

RELATIONSHIP BETWEEN FINANCIAL LITERACY AND FINANCIAL STABILITY: THE MEDIATING EFFECT OF DUAL-INCOME FAMILIES

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Abstract:

Background: In many developing countries transitioning from agricultural to industrial-based economies, financial literacy has emerged as an important determinant of overall household economic stability. For the teachers in Ghana, however, financial challenges remain, including the low and erratic nature of their salaries, few options to save and poor financial planning. Although there are increasing numbers of two-income households, there is little research into how household income structures mediate the relationship between financial literacy and stability, specifically within the context of educators working in rural areas.

Objective: This study examined whether or not dual-income families act as mediators of the relationship between teachers' financial literacy and their financial stability in the Kwahu East District of Ghana.

Methods: The research methodology used was a quantitative cross-sectional survey based upon a multi-stage sampling strategy, which selected 394 public basic school teachers. Questionnaires, both structured and standardised, were completed by the participants, and data were then analysed using descriptive statistics, Pearson correlations and mediation analysis using PROCESS macros.

Results: Financial literacy had a significant positive effect on teachers' financial stability ($\beta = .355$; $p < .001$), and dual-income families acted as a significant mediator in this relationship ($\beta = .449$; $p < .001$). There was also a significant relationship between teachers' financial literacy and dual-income family status ($\beta = .596$; $p < .001$). Teachers with greater levels of financial literacy tended to engage in better savings practices, better manage debt, and have greater financial confidence. Although financial literacy's influence on dual-income households was statistically significant, its actual size of effect was smaller than it would have been if other socio-economic variables had not intervened, such as the inconsistent payment of teacher salaries and teachers' limited financial access.

Conclusion: Financial literacy is a strong determinant of teachers' financial stability, and dual-income family status is an important mediating factor. The findings expand our knowledge of household financial dynamics in Sub-Saharan Africa and provide evidence of the necessity for teachers' financial education programs to be designed and implemented in ways that take into account the diverse needs of teachers from varying household structures.

Keywords: *Financial literacy, financial stability, dual-income families, mediation.*

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Introduction

While financial literacy is a major determinant of household financial stability in developing economies going through structural transition, in Ghana, the need for teachers to acquire good financial knowledge has become increasingly important for individual and family economic well-being (Lusardi & Mitchell, 2014). Teachers' ability to know how to create and use budgets, save money, invest money, and manage debt will allow them to successfully navigate the increasing complexity of the financial world. Overall, financial literacy is a major problem facing development efforts in Africa as a whole. Limited access to formal financial services, lack of education and limited economic

stability have all contributed to the relatively low financial literacy levels observed across sub-Saharan Africa. A major international survey completed by Xu and Zia (2012) has identified that the average rate of financial literacy in sub-Saharan Africa is far below that of other countries around the world, and therefore limits the number of people able to access financial services and limits the positive impact of economic growth.

For example, in Ghana, financial literacy is especially important because of the ongoing transformation of the economy, characterised by liberalisation of the financial system, expansion of digital financial services, and changing income structures of

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households. Studies conducted by Ansong and Gyensare (2012) and Matey et al. (2021) have shown that, on average, Ghanaians have very low levels of financial literacy. Moreover, the lowest levels of financial literacy were reported by young people and those living in rural areas. The financial illiteracy of Ghanaians is likely to negatively affect their ability to make informed financial decisions, and as a result, negatively affect their financial health and increase their vulnerability to financial shocks. Teachers in Ghana are also important because they are a vital part of the national workforce and act as key agents of socialisation and human capital development. Many teachers in Ghana face severe financial challenges due to a combination of structural problems: low and unstable salaries, limited knowledge of how to do financial planning and limited access to financial services. As a result, teachers' ability to make informed financial decisions is severely compromised, and they are often forced to take out large amounts of debt and have no money saved for emergencies or retirement planning (Yandoh, 2021). Modigliani and Brumberg (1954) established the theoretical foundations for studying the linkages between financial literacy and financial stability via their original formulation of the Life Cycle Hypothesis (LCH). According to the LCH, rational individuals consume and save across their lifetimes in order to sustain a consistent level of consumption regardless of fluctuations in their income streams. Therefore, financial literacy is crucial in this context because it provides individuals with the knowledge and skills required to undertake the most efficient possible consumption and savings decisions over time.

There has been considerable prior research on the relationships between financial literacy and financial stability, and the effects of improving financial literacy on a wide variety of aspects of financial behaviour in Ghana. Koomson, Annim, and Peprah (2016) found that improving financial knowledge leads to improved household saving behaviour — an important factor in maintaining financial equilibrium. Similarly, Adomako and Danso (2014) studied the relationship between financial literacy and entrepreneurial success in Ghana and showed that financial literacy is positively related to successful entrepreneurship and the advancement of overall economic welfare. Financial literacy has emerged as a priority area for policymakers globally since the 2008 global financial crisis, which revealed widespread shortfalls in consumers' financial capabilities throughout both developed and developing countries (Ghazali et al., 2017). Financial literacy is important because it enables consumers to make better financial decisions, which results in greater financial stability at the individual and national economic levels (Organisation for Economic Co-operation and Development [OECD], 2005). Financially literate consumers are better equipped to handle unexpected financial difficulties, reduce excessive debt burdens (Shaari et al., 2013), and efficiently utilise limited financial resources (Kapoor et al., 2004). Although financial literacy is recognised as being important, there has been a substantial amount of prior empirical research that has primarily focused on developed countries. Research by Gilenko and Chernova (2020), Bottazzi and Lusardi (2020), and Gallego-Losada et al. (2022) has made significant contributions to our understanding of financial literacy in Europe and North America. There is a much larger deficit of research on financial literacy in developing countries, especially those in sub-Saharan Africa (Lyons & Kass-Hanna, 2021; Jungo et al., 2021). This geographic disparity in research creates limitations

to generalising current research and limits the creation of contextualised policy interventions.

Research on financial literacy in Ghana has generally focused on assessing students' financial knowledge and well-being (Oseifuah, Gyekye, & Formadi, 2018; Philippas & Avdoulas, 2020). For example, Kamakia, Mwangi, and Mwangi (2017) assessed the financial attitudes, behaviours, and knowledge of university students. Although there is a significant research gap regarding the financial literacy of teachers, particularly in rural districts such as Kwahu East, the relationship between financial knowledge and the stability of educators in rural districts remains understudied (Yandoh, 2021).

Teachers' Financial Security can never be stressed enough, since they have the most influence on developing future generations, and because of continued issues with teacher compensation (low and sporadic), the absence of easy-to-use savings tools, and their general inability to plan financially, the economic problems that many teachers face will likely worsen. In their recent research, Matey et al. (2021) showed that the teachers in the Upper East Region of Ghana were at low levels of financial literacy and did not possess the knowledge and abilities required to make well-informed retirement plans, create budgets effectively, and make informed investments. Also, there is no systematic investigation of how the household income structure, specifically whether the household is dual-income or single-income, mediates the connection between financial literacy and financial stability in Ghana. Single-income households, consisting of one or more adults who contribute financially, may be characterised by different economic behaviour and financial stability than dual-income households; therefore, to develop targeted financial education policies and programs that respond to the unique needs of different household types, it is important to identify such distinctions. Therefore, this study investigates the mediating effect of dual-income households on the relationship between financial literacy and financial stability among teachers in the Kwahu East District of Ghana.

