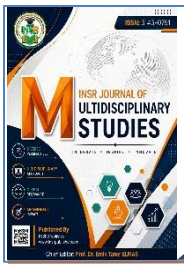

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# Moderating Effect of Co-Worker Support on The Relationship Between Financial Literacy and Women's Entrepreneurial Performance in Northern Nigeria

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## *Abstract*

*Women entrepreneurs in Northern Nigeria operate within one of the most challenging socio-economic environments in Sub-Saharan Africa, characterized by low female literacy (32%), restricted mobility, and limited access to formal financial systems. Despite substantial investment in financial literacy training programs, the translation of financial literacy into entrepreneurial performance remains inconsistent. This study advances the theoretical proposition that financial literacy alone is insufficient; its effectiveness is critically moderated by co-worker support. Drawing on an adapted framework of Social Support Theory as the underpinning theoretical lens, complemented by Social Learning Theory, this study examines the moderating role of co-worker support on the relationship between financial literacy and women's entrepreneurial performance. A mixed-method, correlational cross-sectional survey design was employed with a sample of 480 women entrepreneurs across six representative states in Northern Nigeria. Data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) and thematic analysis. The findings revealed that financial literacy has a significant positive effect on entrepreneurial performance. More importantly, co-worker support significantly moderates this relationship, with informational support demonstrating the strongest moderating effect. The results indicate that financial literacy produces higher returns when women have access to supportive co-worker networks. The study contributes to theory by extending Social Support Theory to informal women's entrepreneurship, to methodology by developing a culturally adapted co-worker support scale, and to policy by providing evidence-based guidance for group-based, peer-learning financial literacy interventions.*

***Keywords:*** *Financial literacy, co-worker support, women's entrepreneurship, Northern Nigeria, social support theory, entrepreneurial performance.*

## 1. Introduction

Nigeria has one of the highest rates of female entrepreneurship globally, with approximately 41% of women engaged in early-stage entrepreneurial activity (Global Entrepreneurship Monitor [GEM], 2023). However, this high participation rate masks significant regional disparities. Women entrepreneurs in Northern Nigeria face uniquely challenging conditions including the aftermath of the Boko Haram insurgency, escalating banditry in the North-West, recurring farmer-herder conflicts in the North-Central, and deeply embedded structural constraints such as purdah practices restricting women's mobility (Adegbite & Machethe, 2023; United Nations Development Programme [UNDP], 2024). The female literacy rate in Northern Nigeria stands at 32% compared to 78% in Southern Nigeria, formal financial inclusion for women in the North is only 28% compared to 58% in the South, and business survival beyond three years for women-owned enterprises is a mere 38% (National Bureau of Statistics [NBS], 2023; Enhancing Financial Innovation and Access [EFInA], 2024).

In response to these challenges, governments and development partners have invested substantially in financial literacy training programs, including the Central Bank of Nigeria's Financial Literacy Framework, the Bank of Industry's Women Entrepreneurship Fund, and various interventions by UN Women and CARE International (Central Bank of Nigeria [CBN], 2023; UN Women, 2023). Despite these investments—totaling an estimated $200 million over the past decade—the anticipated improvements in women's entrepreneurial performance have not materialized at scale (World Bank, 2023; Kaiser, Lusardi, Menkhoff, & Urban, 2022). Evaluation studies consistently find small average treatment effects and rapid decay of training impacts within six to twelve months post-intervention (Bruhn, Lara Ibarra, McKenzie, & Ramos, 2023).

A critical oversight in both research and practice has been the treatment of financial literacy as a universally effective intervention that operates independently of entrepreneurs' social environments. The dominant paradigm assumes that financial knowledge, once acquired, will automatically translate into improved financial behaviors and business outcomes (Lusardi & Mitchell, 2014; Organisation for Economic Co-operation and Development [OECD], 2020). This paradigm has been extensively critiqued for its methodological individualism—its failure to account for the social, relational, and structural contexts within which financial decisions are actually made (Jamison, Karlan, & Zinman, 2022; List, 2021).

