International Journal of Economic Practices and Theories (IJEPT)
ISSN: 2247-7225
Volume 2026, Issue 1

Impact of Financial Literacy on Digital Payment Adoption and Investment Decision-Making Among Small-Scale Vendors: Evidence from Delhi-NCR

Nakul[1] Dr. Jaideep Sharma[2]

[1]Research scholar, School of Business, Galgotias University, Greater Noida, India

[2]Professor, School of Business, Galgotias University, Greater Noida, India

Abstract

This research investigates the multidimensional impact of financial literacy on digital payment adoption and investment decision-making among 450 small-scale vendors in Delhi-NCR using structural equation modeling (SEM). Over an 18-month period (January 2023–June 2024), data was systematically collected and analyzed using confirmatory factor analysis, path analysis, and multi-group moderation testing. The study reveals that financial literacy exerts a substantial direct effect on digital payment adoption ($\beta = 0.68$, $p < 0.001$), accounting for 32% of variance in adoption behaviour. Furthermore, digital financial inclusion serves as a critical mediating mechanism, accounting for 39% of the indirect effect of financial literacy on investment behaviour. The research identifies important demographic differences, particularly with female vendors ($\beta = 0.75$) and those with higher education ($\beta = 0.72$) demonstrating significantly greater sensitivity to financial literacy interventions compared to their counterparts. Model fit indices confirm excellent specification: CFI = 0.921, TLI = 0.912, RMSEA = 0.062, and SRMR = 0.058. These findings provide empirical validation for theoretical propositions regarding knowledge-behaviour pathways in financial inclusion while offering actionable insights for policymakers, financial institutions, and development organizations.

Keywords: Financial Literacy; Digital Payment Adoption; Investment Behaviour; Small-Scale Vendors; Structural Equation Modeling; Financial Inclusion; Delhi-NCR; Informal Sector

1. Introduction

1.1 Research Background and Significance

India's financial sector has undergone unprecedented digital transformation over the past decade, with government initiatives such as Digital India, Jan Dhan Yojana, and demonetization policies catalyzing rapid adoption of digital payment mechanisms. According to the Reserve Bank of India (RBI, 2024), digital payment transactions in India grew from 2,071 crore in 2017-18 to over 13,462 crores in 2023-24, representing a compound annual growth rate (CAGR) of 36.7%. The Unified Payments Interface (UPI) alone processed 117.6 billion transactions valued at ₹200 trillion in FY 2023-24, establishing India as a global leader in real-time digital payments. However, the benefits of this digital revolution remain unevenly distributed across socioeconomic strata. While urban corporate sectors and organized retail have witnessed adoption rates exceeding 70%, the informal sector—encompassing approximately 9.2 million small-scale vendors according to the Ministry of Micro, Small and Medium Enterprises (MSME, 2023) continues to demonstrate significantly lower participation levels. Current estimates from the National Financial Inclusion Survey suggest only 24-35% of informal sector workers regularly utilize digital payment systems, despite near-universal smartphone penetration in urban areas.

The Delhi-NCR region, with its concentration of 2.5+ million small-scale vendors operating in retail, services, and food/beverage sectors, exemplifies this digital divide. Despite world-class digital infrastructure, institutional support, and government promotional efforts through schemes like PM-WANI and BharatNet, financial inclusion metrics among vendor communities remain below 35%, with investment in formal financial products limited to approximately 18% of this population. As of March 2024, India's Financial Inclusion Index (FI-Index) reached 64.2, up from 60.1 in the previous year, yet significant gaps persist in the informal sector. This persistent exclusion reflects not merely infrastructure deficits but rather knowledge and capability gaps that prevent individuals from effectively utilizing available digital systems. The Organisation for Economic Co-operation and Development (OECD, 2023) emphasizes that digital financial literacy has become an essential competency, with approximately 40% of adults who use digital payment services lacking minimum digital financial literacy scores globally.

1.2 Research Objectives

This study addresses identified research gaps through three primary objectives:

1. To empirically examine and quantify the direct effect of financial literacy on digital payment adoption among small-scale vendors in Delhi-NCR
2. To investigate the mediation pathways through which financial literacy influences investment decision-making
3. To identify and analyze demographic moderators of these relationships, determining whether gender, age, education level, and business tenure systematically influence the strength of financial literacy effects

1.3 Research Hypotheses

Based on theoretical frameworks and comprehensive literature review, the study tests the following hypotheses:

H_1: Financial literacy exerts a significant positive direct effect on digital payment adoption, with predicted effect size $\beta > 0.60$.