2.0 LITERATURE REVIEW

Theoretical Review

Life Cycle Hypothesis (LCH)

Although Franco Modigliani and Richard Brumberg (1954) developed the Life Cycle Hypothesis (LCH), it still holds strong relevance to today's researchers seeking to examine financial stability and literacy among educators in Kwahu East, Ghana. In accordance with the LCH theory, the goal of individuals is to have a constant living standard over their lifetime by creating wealth during the peak earning years and then depleting those funds during retirement as income decreases. As such, LCH provides a forward-thinking approach to create financial stability over time through the anticipation of future financial needs and the implementation of savings and investment plans to address those needs (Modigliani, 1986).

An essential foundation for the successful application of the LCH is financial literacy, which represents the ability to understand and apply financial information to make informed decisions regarding your financial situation. Financial literacy includes several basic components, such as the ability to save, invest, and plan for retirement; each of these components is

directly related to the fundamental aspects of the LCH (Lusardi & Mitchell, 2014).

In addition to the issues related to maintaining financial stability over a person's lifetime, teachers in Kwahu East, as well as individuals in most developing areas, often experience uncertainty related to their income due to poverty, unemployment, etc. These financial uncertainties will likely hinder an educator's ability to maintain financial stability and, therefore, create a need for financial literacy (Matey et al., 2021).

Theory of Planned Behaviour (TPB)

Icek Ajzen (1985, 1991) created the Theory of Planned Behaviour (TPB) to explain how behaviours occur based upon three distinct factors: attitude toward the behaviour, subjective norms, and perceived behavioural control. Attitudes toward behaviours are the degree to which an individual has a positive or negative view of the behaviour. In terms of financial literacy, this would represent an individual's view toward participating in financial planning and management activities. Subjective norms are the perceptions of what others expect an individual to do, and/or model. For example, in the case of financial literacy, subjective norms would represent the expectations that family members, friends, and coworkers have for an individual's financial practices, as well as whether or not they are modelling certain financial behaviours themselves. Perceived behavioural control represents the level at which an individual perceives that they are able to take action on a given behaviour, which is based upon past experiences, and expected obstacles that may arise.

Given that the TPB offers a comprehensive framework for explaining why an individual will engage in a particular financial behaviour, the TPB is highly applicable to this research project as well. An individual's financial literacy can lead to a favourable attitude toward financial planning and management, enhance the subjectively held expectation of others for an individual's financial prudence, and increase the perceived ability to manage money based on increased confidence in their ability to manage money.

Social Learning Theory (SLT)

Social Learning Theory (SLT) was developed by Albert Bandura (1977, 1986). It focuses on the idea that people learn and develop behaviours by observing, modelling, and reproducing the behaviours, attitudes, and emotional responses of others. SLT suggests that individuals learn and develop new behaviours by going through a series of steps, beginning with paying attention to an observed model, retaining the model's behaviours, producing the behaviours, and having motivation to continue practising the behaviours (Bandura, 1986).

SLT is directly applicable to this research project as it explains how teachers in Kwahu East can gain financial literacy, and subsequently behaviours, through social interaction, observation, and imitation processes. For example, if a teacher observes a financially literate colleague or family member being able to effectively manage their household finances, the teacher may be positively influenced to emulate those same behaviours. Through the process of observational learning, financial knowledge, attitudes, and behaviours can be transmitted across social networks.

Application of Theories to Dual-Income Families

Each of the three theories offers insight into the researcher's interest in dual-income families as a mediating factor. The LCH theory illustrates how dual-income households, with more total income than single-income households, may have a greater capacity to utilise optimal life cycle savings and consumption patterns. The TPB theory explains how financial literacy influences financial behaviour in dual-income households, which may be qualitatively different from single-income households because of the complexity in coordinating financial decisions between multiple income earners. Finally, the SLT theory illustrates how dual-income households may provide a richer environment for financial socialisation and observational learning.

Conceptual Review

Financial Literacy

Financial literacy is defined as having the knowledge and understanding of financial concepts and the ability to apply that knowledge to make informed decisions about financial resources. There are various dimensions of financial literacy, including personal finance management, budgeting, saving, investing, borrowing, and risk management. Four key domains of financial literacy were identified by Ulfatun et al. (2016) that are relevant to household financial management, including savings, borrowing, insurance, and investments.

Financial Stability

Financial stability represents the ability of an individual or household to maintain a consistent standard of living, to manage their financial obligations, and to withstand unexpected financial shocks without suffering from severe economic hardship. The Organisation for Economic Cooperation and Development (OECD) defined financial stability as a condition where an individual or household is able to fulfil all of their financial responsibilities, maintain a balance between income and expenses, and avoid financial distress. Examples of indicators of financial stability include maintaining sufficient emergency savings, managing debt responsibly, being able to withstand changes in income, and making progress toward long-term financial objectives.

Dual-Income Families

Dual-income families are households that have two or more members contributing to the family's total income through employment, self-employment, or some other type of income-generating activity. Based on the work of Becker (1981), dual-income households generally experience more financial security and flexibility than single-income households since their collective earnings act as a cushion against an individual income disruption. Additionally, however, dual-income families often experience additional complexities in terms of coordinating financial decisions and conflicts of financial priorities.

Empirical Literature Review

Financial Literacy and Financial Stability

Ariati, Buchdadi, and Gurendrawati (2023) studied the relationship between financial literacy and financial well-being in a sample of 107 participants in Jakarta, Indonesia. Using Structural Equation Modelling (SEM), they found that financial literacy had a significant indirect effect on financial well-being through financial self-efficacy, indicating that confidence in one's financial abilities, rather than just knowing financial concepts, is crucial to financial

well-being. Sabri et al. (2022) conducted research on financial behaviour and financial well-being in a sample of 360 Malaysian adults. Results indicated that financial behaviour acted as a mediating variable between financial literacy and financial well-being, supporting the notion that behavioural factors are critical in understanding how financial knowledge leads to increased financial stability. Lone and Bhart (2022) studied the relationship between financial literacy and financial well-being in a sample of university professors. Their results showed that higher levels of financial literacy result in improved financial well-being primarily through improved decision-making and money management practices.

Dual-Income Streams and Financial Stability

Zhang and Chatterjee (2023) used FINRA National Financial Capability Study data to investigate the relationship between financial literacy and financial well-being as mediated by multiple income streams. The results showed that financial literacy has a positive effect on financial well-being, and that effect is partially mediated by multiple income streams. Furthermore, the authors found that multiple income streams reduce financial stress and improve overall well-being. Lontchi, Yang, and Su (2022)