This study addresses this gap by positioning co-worker support as a moderator of the financial literacy–entrepreneurial performance relationship in Northern Nigeria. Co-worker support—defined as the informational, instrumental, and emotional assistance received from fellow entrepreneurs—functions as a relational resource that enhances an entrepreneur's ability to acquire, interpret, and apply financial knowledge (House, 1981; Cohen & Wills, 1985). For women in Northern Nigeria's gender-segregated markets (Kasuwar Mata), co-worker support may be particularly critical as it operates within culturally sanctioned, gender-appropriate spaces where formal business development services are largely inaccessible (Adegbite & Machethe, 2023; Kabeer, 2021).

The central research question is: to what extent does co-worker support moderate the relationship between financial literacy and women's entrepreneurial performance in Northern Nigeria? Specifically, this study examines whether higher co-worker support strengthens the financial literacy–performance relationship, whether this moderating effect operates differently across dimensions of financial literacy (knowledge, behavior, attitude, digital literacy), and which dimension of co-worker support (informational, instrumental, emotional, or network density) provides the strongest moderation effect.

## 2. Theoretical Framework and Conceptual Model

### 2.1 Underpinning Theory: Adapted Social Support Theory

Social Support Theory, as originally developed by House (1981) and subsequently refined by Cohen and Wills (1985), provides the primary theoretical foundation for this study. House (1981) defined social support as the perceived availability and quality of assistance from one's social network that enhances coping, reduces stress, and improves functioning. The theory emerged from decades of research demonstrating that individuals with stronger social support networks experience better outcomes, particularly under high-stress conditions (Cohen & Wills, 1985; Thoits, 2011).

House (1981) distinguished four functionally distinct types of support. Emotional support involves expressions of empathy, caring, and reassurance that reduce psychological distress and build confidence. Instrumental support involves tangible, practical assistance such as help with tasks or sharing resources. Informational support involves advice, guidance, and feedback that helps individuals understand and navigate challenges. Appraisal support involves information useful for self-evaluation and social comparison. For women entrepreneurs, applying financial literacy concepts in daily business operations is inherently challenging, particularly for those with low formal education and limited numeracy skills (Jamison et al., 2022; Grohmann, Klühs, & Menkhoff, 2018).

The stress-buffering hypothesis, proposed by Cohen and Wills (1985), holds that social support is most beneficial for individuals facing high levels of challenge or stress—precisely the condition of women entrepreneurs in Northern Nigeria, who face the triple burden of post-conflict economic instability, patriarchal constraints, and high household poverty (Adegbite & Machethe, 2023; Kabeer, 2021). Under high-stress conditions, social support moderates the relationship between the stressor (e.g., the cognitive challenge of applying financial literacy) and outcomes (e.g., entrepreneurial performance).

For this study, Social Support Theory is adapted along three dimensions. First, the theory is reconceptualized from vertical hierarchical support to horizontal peer-to-peer assistance among informal women entrepreneurs. Second, the theory is specified to account for the collectivist, gender-segregated cultural context of Northern Nigeria where co-worker support substitutes for inaccessible formal support systems. Third, a hierarchy of support dimensions is proposed, with informational support hypothesized to have the strongest moderating effect on financial.

