income business owners cannot afford. Participation in online financial education programmes is limited by limited access to technology, including smartphones and the internet. As they cannot afford to take time off from their firms, entrepreneurs frequently prioritise activities that generate immediate income rather than training programmes.

We recommend the implementation of community-based financial education that is taught in local languages and includes examples that are pertinent to the culture (e.g., focussing on informal lending practices and stokvel management). By creating microfinance products tailored to each township and including financial education, microfinance and credit access could be enhanced. This can also assist spaza owners with official registration, supplier savings and government incentives and also increase transaction records and savings, implement mobile money, point-of-sale (POS) systems and basic accounting applications.

However, not all FL deficits among informal business owners cannot be filled by formal schooling alone or training in FL. Many spaza shop owners rely on experience and informal education, which hinders their capacity to completely understand intricate financial ideas. The growth of FL is further hampered by issues such as a lack of mentorship opportunities, time constraints and resource limitations. A larger population and sample size in future studies could enhance generalisability. Further investigation is needed to understand the varying effects of education on FL across different groups. Future research could investigate the interplay between FL and other socio-economic factors, such as access to financial services, community support systems and local economic conditions, to gain a more comprehensive understanding of how these elements collectively influence entrepreneurial success.

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Authors' contributions

M.B.M. contributed to the conceptualisation, methodology, formal analysis, investigation, writing, visualisation, project administration, resources and writing. S.M. contributed to visualisation, validation, writing and supervision. M.B.M. conducted the research as part of his Master's studies, under the supervision of S.M.

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Data availability

The data that support the findings of this study are available from the corresponding author, S.M., upon reasonable request.

Disclaimer

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