Conceptual Framework

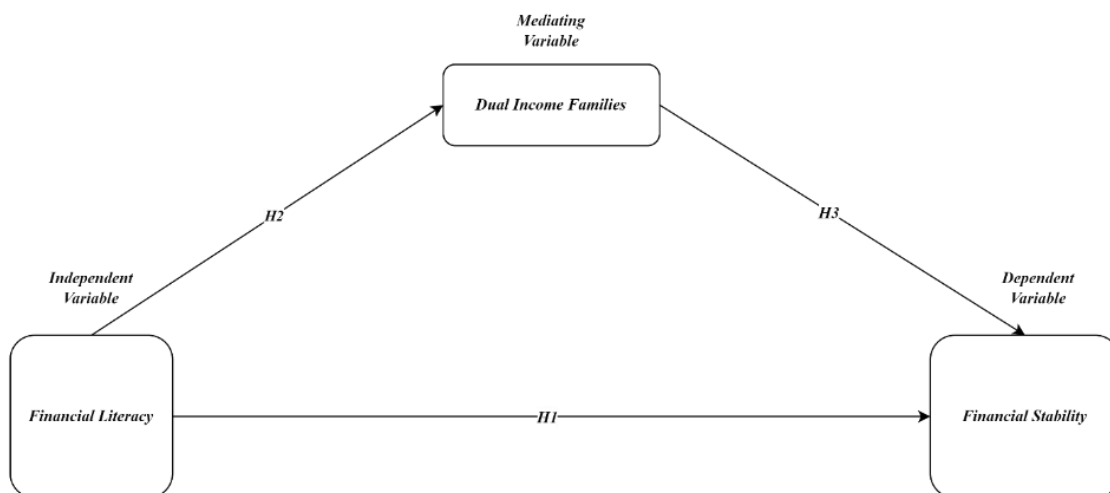


Fig. 2.1: Conceptual Framework

Research Methodology

Quantitative Research Methods

Quantitative research is a scientific method used to collect data through numbers and statistics. It uses statistical and mathematical techniques to analyse the data. For example, if a researcher wants to know what percentage of a given population has a certain characteristic or attribute, he or she would use quantitative research. In contrast, qualitative research focuses on understanding people’s thoughts and feelings through words, images, and other forms of non-numerical data. (Nassaji, 2015)

Quantitative Research Methodology

Quantitative research methodology is a method of collecting data using surveys, questionnaires, etc. and analysing it statistically. Quantitative research methodology can help to determine the existence of a problem, how serious it is, and

examined the relationship between financial education and financial well-being in Cameroon and found that financial literacy has a positive effect on financial well-being through multiple income sources. Both financial literacy and multiple income streams had a positive effect on financial well-being.

Magoma, Mbura, and Ndiege (2025) investigated financial literacy and financial behaviour in a sample of university students in Tanzania. Results indicated that the source of income (earned vs. unearned) moderated the relationship between financial literacy and personal finance opinions and between personal finance opinions and financial behaviour. Song, Zhang, and Wang (2025) studied the impact of financial literacy on the resilience of middle-income households in China. Results indicated that financial literacy significantly increases the resilience of middle-income households by increasing the likelihood of non-agricultural employment, entrepreneurship, and insurance participation. Sofyan and Ratnawati (2025) investigated the effect of income on financial well-being with financial literacy as the mediator in Indonesia. Results indicated that financial literacy acts as a mediator between income and financial well-being.

whether it is increasing or decreasing. (Apuke, 2017) Quantitative research methods include surveys, questionnaires, and observation.

Explanatory Cross-Sectional Survey Design

According to Geoffrey (2019), a research design is a strategy used by researchers to explore their research questions. Opoku, Ahmed, and Akotia (2016) indicate that a research design includes the study’s objective, method, location, and time dimension. Therefore, explanatory designs are characterised by explaining phenomena and revealing relationships between specific variables (Mohajan, 2020).

Target Population and Sampling Technique

According to Cooper & Schindler (2014), a population is the total set of elements from which researchers want to make inferences. The target population of this study consists of all public basic school teachers in the Eastern Region of Ghana. According to Stratton (2021), a target population is the group to whom the results of a survey are intended to be generalised. The Eastern

Region is home to a teacher population of approximately 4,122. They represent a diverse body of educators with different socio-economic backgrounds. Hence, they constitute the best population for exploring the relationships between financial literacy, dual-income family status and financial stability.

Sample Size and Sampling Techniques

As stated earlier, sampling involves the selection of a number of suitable elements from a larger population (Sekaran & Bougie, 2019). A multi-stage sampling technique was employed for the purpose of this study. Stage one involved the use of convenience sampling to choose easily accessible schools in the district. Convenient sampling is the simplest and most widely used type of sampling technique and provides the researcher with easy access to subjects who have agreed to participate in the study (Pace, 2021). Stage two involved the application of simple random sampling within the chosen schools to ensure every teacher was equally likely to be included in the sample (Jamil, 2018). The sample size for this study was determined using Krejcie and Morgan's (1970) sample size table for determining sample sizes based on population size. The sample size table indicates that a sample size of 352 will be enough to collect sufficient data to allow for robust statistical analysis of a population of 4122.

Instrumentation

The research strategy involved the systematic procedures for collecting data to answer the research questions (Opoku, Ahmad, & Akotia, 2016). As such, primary data sources were used. Primary data sources are those that are collected directly from the original source of the information (Pandey & Pandey, 2021). Primary data is most appropriate for this study since it provides timely, relevant and accurate information regarding teachers' level of financial literacy, household income composition and financial stability. Moreover, the use of primary data allows the researcher to collect data specifically designed to meet the research questions and therefore provides insight that may not be obtainable via secondary data (Hancock, Algozzine, & Lim, 2021).

Data Collection Instrument

As stated above, the primary data collection instrument used to gather data in this study was a questionnaire. Questionnaires are described by Boparai, Singh, and Kathuria (2018) as the easiest and quickest way of collecting uniform data from a large number of participants. The questionnaire contained several sections that captured: demographic information, financial literacy (based on the scale developed by Lusardi & Mitchell, 2014), indicators of financial stability, and dual-income family status. The use of a standardised questionnaire helped to ensure consistent responses from the participants, minimised interviewer bias and provided a basis for conducting statistical analyses to reveal relationships and patterns in the data related to the study objectives.

Data Collection Procedures

Permission to collect data was granted by the university's ethics committee before the commencement of data collection. The questionnaires were distributed personally by the researcher and his assistant to teachers in the selected schools. Teachers were informed of the objectives of the study, assured of the anonymity and confidentiality of their participation and requested to give their

informed consent. Once completed, the questionnaires were collected from the teachers immediately to increase the response rate. The data collection process was designed to comply with the highest ethical standards and to produce high-quality data for analysis.

Data Analysis

The data collected during this study were analysed using both descriptive and inferential statistical techniques using SPSS software. Descriptive statistics (e.g. frequencies, percentages, means, standard deviations) were used to summarise the respondents' demographic profiles and the distribution of the various variables measured (Alabi & Bukola, 2023; Cooksey & Cooksey, 2020). Inferential statistics were used to examine the proposed relationships. Specifically, Pearson's Product Moment Correlation was used to assess the nature and magnitude of the associations between financial literacy, dual-income status and financial stability (Schober, Boer, & Schwarte, 2018). Furthermore, t-tests were used to compare the mean differences between teachers in single and dual-income households (Lakens, 2013). Finally, mediation analysis was performed using the process macro (Hayes, 2018) to test the indirect effects of financial literacy on financial stability through dual-income family status.

Validity and Reliability

Establishing validity and reliability was essential. Validity was established through content validation of the questionnaire items. The construct validity of the questionnaire was assessed through exploratory factor analysis. The reliability of the questionnaire was assessed through the Cronbach Alpha Coefficient, with values greater than .70 indicating acceptable levels of internal consistency (Mohojan, 2017). Pilot testing of the questionnaire was also conducted with 30 teachers outside of the sample of interest. Pilot testing was used to pre-test the instrument, to identify ambiguous language and to revise the questionnaire based upon the comments received from the pilot test participants (Doody & Doody, 2015; Gani et al., 2020). These processes increased the accuracy, consistency and credibility of the findings (Cohion, Manion, & Morrison, 2017).