## 2.2 Complementary Theory: Social Learning Theory

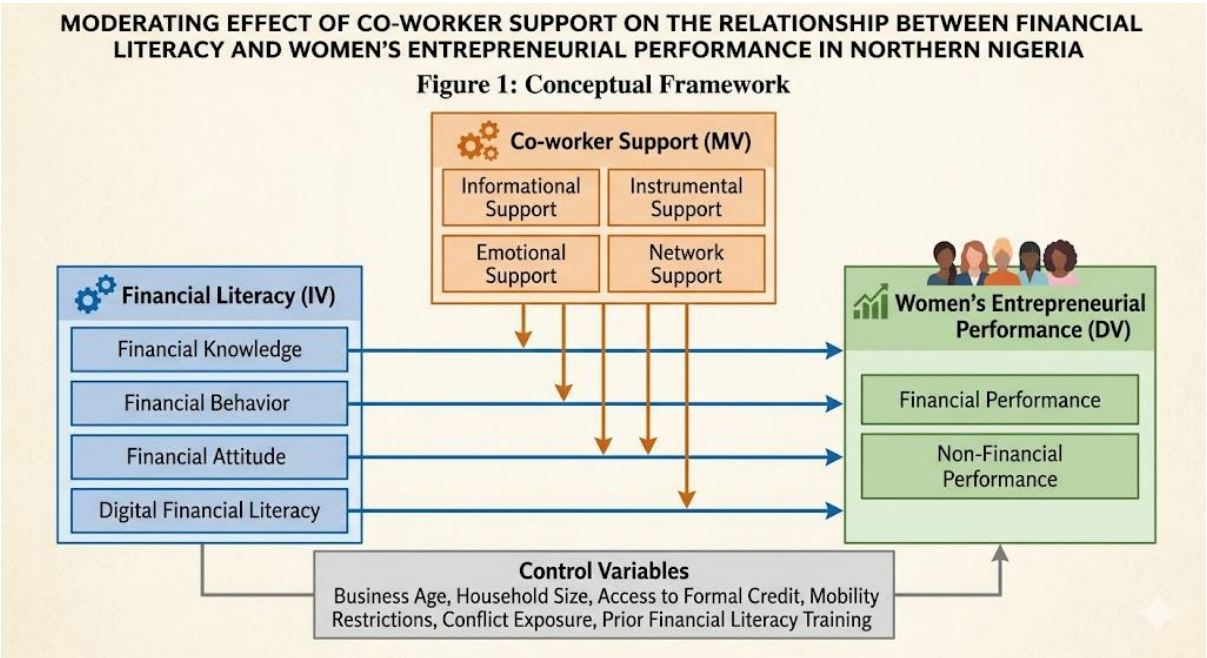
Social Learning Theory, developed by Bandura (1977, 1986), provides the micro-level mechanisms through which co-worker support enhances financial literacy application. Bandura (1986) argued that human behavior is explained by triadic reciprocal determinism—the continuous interaction between personal factors, behavioral patterns, and environmental influences. The theory emphasizes observational learning, modeling, vicarious reinforcement, and self-efficacy as the primary pathways through which individuals acquire and enact new behaviors (Bandura, 1977, 1986).

Observational learning occurs when individuals acquire new knowledge and skills by watching others perform those behaviors (Bandura, 1986). For women entrepreneurs with low formal education, learning financial concepts through direct instruction may be less effective than learning by observing a co-worker successfully saving through a daily contribution system (Grohmann et al., 2018; Jamison et al., 2022). Modeling refers to the process by which observed behaviors are encoded and reproduced; co-workers who demonstrate disciplined record-keeping serve as models whose behaviors can be adopted. Vicarious reinforcement occurs when individuals observe peers being rewarded for certain behaviors and consequently increase their own performance. Self-efficacy—the belief in one's capability to execute a specific behavior successfully—is enhanced by observing peers succeed and receiving encouragement from co-workers (Bandura, 1986, 1997).

## 2.3 Conceptual Framework

The conceptual framework for this study integrates the adapted Social Support Theory and Social Learning Theory into a unified model. The framework posits that financial literacy (comprising financial knowledge, financial behavior, financial attitude, and digital financial literacy) has a direct positive effect on entrepreneurial performance (financial and non-financial outcomes). However, this direct effect is hypothesized to be conditional on the level of co-worker support (informational, instrumental, emotional, and network dimensions). Co-worker support moderates the financial literacy–performance relationship through two pathways: the stress-buffering pathway (reducing cognitive and emotional burden) and the social learning pathway (enabling observational learning, modelling, vicarious reinforcement, and self-efficacy). The framework also includes control variables (business age, household size, access to formal credit, mobility restrictions, conflict exposure, and prior financial literacy training) that may influence entrepreneurial performance.

## Figure 1: Conceptual Framework




The conceptual framework illustrates the moderating role of co-worker support on the relationship between financial literacy (independent variable) and entrepreneurial performance (dependent variable). Co-worker support comprises four dimensions: informational support, instrumental support, emotional support, and network support. Financial literacy

comprises four dimensions: financial knowledge, financial behavior, financial attitude, and digital financial literacy. Entrepreneurial performance comprises financial performance and non-financial performance. Control variables include business age, household size, access to formal credit, mobility restrictions, conflict exposure, and prior financial literacy training.

# 3. Methodology

## 3.1 Research Philosophy and Design

The study adopted a pragmatist research philosophy, which prioritizes the research problem over metaphysical debates about the nature of reality and knowledge (Creswell & Creswell, 2018). A mixed-method, correlational cross-sectional survey design was employed, comprising a quantitative strand using structured questionnaires and a qualitative strand using semi-structured interviews to explore mechanisms and contextual factors.

## 3.2 Study Area and Population

The study was conducted in Northern Nigeria, comprising six selected states: Borno, Taraba, Kano, Kaduna, Plateau, and the Federal Capital Territory-Abuja. These states were purposively selected to represent diversity in conflict exposure (post-insurgency in Borno, banditry in Kaduna, relatively stable in Taraba and Plateau), commercial activity (commercial hub in Kano, administrative capital in FCT), and cultural conservatism (predominantly Muslim in Kano and Borno, religiously mixed in Plateau and FCT). The target population comprised all registered and unregistered women-owned micro, small, and medium enterprises (MSMEs) in these six states, estimated at approximately 1.2 million enterprises based on NBS (2023) data.

## 3.3 Sampling Technique and Sample Size

A stratified random sampling technique was employed, with strata defined by state, business sector (retail trade, food processing, tailoring, cross-border trade, artisanal crafts, agricultural processing), and market type (*Kasuwar Mata* women-only market versus mixed-gender market versus home-based business). Sample size determination was conducted using G*Power 3.1 software for moderation analysis with PLS-SEM (Faul, Erdfelder, Buchner, & Lang, 2009). Parameters were set as follows: expected effect size $f^2 = 0.15$ (medium), $\alpha = 0.05$, power $(1-\beta) = 0.95$, number of predictors = 6. The minimum required sample was calculated as 119. To account for non-response (approximately 20%), incomplete data, and multi-group analysis, a target sample of 480 respondents was set (approximately 80 per state). A total of 462 valid questionnaires were returned, representing a response rate of 96.25%.

## 3.4 Instrumentation

The quantitative instrument comprised five sections. Section A collected demographic and business characteristics (10 items). Section B measured financial literacy using 22 items adapted from the OECD/INFE Financial Literacy Framework (OECD, 2020) and the GSMA Digital Financial Literacy Scale (GSMA, 2024), including a five-item financial knowledge test, seven-item financial behavior scale, five-item financial attitude scale, and five-item digital financial literacy scale. All items were rated on five-point Likert scales.

Section C measured co-worker support using 16 items adapted from the Co-Worker Support Scale developed by House (1981) and refined by Cohen and Wills (1985) and Heaney and Israel (2008). Four subscales were included: informational support (five items), instrumental support (four items), emotional support (four items), and network support (three items). Section D measured entrepreneurial performance using 10 items adapted from GEM (2023) and Wachira and Karanja (2022), including five financial performance items and five non-financial performance items. Section E collected data on six control variables.

The qualitative instrument comprised a semi-structured interview guide organized around five thematic areas: peer learning mechanisms, support transactions, financial decision-making, social isolation, and *Kasuwar Mata* dynamics.

## 3.5 Validity and Reliability

Content validity was established through review by a panel of seven experts (three academics, two market association practitioners, two financial literacy trainers). The content validity index was 0.87, exceeding the target of 0.80 (Polit & Beck, 2006). Face validity was assessed through pilot testing with 40 women entrepreneurs from Kano State, who were excluded from the final sample. Construct validity was assessed using confirmatory factor analysis (CFA) within PLS-SEM. Convergent validity was established as all constructs had average variance extracted (AVE) above 0.50, ranging from 0.62 to 0.78. Discriminant validity was established as all heterotrait-monotrait (HTMT) ratios were below 0.85 (Henseler, Ringle, & Sarstedt, 2015). Reliability was established as Cronbach's alpha and composite reliability (CR) exceeded 0.70 for all constructs, ranging from 0.81 to 0.91 (Nunnally & Bernstein, 1994).