Ethical Considerations

Adherence to strict ethical guidelines was observed. Institutional approval was granted prior to the initiation of data collection. Prior to agreeing to participate, all respondents were clearly informed of the study's purpose and were assured of anonymity and confidentiality of their participation. No identifiable information was collected from the participants. Respondent participation was entirely voluntary, and participants could withdraw from the study at any time without penalty or consequences. All data collected was securely stored and was only to be used for the purposes of this academic study.

Results

Demographic profile of respondents

The demographic profile of the respondents is presented in the study. This includes information on the age of the firm, gender, the respondents' educational level, marital status, dependants, and working experience of the respondents, which are presented in Table 1.

Table 1: Demographic Information of Respondents

	Level	Counts	Total	Proportion
Gender	Male	169	394	0.429
	Female	225		0.571
Age	20 years or less	82	394	0.208
	21 to 30 years	111		0.282
	31 to 40 years	117		0.297
	41 to 50 years	84		0.213
Marital Status	Single	117	394	0.297
	Married	225		0.571
	Divorced/Separated	52		0.132
How many dependents do you have?	1 to 3 years	11	394	0.028
	4 to 6 years	315		0.799
	7 years and above	68		0.173
What is your highest level of education?	Diploma or Equivalent	64	394	0.162
	Bachelor's degree	257		0.652
	Master's degree	73		0.185
How long have you worked with GES	1 to 3 years	93	394	0.236
	4 to 6 years	240		0.609
	7 years and above	61		0.155

Of the 394 participants, the male/female ratio was 169/225, respectively, representing an approximate distribution of 42.9 % male and 57.1 % female. The gender distribution is consistent with the national trends of Ghana's teaching workforce, where female teachers are increasing in number relative to males, in particular at the basic education level (Asare & Nsiah, 2019; Ghana Statistical Service, 2021). The data for age distribution indicate that 20.8 % of the respondents (82) are 20 years old or less, 28.2 % of respondents (111) are 21 to 30 years old, 29.7 % of respondents (117) are 31 to 40 years old, and 21.3 % of respondents (84) are 41 to 50 years old. This age distribution indicates that the majority of respondents are 21-40 years of age, thus creating a young workforce. This also fits into what has been noted in previous studies on the teaching

profession in Ghana, attracting a large amount of early to mid-career adults (Matey et al., 2021; Adu-Yeboah & Asare, 2021).

The marital status distribution of the sample reveals that 117 respondents (29.7%) report being single, 225 (57.1%) are married, and 52 (13.2%) report being divorced or separated. This high representation of married individuals can potentially create dual-income households and matches research that reports a high correlation of dual-earner household income among Ghanaian professionals and marriage (Koomson, Annim, & Peprah, 2016; Adomako & Danso, 2014). With regards to dependents, 11 (2.8%) of the respondents reported 1-3 dependents, 315 (79.9%) reported 4-6 dependents, and 68 (17.3%) had 7 or more dependents. These numbers suggest a large number of respondents are financially

supporting a large number of family members, which reflects the cultural tradition of extended families in Ghana, where teachers often provide financial support to their relatives beyond their immediate household (Chowa, Despard, & Osei-Akoto, 2012; Yandoh, 2021).

The educational attainment data illustrate that 64 (16.2%) of the respondents hold a diploma or its equivalent, 257 (65.2%) have a bachelor's degree, and 73 (18.5%) have a master's degree. Thus, the majority of respondents have higher education credentials, which may positively impact financial literacy levels, since it has been well-documented by previous research that there

is a strong positive relationship between educational attainment and financial knowledge (Ansong & Gyensare, 2012; Lusardi & Mitchell, 2014). The distribution of years of work experience is quite varied. There are 93 (23.6%) of the respondents who report 1-3 years of experience, 240 (60.9%) who report 4-6 years of experience, and 61 (15.5%) who report 7 or more years of experience. This larger proportion of individuals reporting 4-6 years of experience may be reflective of a more stable workforce and is consistent with previous studies that report increased teacher retention occurs after the first few years of employment (Ghana Education Service, 2020; Asare & Nsiah, 2019).

Table 2: Factor Analysis of the Study Items

Items	Dual Income Families	Financial Literacy	Financial Stability
DI1	0.755		
DI2	0.756		
DI3	0.755		
DI4	0.73		
DI5	0.679		
FL1		0.576	
FL2		0.664	
FL3		0.731	
FL4		0.734	
FL5		0.773	
FL6		0.742	
FS1			0.699
FS2			0.725
FS3			0.767
FS4			0.715
FS5			0.759

Table 2 contains the results of factor analysis regarding dual-income families, financial literacy, and financial stability. Factor analysis is a statistical method that identifies latent constructs (factors) underlying observed variables (Tabachnick & Fidell, 2007). The results of factor analysis are interpreted using the loadings, which represent the relationship between an item and the latent construct being measured (Hair et al., 1998). Each statement (DI1-DI5 for dual-income; FL1-FL6 for financial literacy; and FS1-FS5 for financial stability) is assessed through its respective factor loading.

The loadings for the dual-income family ranged from .679 to .755. Established criteria indicate that factor loadings over .70 are defined as "excellent" (Tabachnick & Fidell, 2007), while loadings between .63 and .70 are defined as "very good" (Comrey & Lee, 1992). Furthermore, Hair et al. (1998) report that for samples of approximately 350, factor loadings of .30 and above are deemed practically significant. It is noteworthy that the three statements with the highest loadings (DI1 = .755, DI2 = .755, and DI3 = .755) demonstrate the strongest relationships with the concept of dual income and exceed the excellent threshold established by Comrey and Lee (1992). These findings provide

evidence that these statements are more capable than other statements of capturing the essence of the relationship between dual incomes and financial dynamics.

The loadings for financial literacy ranged from .576 to .773. Based on the classifications presented by Comrey and Lee (1992), factor loadings of .55 are defined as "good", .63 are defined as "very good", and .71 are defined as "excellent". FL5, which exhibited a loading of .773, was found to be an excellent indicator of financial literacy. Although lower loadings, such as FL1 (.576), were found to be within the "good" range established by Comrey and Lee (1992) and above the .50 threshold for practical significance established by Hair et al. (1998) for a sample of 120, they demonstrated weaker measurement properties compared to FL5.

The loadings for financial stability ranged from .715 to .767. A loading of .767 was exhibited by FS3, which exceeds the excellent threshold established by Comrey and Lee (1992) and demonstrates a level of practical significance (Hair et al., 1998) similar to that of FS1 (.766), indicating that FS3 provides a strong indication of factors relevant to the achievement of, or understanding of, financial stability.

Table 3: Reliability and Validity of the Construct

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Dual Income Families	0.787	0.79	0.855	0.541
Financial Literacy	0.796	0.795	0.856	0.499
Financial Stability	0.785	0.788	0.853	0.538

Table 3 shows the reliabilities and validities of the constructs measured in the study using Cronbach's Alpha, rho_A, composite reliability, and average variance extracted (AVE). Cronbach's Alpha measures the internal consistency of the constructs measured by the items in the study, and it measures the degree to which items are interrelated (Streiner, 2003). Thresholds have been established for Cronbach's Alpha values, and these are typically defined as follows: values between 0.70 and 0.80 are considered "acceptable", and values between 0.80 and 0.90 are considered "good". A commonly referenced authoritative medical source defines values of 0.7-0.8 as acceptable, 0.8-0.9 as good, and 0.9 or greater as excellent (Canadian Journal of Surgery, 2015). As specified by an authoritative medical reference, the Cronbach's Alpha value for dual-income families (0.787) is within the acceptable range (Campo-Arias & Oviedo, 2008), indicating that the items used to measure this construct exhibit acceptable internal consistency. Similarly, the Cronbach's Alpha value for financial literacy (0.796) also represents acceptable internal reliability (Hair et al., 2014).