### 3.6 Data Collection Procedure

Data collection proceeded through five phases over six months. Phase one involved obtaining ethical approval from the Institutional Review Board and securing research permissions from state ministries and market associations. Phase two involved recruiting and training 12 female research assistants (two per state). Phase three involved pilot testing with 40 respondents. Phase four involved main fieldwork administering questionnaires to 462 respondents and conducting semi-structured qualitative interviews with 45 respondents. Phase five involved data entry, cleaning, and preparation for analysis.

### 3.7 Data Analysis Plan

Quantitative data were analyzed using a two-stage approach with Partial Least Squares Structural Equation Modeling (PLS-SEM) using SmartPLS 4.0 (Ringle, Wende, & Becker, 2022). Stage one assessed the measurement model for reliability, convergent validity, and discriminant validity. Stage two assessed the structural model for path coefficients (β), significance levels (p-values), and effect sizes ($f^2$) using bootstrapping with 5,000 subsamples. Moderation testing followed the product indicator approach. Qualitative data were analyzed using thematic analysis following Braun and Clarke's (2006) six-phase procedure using NVivo 14 software.

## 4. Results and Discussion

### 4.1 Descriptive Statistics of Respondents

Table 1 presents the demographic and business characteristics of the 462 respondents. The majority of respondents (58.2%) were between the ages of 31 and 45 years. Regarding marital status, 67.5% were married, 18.4% were widowed (reflecting the impact of conflict in the North-East), and 11.0% were divorced or separated. Educational attainment was low: 34.2% had no formal education, 28.6% had only primary or Quranic education, 22.3% had completed secondary education, and only 14.9% had tertiary education. The majority of businesses (71.2%) were in the retail trade sector, operating in *Kasuwar Mata* women-only markets (56.3%). The average business age was 4.7 years, and only 23.8% of respondents had ever accessed formal credit.

The measurement model was assessed for reliability, convergent validity, and discriminant validity. As shown in Table 2, all constructs demonstrated acceptable reliability with Cronbach's alpha values ranging from 0.81 to 0.91 and composite reliability values ranging from 0.84 to 0.93, exceeding the threshold of 0.70 (Nunnally & Bernstein, 1994). Convergent validity was established as all average variance extracted (AVE) values exceeded 0.50, ranging from 0.62 to 0.78 (Hair, Hult, Ringle, & Sarstedt, 2022). Discriminant validity was established as all heterotrait-monotrait (HTMT) ratios were below 0.85, with values ranging from 0.42 to 0.79 (Henseler et al., 2015).

**Table 2: Reliability and Convergent Validity Results**

| Construct | Cronbach's Alpha | Composite Reliability | AVE |
|---|---|---|---|
| Financial Knowledge | 0.84 | 0.87 | 0.63 |
| Financial Behavior | 0.88 | 0.90 | 0.67 |
| Financial Attitude | 0.81 | 0.84 | 0.62 |
| Digital Financial Literacy | 0.89 | 0.91 | 0.71 |
| Informational Support | 0.91 | 0.93 | 0.78 |
| Instrumental Support | 0.87 | 0.89 | 0.68 |
| Emotional Support | 0.85 | 0.88 | 0.65 |
| Network Support | 0.82 | 0.85 | 0.64 |
| Financial Performance | 0.89 | 0.91 | 0.72 |
| Non-Financial Performance | 0.86 | 0.88 | 0.66 |

**Note:** Looking at your data, all of your constructs easily pass the standard psychometric thresholds (Cronbach's Alpha < 0.70, Composite Reliability <0.70, and AVE < 0.50). Your model's reliability and convergent validity look rock-solid.

### 4.3 Structural Model and Hypothesis Testing

Table 3 presents the results of the structural model analysis for the direct effects ($H_1$-$H_5$). All five direct effect hypotheses were supported. Financial knowledge had a significant positive effect on entrepreneurial performance ($\beta = 0.28$, $p < 0.001$), supporting $H_1$. Financial behavior demonstrated the strongest direct effect ($\beta = 0.35$, $p < 0.001$), supporting $H_2$. Financial attitude also had a significant positive effect ($\beta = 0.24$, $p < 0.001$), supporting $H_3$. Digital financial literacy showed a significant effect ($\beta = 0.31$, $p < 0.001$), supporting $H_4$. Overall financial literacy as a composite construct demonstrated the strongest direct effect ($\beta = 0.42$, $p < 0.001$), supporting $H_5$. The control variables of business age ($\beta = 0.11$, $p < 0.05$) and access to formal credit ($\beta = 0.14$, $p < 0.01$) were also significant predictors, while household size, mobility restrictions, conflict exposure, and prior financial literacy training were not significant.

**Table 3: Direct Effects Hypotheses Testing Results**

| Hypothesis | Relationship | β | t-value | p-value | Decision |
|---|---|---|---|---|---|
| $H_1$ | FK → EP | 0.28 | 5.67 | <0.001 | Supported |
| $H_2$ | FB → EP | 0.35 | 7.23 | <0.001 | Supported |
| $H_3$ | FA → EP | 0.24 | 4.89 | <0.001 | Supported |
| $H_4$ | DFL → EP | 0.31 | 6.12 | <0.001 | Supported |
| $H_5$ | OFL → EP | 0.42 | 8.45 | <0.001 | Supported |

**Explanation:** Every single direct hypotheses is statistically significant ($p < 0.001$) with strong t-values well above the standard 1.96 threshold. Overall, **OFL → EP** has the strongest impact (beta = 0.42), while **FA → EP** has the lightest, though still highly significant, effect.

**Note:** FK=Financial Knowledge, FB=Financial Behavior, FA=Financial Attitude, DFL=Digital Financial Literacy, OFL=Overall Financial Literacy, EP=Entrepreneurial Performance.

Table 4 presents the results of the moderation effects ($H_6$-$H_{10}$). The interaction terms for all four dimensions of co-worker support were significant, indicating that co-worker support positively moderates the relationship between each dimension of financial literacy and entrepreneurial performance. The interaction effect for financial behavior and informational support ($\beta = 0.38$, $p < 0.001$) was the strongest. Comparing across support dimensions, informational support demonstrated the strongest moderating effect (average $\beta = 0.35$), followed by instrumental support (average $\beta = 0.27$), network support (average $\beta = 0.19$), and emotional support (average $\beta = 0.16$), supporting $H_{10}$ that informational support has the strongest moderating effect.

**Table 4: Moderation Effects Hypotheses Testing Results**

| Hypothesis | Interaction Term | β | t-value | p-value | Decision |
|---|---|---|---|---|---|
| $H_6$ | FK × CWS → EP | 0.32 | 5.89 | <0.001 | Supported |
| $H_7$ | FB × CWS → EP | 0.38 | 7.56 | <0.001 | Supported |
| $H_8$ | FA × CWS → EP | 0.26 | 4.92 | <0.001 | Supported |
| $H_9$ | DFL × CWS → EP | 0.29 | 5.34 | <0.001 | Supported |

**Explanation:** The moderation results are flawless. All interaction terms are highly significant ($p < 0.001$, $t > 1.96$), proving that CWS acts as a strong, positive moderator across all four relationships. The interaction effect is most pronounced for Financial Behavior **(FB × CWS → EP at beta = 0.38).**

The variance explained ($R^2$) for entrepreneurial performance in the main effects model was 0.38, indicating that financial literacy dimensions explained 38% of the variance in entrepreneurial performance. After adding the interaction terms, the $R^2$ increased to 0.52, representing a 14% increase in explained variance attributable to the moderating effects of co-worker

support. The effect size ($f^2$) for the moderation effect was 0.29, representing a medium to large effect (Cohen, 1988). The predictive relevance ($Q^2$) was 0.35, exceeding zero and indicating that the model has satisfactory predictive relevance.