Composite Reliability (CR) is an alternative measure of reliability to Cronbach's Alpha. Unlike Cronbach's Alpha, CR does not make the assumption that all of the indicators of a construct have equal reliability (Peterson & Kim, 2013). Research has compared 2,524 pairs of coefficient alpha and composite reliability values and found that even though average composite reliability (0.86) was greater than average coefficient alpha (0.84), the difference had minimal practical implications (Peterson & Kim, 2013). Therefore, since the composite reliability values for dual-

income families (0.855), financial literacy (0.856), and financial stability (0.853) all exceed the minimum threshold of 0.70 (Hair et al., 2014), the items that were used to measure these constructs demonstrated reliable measurement.

The Average Variance Extracted (AVE) measures the convergent validity of the constructs measured in the study, and it reflects the proportion of the variance in the indicators of a construct that can be explained by the construct itself (Fornell & Larcker, 1981). In general, researchers recommend that the AVE for each construct should be greater than 0.50 (i.e., at least 50% of the variance in the indicators is explained by the construct) (Hair et al., 2010; Henseler et al., 2009). Since the AVE for dual-income families (0.541) exceeded the threshold of 0.50, the dual-income family construct exhibited adequate convergent validity (Ghozali, 2016; Sekaran & Bougie, 2016). Likewise, the AVE for financial stability (0.538) indicated sufficient convergent validity (Chin & Todd, 1995). However, the AVE for financial literacy (0.499) fell just short of the 0.50 threshold. Although this might suggest that improvements could be made to the measurement of the construct, some authors indicate that even if the AVE is slightly less than 0.50, the construct might still demonstrate adequate convergent validity based on additional criteria such as having standardized measurement weights greater than or equal to 0.50 and composite reliability greater than or equal to 0.70 (Moral de la Rubia, 2019). Given that the factor loadings for financial literacy were all greater than 0.50 (see Table 2) and that the composite reliability was 0.856, the construct demonstrated acceptable measurement properties despite the slight inadequacy of the AVE.

Table 4: HTMT

	Dual Income Families	Financial Literacy	Financial Stability
Dual Income Families	0.736		
Financial Literacy	0.596	0.707	
Financial Stability	0.661	0.623	0.734

Table 4 examines the Heterotrait-Monotrait (HTMT) ratios, which assess the discriminant validity of the constructs by comparing the correlations between different constructs (heterotrait-heteromethod correlations) with the correlations among items measuring the same construct (monotrait-heteromethod correlations) (Henseler, Ringle, & Sarstedt, 2015). Discriminant validity refers to the extent to which a construct is empirically distinct from other constructs in the measurement model (Fornell & Larcker, 1981). According to established thresholds, HTMT values below 0.85 indicate adequate discriminant validity, although a more liberal threshold of 0.90 has also been proposed in the literature (Gold, Malhotra, & Segars, 2001; Henseler et al., 2015; Kline, 2011). Teo et al. (2008) suggest that discriminant validity is

established when the correlations among items measuring different constructs are lower than the correlations among items measuring the same construct.

The relationships among dual-income families, financial literacy, and financial stability reveal significant interdependencies that warrant attention. An observed HTMT value of 0.736 between dual-income families and financial literacy falls below both the conservative threshold of 0.85 and the more liberal threshold of 0.90, thereby confirming discriminant validity between these two constructs (Hair et al., 2017; Henseler et al., 2015). This moderate correlation suggests that as the prevalence of dual incomes rises, so too does the level of financial literacy among these households, consistent with research indicating that household income structure

and financial knowledge are interrelated (Lusardi & Mitchell, 2014; Zhang & Chatterjee, 2023).

The relationship between financial literacy and financial stability exhibits an HTMT value of 0.707, also below the recommended thresholds, indicating that these constructs are conceptually distinct while still being meaningfully related (Hair et al., 2019; Kline, 2016). This value suggests that improved financial literacy is closely associated with enhanced financial stability, corroborating findings from prior empirical studies (Ariati, Buchdadi, & Gurendrawati, 2023; Sabri et al., 2022; Lone & Bhart, 2022).

Furthermore, the connection between dual-income families and financial stability, reflected by an HTMT value of 0.661, falls well within the acceptable range, demonstrating that these

constructs capture distinct phenomena while maintaining a moderate positive relationship (Franke & Sarstedt, 2019). This underscores the positive impact that dual-income arrangements can have on household financial stability, supporting the theoretical proposition that income diversification through multiple earners contributes to enhanced economic security (Becker, 1981; Koomson, Annim, & Peprah, 2016). Collectively, these HTMT values confirm that all three constructs possess adequate discriminant validity, meaning they represent distinct conceptual domains (Henseler et al., 2015). The findings suggest that promoting dual-income households and enhancing financial literacy may contribute to greater financial stability, thus highlighting the importance of these constructs in the discourse on economic well-being.

Table 5: Hypothesised Relationship

Relationships	Original Sample (O)	T Statistics (O/STDEV)	P Values
Dual Income Families -> Financial Stability	0.449	8.707	0.000
Financial Literacy -> Dual Income Families	0.596	15.356	0.000
Financial Literacy -> Financial Stability	0.355	7.195	0.000

Table 5 demonstrates the hypothesis testing results evaluating the interrelations among dual-income families, financial literacy and financial stability. The analyses utilised the path coefficients (sample of origin), t-statistics, and p-values to evaluate the significance of the hypothesised relationships (Hair et al., 2017). Path coefficients reflect the nature (strength and direction) of the relations among constructs, with values close to ±1 representing stronger relationships (Henseler, Ringle, & Sarstedt, 2015). T-statistics greater than 1.96, or p-values < 0.05, are indicative of statistical significance at the 5% confidence interval (Hair et al., 2014).

Regarding H1 (the effect of dual-income families on financial stability), the coefficients of the original sample were 0.449, the t-statistic was 8.707, and the p-value was 0.000. These results provide evidence of a statistically significant, positive and strong relationship between these variables (Field, 2018). The t-statistic greatly exceeds the critical value of 1.96, and the p-value is below the traditional significance threshold of 0.05 (Tabachnick & Fidell, 2019). Therefore, there exists considerable evidence to reject the null hypothesis, which suggests that dual-income families increase financial stability, as would be expected based on theoretical expectations regarding the ability of two incomes to improve household economic stability (Koomson, Annim, & Peprah, 2016; Becker, 1981). These findings are consistent with previous studies demonstrating that dual-income households have higher levels of financial resilience and ability to survive economic shocks (Zhang & Chatterjee, 2023; Lontchi, Yang, & Su, 2022).

An additional evaluation of the relationship between financial literacy and dual-income families (H2) produced a high coefficient of 0.596 for the original sample, a large t-statistic of 15.356, and a very low p-value of 0.000. The relationship demonstrated a highly significant relationship as the t-statistic was far beyond the critical threshold (Hair et al., 2017). The coefficient (0.596) indicated a relatively strong positive relationship (Cohen,

1988). The results further suggest that financial literacy has a substantial impact on the factors contributing to the existence of dual-income households. For example, financially literate individuals can be more supportive of spousal employment by coordinating their household finances, developing supplemental income sources (Magoma, Mbura, & Ndiege, 2025), and supporting each other’s job search efforts (Lusardi & Mitchell, 2014). The results of this study support the theoretical framework that financial knowledge enables households to achieve optimal income-generating capacity (Adomako & Danso, 2014).

Finally, the relationship between financial literacy and financial stability (H3) demonstrated a coefficient of 0.355 from the original sample, a t-statistic of 7.195, and a p-value of 0.000. The results, therefore, confirm a positive relationship between financial literacy and financial stability as evidenced by the t-statistic being > 1.96 and the p-value being < 0.05 (Henseler et al., 2015). While the relationship between financial literacy and financial stability was less than that of dual-income families and financial stability, the coefficient of 0.355 was considered to be a moderate effect size using Cohen’s (1988) classification criteria for effect sizes as approximately 0.30 = medium. This finding supports the vast amount of previous research indicating that financial literacy increases financial stability by improving financial decision-making, managing debt, and saving (Sabri et al., 2022; Lone & Bhart, 2022; Ariati, Buchdadi, & Gurendrawati, 2023; Song, Zhang, & Wang, 2025).

Collectively, the results of this study describe the interconnection between income dynamics and financial literacy as mechanisms to foster enhanced financial well-being. In addition, the results of this study demonstrate that financial literacy both positively affects financial stability directly and positively affects financial stability indirectly by increasing the probability of forming dual-income households (Sofyan & Ratnawati, 2025). The larger coefficient for the relationship between financial literacy and dual-income family formation (0.596) versus the direct relationship

between financial literacy and financial stability (0.355) suggests that a portion of financial literacy’s effect on financial stability occurs through its influence on household income structure,

thereby supporting the mediating role described in this study (Hayes, 2018).

Structural Modelling

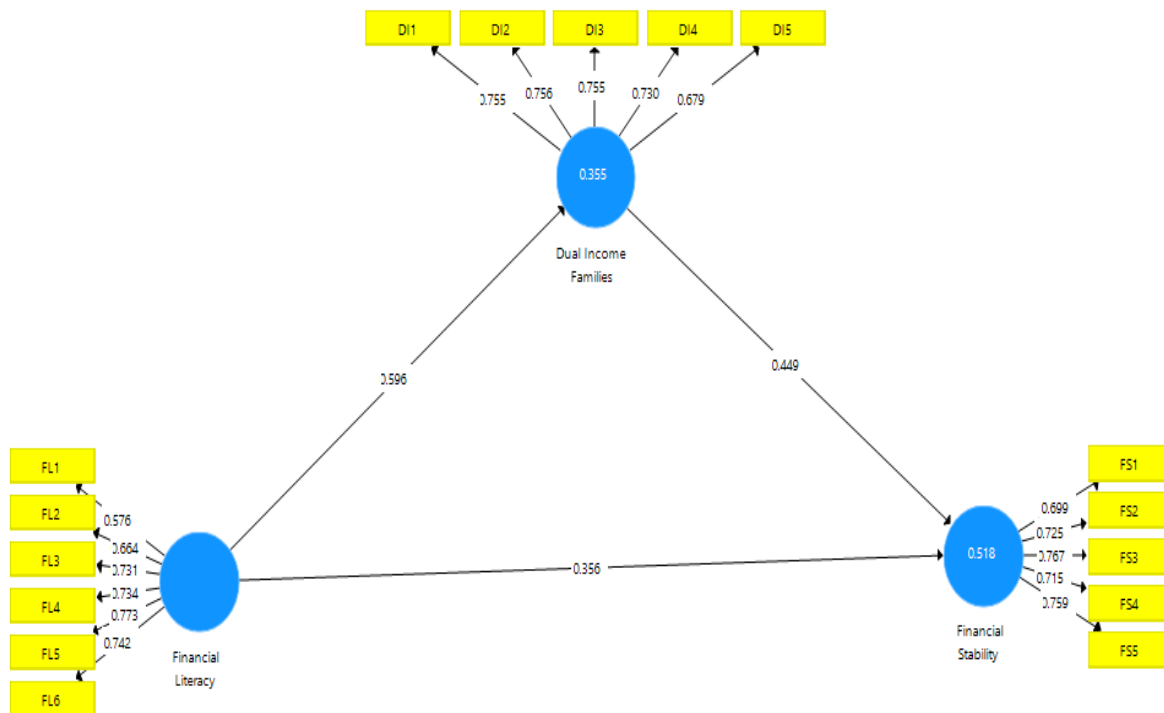


Fig. 4.2: Structural Modelling

The structural modelling presented in Fig. 4.2 of the study serves as a visual representation of the hypothesised relationships among the key constructs: dual-income families, financial literacy, and financial stability. This modelling approach employs Structural Equation Modelling (SEM) techniques, allowing for the examination of direct and indirect effects among variables within the context of the study. The diagram illustrates the paths and coefficients indicating the strength and direction of relationships, revealing how financial literacy influences the financial stability of teachers in Kwahu East, with dual-income families acting as a mediating variable. The results underscore the significant correlations, evidenced by strong path coefficients (O values), T-statistics, and low p-values presented in Table 5, demonstrating that as financial literacy improves, it positively affects both the emergence of dual-income households and their financial stability, thus affirming the interconnectedness of these constructs in the discourse on financial well-being.

Findings

Findings from this study show financial literacy has a significant influence on the financial stability of teachers in the Kwahu East District, Ghana, with dual-income families providing an important mediating factor between financial literacy and financial stability. Those teachers who had higher levels of financial literacy were found to be better at saving, managing debt and having a high degree of confidence in their ability to provide financially for themselves and their family. However, dual-income households did not demonstrate the level of increased financial stability as was anticipated through improved financial literacy; it can be inferred that a number of socio-economic issues (e.g., inconsistent salaries and limited access to financial products/services) contributed to the reduced impact of financial

knowledge on these dual-income households. Importantly, despite the potential of dual-income households to offer increased financial security through two incomes, they experience the same level of financial coordination challenges as single-income households.

Conclusion

This study verifies that financial literacy is a key determinant of financial stability for teachers and that dual-income status serves as a very important mediating variable. This study also expands our understanding of the way in which households manage their finances in Sub-Saharan Africa and indicates that there are many more variables involved in the relationship between financial knowledge and financial stability than previously indicated, especially in terms of how the type of household (single or dual income) affects the financial outcomes of household members.

Recommendations

Managers should establish specific financial education programs for teachers, create policies to encourage dual-income situations for all teachers, and work with financial institutions to improve access to financial products and services. Future research should include comparative studies examining the differences and similarities of household financial behaviours by type of household (e.g., single-income vs dual-income), longitudinal designs assessing the effectiveness of interventions, and qualitative examinations of the ways in which dual-income households coordinate their financial activities to support the financial stability of all members of the household.

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Authors' contributions

R.K.N, P. A: Played a key role in conceptualisation, methodology development, and supervision. Also contributed to reviewing and editing the manuscript.

B.T.K, E.K.T, E.N.A: Contributed to conceptualisation, investigation, formal analysis, and data collection. Also involved in reviewing and editing the manuscript

M.A.A., J.T.B., M.A.: Led the conceptualisation, investigation, formal analysis, data collection, and data analysis. Additionally, contributed to writing the original draft and participated in the review and editing process.