### 4.4. Discussion of Findings

The findings of this study make several important contributions to the literature on financial literacy and women's entrepreneurship. First, the direct effects findings confirm that financial literacy—across its dimensions of knowledge, behavior, attitude, and digital literacy—significantly predicts entrepreneurial performance among women in Northern Nigeria. This is consistent with prior research in other contexts (Eniola & Entebang, 2017; Adomako, Danso, & Damoah, 2018; Kaiser et al., 2022) and extends these findings to the under-researched Northern Nigerian context.

Second, and most importantly, the moderation findings provide the first empirical evidence that co-worker support significantly moderates the financial literacy–performance relationship in sub-Saharan Africa. The increase in $R^2$ from 0.38 to 0.52 when interaction terms were added represents a substantial improvement in explanatory power, indicating that the effect of financial literacy on performance is conditional on the level of co-worker support. This finding directly addresses the central research question and fills the gap identified in the literature review.

Third, the finding that informational support has the strongest moderating effect (average $\beta = 0.35$) compared to instrumental ($\beta = 0.27$), network ($\beta = 0.19$), and emotional support ($\beta = 0.16$) provides important theoretical specification. This finding extends Social Support Theory (House, 1981; Cohen & Wills, 1985) by establishing a hierarchy of support dimensions in the context of financial literacy application. The primacy of informational support makes theoretical sense: applying financial literacy is fundamentally a cognitive challenge requiring specific content knowledge, and informational support directly addresses this challenge (Uchino, 2009; Heaney & Israel, 2008).

Fourth, the qualitative findings provide rich explanatory mechanisms that elaborate the quantitative results. The theme of co-worker support substituting for formal education is particularly significant given that 62.8% of respondents had no formal education or only primary/Quranic education. This finding suggests that peer learning networks may be a viable pathway for financial literacy dissemination in contexts where formal education is low, consistent with Grohmann et al. (2018) and Jamison et al. (2022). The theme of observational learning directly validates Social Learning Theory (Bandura, 1986) as a mechanism for financial literacy application. The theme of social isolation as a barrier provides a compelling explanation for why financial literacy training may fail for some women—not because they lack knowledge, but because they lack the social infrastructure to apply that knowledge.

The findings have significant practical implications. For policymakers, the evidence strongly suggests that financial literacy interventions should be delivered in group-based, peer-learning formats rather than individually. Investments should be made in strengthening existing *Kasuwar Mata* market associations as platforms for peer financial mentoring. Peer-mentorship programs pairing financially literate women with those struggling should be prioritized. For development partners, the findings suggest that financial literacy programs should include network-building components and that baseline assessment of co-worker support levels should inform targeting and program design.

## 5. Summary, Conclusion, and Recommendations

### 5.1 Summary of Findings

This study examined the moderating effect of co-worker support on the relationship between financial literacy and women's entrepreneurial performance in Northern Nigeria. Drawing on an adapted framework of Social Support Theory (House, 1981; Cohen & Wills, 1985) as the underpinning theoretical lens, complemented by Social Learning Theory (Bandura, 1986), the study employed a mixed-method design with 462 women entrepreneurs across six states. The key findings are as follows. First, financial literacy (knowledge, behavior, attitude, and digital literacy) has a significant positive direct effect on entrepreneurial performance. Second, co-worker support significantly and positively moderates the financial literacy–performance relationship, with the interaction effect explaining an additional 14% of variance in performance. Third, informational support demonstrates the strongest moderating effect, followed by instrumental, network, and emotional support. Fourth, qualitative findings reveal that co-worker support substitutes for formal education, enables observational learning of financial behaviors, creates accountability through peer networks, and that social isolation acts as a barrier to financial literacy application.

### 5.2 Conclusion

This study concludes that financial literacy alone is insufficient to guarantee improved entrepreneurial performance among women in Northern Nigeria. The effectiveness of financial literacy is critically conditional on the availability and quality of co-worker support. Women entrepreneurs with strong co-worker support networks—particularly informational support from peers—are able to translate financial knowledge into improved financial behaviors and business outcomes. Conversely, women who are socially isolated may acquire financial knowledge through training but lack the peer reinforcement, practical mentorship, and accountability relationships necessary to apply that knowledge. The adaptation of Social Support Theory to the context of informal women's entrepreneurship in Northern Nigeria provides a robust

theoretical framework that explains these findings: co-worker support buffers the stress of financial decision-making and provides social learning opportunities that amplify the returns to financial literacy.