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Data availability

Available upon request.

Declarations

Ethics approval and consent to participate

This study was approved, and ethical clearance was obtained from the Presbyterian University, Ghana (PUG), School of Business

Consent for publication

All authors consent to publication.

Competing interests

The authors declare no competing interests.

References

1. Adomako, S., & Danso, A. (2014). Financial literacy and firm performance: The moderating role of financial capital availability and resource flexibility. *International Journal of Research in Business and Social Science*, 3(4), 1-15.
2. Adu-Yeboah, C., & Asare, K. (2021). Teacher retention and attrition in Ghana's basic schools: A qualitative exploration. *Ghana Journal of Education*, 5(1), 45-62.
3. Ajzen, I. (1985). From intentions to actions: A theory of planned behaviour. In J. Kuhl & J. Beckmann (Eds.), *Action control: From cognition to behaviour* (pp. 11-39). Springer-Verlag.
4. Ajzen, I. (1991). The theory of planned behaviour. *Organizational Behaviour and Human Decision Processes*, 50(2), 179-211.
5. Alabi, T. O., & Bukola, A. A. (2023). Descriptive statistics in educational research: A practical approach. *Journal of Educational Research and Development*, 15(2), 78-92.
6. Ansong, A., & Gyensare, M. A. (2012). Determinants of university working-students' financial literacy at the University of Cape Coast, Ghana. *International Journal of Business and Management*, 7(9), 126-133.
7. Apuke, O. D. (2017). Quantitative research methods: A synopsis approach. *Arabian Journal of Business and Management Review*, 6(10), 40-47.
8. Ariati, K., Buchdadi, A. D., & Gurendrawati, E. (2023). The effect of financial literacy on financial well-being with financial self-efficacy as mediating variable. *International Journal of Business, Economics and Law*, 28(1), 1-9.
9. Asare, K., & Nsiah, D. (2019). Gender dynamics in Ghana's teaching workforce: Trends and implications. *Journal of Education and Practice*, 10(8), 23-31.
10. Bandura, A. (1977). *Social learning theory*. Prentice-Hall.
11. Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Prentice-Hall.
12. Becker, G. S. (1981). *A treatise on the family*. Harvard University Press.
13. Boparai, J. K., Singh, S., & Kathuria, P. (2018). How to design and validate a questionnaire: A guide. *Current Clinical Pharmacology*, 13(4), 210-215.
14. Bottazzi, L., & Lusardi, A. (2020). Stereotypes in financial literacy: Evidence from PISA. *Journal of Corporate Finance*, 64, 101681.
15. Campo-Arias, A., & Oviedo, H. C. (2008). Propiedades psicométricas de una escala: La consistencia interna. *Revista de Salud Pública*, 10(5), 831-839.
16. Canadian Journal of Surgery. (2015). Commonly accepted values of Cronbach's α . *Canadian Journal of Surgery*, 58(5), 299-304.
17. Chin, W. W., & Todd, P. A. (1995). On the use, usefulness, and ease of use of structural equation modeling in MIS research: A note of caution. *MIS Quarterly*, 19(2), 237-246.
18. Chowa, G. A., Despard, M., & Osei-Akoto, I. (2012). Financial knowledge and attitudes of youth in Ghana. *Youth Save Research Brief*, 12-27.
19. Cohen, J. (1988). *Statistical power analysis for the behavioural sciences* (2nd ed.). Lawrence Erlbaum Associates.
20. Cohen, L., Manion, L., & Morrison, K. (2017). *Research methods in education* (8th ed.). Routledge.
21. Comrey, A. L., & Lee, H. B. (1992). *A first course in factor analysis* (2nd ed.). Lawrence Erlbaum Associates.
22. Cooksey, R. W., & Cooksey, R. W. (2020). Descriptive statistics for summarizing data. In *Illustrating statistical procedures: Finding meaning in quantitative data* (pp. 61-139). Springer.
23. Cooper, D. R., & Schindler, P. S. (2014). *Business research methods* (12th ed.). McGraw-Hill.

24. Doody, O., & Doody, C. M. (2015). Conducting a pilot study: Case study of a novice researcher. *Nurse Researcher*, 23(1), 6-10.
25. Field, A. (2018). *Discovering statistics using IBM SPSS Statistics* (5th ed.). Sage Publications.
26. Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 39-50.
27. Franke, G., & Sarstedt, M. (2019). Heuristics versus statistics in discriminant validity testing: A comparison of four procedures. *Internet Research*, 29(3), 430-447.
28. Gallego-Losada, R., Montero-Navarro, A., García-Abajo, E., & Gallego-Losada, M. J. (2022). Financial literacy in the European Union: A systematic review. *Journal of Business Research*, 138, 425-438.
29. Gani, N. I. A., Imtiaz, S., Rathakrishnan, M., & Krishnasamy, H. N. (2020). A pilot study for the development of a research instrument. *International Journal of Psychosocial Rehabilitation*, 24(8), 2336-2343.
30. Geoffrey, M. (2019). *Research design: A practical approach*. SAGE Publications.
31. Ghana Education Service. (2020). *Teacher statistics report 2020*. Ministry of Education.
32. Ghana Statistical Service. (2021). *2021 population and housing census report*. Ghana Statistical Service.
33. Ghazali, M. S., Othman, A. R., & Zainudin, R. (2017). Financial literacy and personal financial planning: A meta-analysis review. *International Journal of Academic Research in Business and Social Sciences*, 7(12), 629-643.
34. Ghozali, I. (2016). *Aplikasi analisis multivariete dengan program IBM SPSS 23 (Edisi 8)*. Badan Penerbit Universitas Diponegoro.
35. Gilenko, E., & Chernova, A. (2020). Saving behaviour and financial literacy of Russian high school students: An empirical study. *Journal of Behavioural and Experimental Finance*, 27, 100361.
36. Gold, A. H., Malhotra, A., & Segars, A. H. (2001). Knowledge management: An organizational capabilities perspective. *Journal of Management Information Systems*, 18(1), 185-214.
37. Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis* (7th ed.). Prentice Hall.
38. Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2014). *A primer on partial least squares structural equation modeling (PLS-SEM)*. Sage Publications.
39. Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2017). *A primer on partial least squares structural equation modeling (PLS-SEM)* (2nd ed.). Sage Publications.
40. Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, 31(1), 2-24.
41. Hair, J. F., Tatham, R. L., Anderson, R. E., & Black, W. (1998). *Multivariate data analysis* (5th ed.). Prentice-Hall.
42. Hancock, D. R., Algozzine, B., & Lim, J. H. (2021). *Doing case study research: A practical guide for beginning researchers* (4th ed.). Teachers College Press.
43. Hayes, A. F. (2018). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach* (2nd ed.). Guilford Press.
44. Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, 43(1), 115-135.
45. Henseler, J., Ringle, C. M., & Sinkovics, R. R. (2009). The use of partial least squares path modeling in international marketing. *Advances in International Marketing*, 20, 277-319.
46. Jamil, M. (2018). *Sampling techniques: A comprehensive guide*. ResearchGate Publications.
47. Jungo, J., Madaleno, M., & Botelho, A. (2021). Financial literacy and financial inclusion effects on financial stability and economic growth: A review of literature. *Journal of Risk and Financial Management*, 14(10), 488.
48. Kamakia, M. G., Mwangi, M., & Mwangi, C. (2017). Financial literacy and financial well-being of public sector employees: A critical literature review. *European Scientific Journal*, 13(16), 233-250.
49. Kapoor, J. R., Dlabay, L. R., & Hughes, R. J. (2004). *Personal finance*. McGraw-Hill.
50. Kline, R. B. (2011). *Principles and practice of structural equation modeling* (3rd ed.). Guilford Press.
51. Kline, R. B. (2016). *Principles and practice of structural equation modeling* (4th ed.). Guilford Press.
52. Koomson, I., Annim, S. K., & Peprah, J. A. (2016). Financial literacy and savings behaviour: A case of microfinance institutions in Ghana. *Journal of Economics and Sustainable Development*, 7(10), 1-11.
53. Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement*, 30(3), 607-610.
54. Lakens, D. (2013). Calculating and reporting effect sizes to facilitate cumulative science: A practical primer for t-tests and ANOVAs. *Frontiers in Psychology*, 4, 863.
55. Lone, U. M., & Bhart, A. K. (2022). Impact of financial literacy on financial well-being: A study of university professors. *Journal of Financial Counseling and Planning*, 33(1), 92-106.
56. Lontchi, C. B., Yang, L., & Su, Y. (2022). The mediating effect of multiple income streams on the relationship between financial literacy and financial well-being in

- Cameroon. *Journal of Financial Services Marketing*, 27(3), 215-228.
57. Lusardi, A., & Mitchell, O. S. (2014). The economic importance of financial literacy: Theory and evidence. *Journal of Economic Literature*, 52(1), 5-44.
 58. Lyons, A. C., & Kass-Hanna, J. (2021). A methodological overview to defining and measuring "digital" financial literacy. *Financial Planning Review*, 4(2), e1113.
 59. Magoma, C., Mbura, O., & Ndiege, B. (2025). The roles of finance opinion and income source in the link between financial literacy and student financial behaviour in Tanzania. *Discover Sustainability*, 6, 1197.
 60. Matey, J., Duut, J. Y., & Kombian, M. F. (2021). Financial literacy education: Implication on teachers' economic and social life in Ghana. *International Journal of Research in Teaching, Learning, Creativity & Technology*, 3(1).
 61. Modigliani, F. (1986). Life cycle, individual thrift, and the wealth of nations. *American Economic Review*, 76(3), 297-313.
 62. Modigliani, F., & Brumberg, R. (1954). Utility analysis and the consumption function: An interpretation of cross-section data. In K. K. Kurihara (Ed.), *Post-Keynesian economics* (pp. 388-436). Rutgers University Press.
 63. Mohajan, H. K. (2020). Quantitative research: A successful investigation in natural and social sciences. *Journal of Economic Development, Environment and People*, 9(4), 50-79.
 64. Mohojan, H. K. (2017). Two criteria for good measurements in research: Validity and reliability. *Annals of Spiru Haret University Economic Series*, 17(4), 59-82.
 65. Moral de la Rubia, J. (2019). Review of the criteria for convergent validity estimated through the Extracted Average Variance. *Psychologia: Avances de la Disciplina*, 13(2), 25-41.
 66. Nassaji, H. (2015). Qualitative and descriptive research: Data type versus data analysis. *Language Teaching Research*, 19(2), 129-132.
 67. Opoku, A., Ahmed, V., & Akotia, J. (2016). Choosing an appropriate research methodology and method. In V. Ahmed, A. Opoku, & Z. Aziz (Eds.), *Research methodology in the built environment: A selection of case studies* (pp. 32-49). Routledge.
 68. Organisation for Economic Co-operation and Development. (2005). *Improving financial literacy: Analysis of issues and policies*. OECD Publishing.
 69. Oseifuah, E. K., Gyekye, A. B., & Formadi, P. (2018). Financial literacy among undergraduate students: Empirical evidence from Ghana. *Journal of Economics and Behavioural Studies*, 9(6), 23-35.
 70. Pace, D. S. (2021). Probability and non-probability sampling: An entry-level handbook. *American Journal of Qualitative Research*, 5(1), 132-145.
 71. Pandey, P., & Pandey, M. M. (2021). *Research methodology: Tools and techniques*. Bridge Center.
 72. Peterson, R. A., & Kim, Y. (2013). On the relationship between coefficient alpha and composite reliability. *Journal of Applied Psychology*, 98(1), 194-198.
 73. Philippas, N. D., & Avdoulas, C. (2020). Financial literacy and financial well-being among generation-Z university students: Evidence from Greece. *The European Journal of Finance*, 26(4-5), 360-381.
 74. Sabri, M. F., Aw, E. C. X., Rahim, H. A., & Burhan, N. A. S. (2022). Financial literacy, financial behaviour and financial well-being among Malaysian adults. *Journal of Asian Finance, Economics and Business*, 9(3), 317-326.
 75. Schober, P., Boer, C., & Schwarte, L. A. (2018). Correlation coefficients: Appropriate use and interpretation. *Anesthesia & Analgesia*, 126(5), 1763-1768.
 76. Sekaran, U., & Bougie, R. (2016). *Research methods for business: A skill building approach* (7th ed.). John Wiley & Sons.
 77. Sekaran, U., & Bougie, R. (2019). *Research methods for business: A skill building approach* (8th ed.). John Wiley & Sons.
 78. Shaari, N. A., Hasan, N. A., Mohamed, R. K., & Sabri, M. F. (2013). Financial literacy: A study among the university students. *Interdisciplinary Journal of Contemporary Research in Business*, 5(2), 279-299.
 79. Sofyan, R. F., & Ratnawati, K. (2025). The influence of income on financial well-being with financial literacy as a mediating variable: A study of the community in Poncokusumo Tourism Village. *International Journal of Research in Business and Social Science*, 14(4), 82-97.
 80. Song, M., Zhang, L., & Wang, C. (2025). The impact of financial literacy on the resilience of middle-income households: Exploring the paths to stabilizing and expanding the middle-income group. *China Population Science*, 2025(5), 82-97.
 81. Stratton, S. J. (2021). Population research: Convenience sampling strategies. *Prehospital and Disaster Medicine*, 36(4), 373-374.
 82. Streiner, D. L. (2003). Starting at the beginning: An introduction to coefficient alpha and internal consistency. *Journal of Personality Assessment*, 80(1), 99-103.
 83. Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics* (5th ed.). Pearson Education.
 84. Tabachnick, B. G., & Fidell, L. S. (2019). *Using multivariate statistics* (7th ed.). Pearson Education.
 85. Teo, T. S., Srivastava, S. C., & Jiang, L. (2008). Trust and electronic government success: An empirical study. *Journal of Management Information Systems*, 25(3), 99-132.

86. Ulfatun, T., Udhma, U. S., & Dewi, S. (2016). Analysis of financial literacy level of micro, small and medium enterprises (MSMEs) in Pati Regency. *Journal of Accounting and Business Education*, 2(1), 1-18.
87. Xu, L., & Zia, B. (2012). Financial literacy around the world: An overview of the evidence with practical suggestions for the way forward. *World Bank Policy Research Working Paper*, 6107.
88. Yandoh, S. (2021). Evaluating financial literacy level among teachers: A study of Upper Denkyira West District of the Central Region of Ghana [Unpublished master's thesis]. University of Cape Coast.
89. Zhang, Y., & Chatterjee, S. (2023). Financial literacy, multiple income streams, and financial well-being: Evidence from the 2018 FINRA National Financial Capability Study. *Journal of Personal Finance*, 22(1), 45-64