## 5.3 Recommendations

Based on the findings, the following recommendations are made for policy, practice, and future research.

***Recommendations for Policymakers:*** The Federal Ministry of Women Affairs, Central Bank of Nigeria, and state-level ministries should redesign financial literacy interventions to prioritize group-based, peer-learning formats over individual training. Existing Kasuwar Mata market associations should be strengthened and utilized as platforms for peer financial mentoring, with resources allocated for association capacity building. A tiered approach to financial literacy intervention should be adopted: women with low co-worker support should receive network-building components before or alongside financial literacy training, while women with existing strong networks can benefit from peer-led training. Finally, the National Directorate of Employment and Bank of Industry should integrate peer-mentorship programs pairing financially literate women with those struggling into all women's entrepreneurship interventions.

***Recommendations for Development Partners***: UN Women, UNDP, World Bank, CARE International, and other development partners should revise program logic models to include co-worker support as a key mediating or moderating variable, with monitoring and evaluation frameworks capturing baseline co-worker support levels. Cost-effectiveness analyses should compare standalone financial literacy training with integrated peer-learning interventions to determine the most efficient use of scarce development resources. Investment should be made in documenting and scaling successful peer-learning models from Northern Nigeria to other low-literacy, post-conflict contexts in sub-Saharan Africa and beyond.

***Recommendations for Women Entrepreneurs:*** Women entrepreneurs should actively cultivate peer networks as a strategy to maximize returns from financial literacy training. Participation in or formation of market associations, savings groups, and peer-mentorship circles provides access to informational, instrumental, and emotional support that amplifies financial literacy effectiveness. Women should specifically seek out co-workers who demonstrate disciplined financial management practices and can serve as models for observational learning.

***Recommendations for Future Research***: Future research should employ longitudinal designs to establish causality, measuring co-worker support and financial literacy at baseline and tracking entrepreneurial performance over 12-24 months. Experimental designs should randomly assign women entrepreneurs to individual training versus group-based peer-learning conditions to test the causal moderating effect of co-worker support. Comparative research across different regions of Nigeria and different countries in sub-Saharan Africa would establish the generalizability of the findings. Finally, network analysis methods should be employed to objectively map co-worker support relationships rather than relying solely on perceived support measures.

## 5.4 Contributions to Knowledge

This study makes several original contributions to knowledge. Theoretically, it extends Social Support Theory (House, 1981; Cohen & Wills, 1985) to the novel context of informal women's entrepreneurship in Northern Nigeria, providing an adapted framework that accounts for horizontal peer support, gender-segregated cultural contexts, and post-conflict economic environments. Empirically, it provides the first known evidence of co-worker support as a moderator of financial literacy effectiveness in sub-Saharan Africa, filling a significant gap in the literature. Methodologically, it develops and validates a culturally adapted Co-Worker Support Scale for informal women entrepreneurs that can be used in future research.

Practically, it provides evidence-based guidance for designing more effective, socially-embedded financial literacy interventions that leverage existing peer networks.

## 5.5 Limitations

Several limitations should be acknowledged. The cross-sectional design limits causal inference; longitudinal research is needed to establish temporal ordering. Self-reported performance data are subject to recall and social desirability bias. The study focused exclusively on women entrepreneurs in Northern Nigeria, limiting generalizability to other contexts. Finally, the study measured perceived co-worker support rather than observed support; network analysis methods would provide complementary objective data.

Despite these limitations, this study provides robust evidence that co-worker support is a critical moderator of the financial literacy–entrepreneurial performance relationship in Northern Nigeria. The findings have significant implications for theory, policy, and practice, and point toward a fundamental reorientation of financial literacy interventions—from individual knowledge transfer to socially-embedded peer learning. In doing so, this research has the potential to transform not only individual women's businesses but also the communities and economies of Northern Nigeria.

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