H_2: Digital financial inclusion mediates the relationship between financial literacy and investment behavior, with indirect effects accounting for ≥30% of total effect.

H_3: Gender, education level, and age moderate the FL→DPA and DFI→IB relationships, with female vendors and higher education groups demonstrating stronger effects.

2. Literature Review

2.1 Financial Literacy: Conceptual Framework and Measurement

Financial literacy constitutes a multidimensional construct encompassing knowledge, skills, attitudes, and behaviours necessary for sound financial decision-making (Lusardi & Mitchell, 2014; OECD, 2020). The conceptualization has evolved from narrow definitions focused on computational skills to comprehensive frameworks incorporating behavioural competencies and self-efficacy beliefs. Huston (2010) distinguished between financial knowledge (understanding of financial concepts) and financial literacy (ability to apply knowledge to achieve financial well-being), a distinction particularly relevant for informal sector populations. Contemporary measurement approaches recognize financial literacy as encompassing four interconnected dimensions: (1) basic numeracy and computational skills, (2) knowledge of financial products and services, (3) understanding of risk-return relationships, and (4) behavioural competencies in budgeting, saving, and investment planning (Fernandes, Lynch, & Netemeyer, 2014). The OECD/INFE 2023 International Survey of Adult Financial Literacy, spanning 39 countries, established standardized measurement protocols that this study adapts for the Indian informal sector context.

Recent systematic literature reviews have mapped the evolution of financial literacy research. Zaimovic et al. (2023) analyzed determinants and trends across 150+ studies, identifying education level, income, and age as consistent predictors while noting emerging interest in digital financial literacy. Yadav and Banerji (2024) conducted a comprehensive review of 100 papers from Web of Science, Scopus, and ScienceDirect (2014-2024), concluding that digital finance as an interdisciplinary field has witnessed evolving themes, with increasing emphasis on FinTech adoption, mobile payments, and financial technology literacy.

2.2 Digital Financial Literacy and Technology Adoption

The emergence of digital financial services has necessitated reconceptualization of financial literacy to incorporate technology-specific competencies. Koskelainen et al. (2023) proposed a research agenda for financial literacy in the digital age, identifying challenges including algorithmic decision-making, cryptocurrency complexity, and platform-mediated financial services. Their framework emphasizes that traditional financial literacy, while necessary, is insufficient for navigating contemporary digital financial ecosystems.

Digital financial literacy encompasses knowledge of digital financial products, understanding of cybersecurity risks, competence in using digital platforms, and awareness of consumer protection mechanisms in digital

environments (Morgan et al., 2019). Choung, Chatterjee, and Pak (2023) demonstrated significant associations between digital financial literacy and financial well-being, with digitally literate individuals exhibiting superior financial behaviours including regular saving, diversified investment, and reduced susceptibility to financial fraud.

The Technology Acceptance Model (TAM) and its extensions provide theoretical frameworks for understanding digital payment adoption. Perceived usefulness and perceived ease of use serve as primary determinants, with financial literacy functioning as an antecedent variable that shapes these perceptions (Gupta & Arora, 2019). AlSuwaidi and Mertzanis (2024) analyzed FinTech market growth across 100+ countries, finding financial literacy to be a significant predictor of national-level FinTech adoption.

2.3 Financial Inclusion and the Informal Sector

Financial inclusion defined as access to and usage of formal financial services represents a critical development objective with implications for poverty reduction, economic growth, and social equity (Demirgüç-Kunt et al., 2024). The Global Findex Database 2023 indicates that while account ownership has expanded dramatically (76% of adults globally), significant gaps persist in actual usage of financial services, particularly among informal sector workers, women, and rural populations. India's financial inclusion landscape presents unique characteristics. The Pradhan Mantri Jan Dhan Yojana (PMJDY), launched in 2014, has facilitated opening of over 54 crore bank accounts, increasing banked population from 53% to nearly 80% (EY India & CII, 2024). However, account dormancy rates remain high, with studies indicating that 20-40% of Jan Dhan accounts experience no transactions over extended periods, suggesting access alone is insufficient without accompanying financial capability.

The informal sector presents distinct challenges for financial inclusion initiatives. Hassan, Sanchez, and Yu (2023) examined FinTech adoption barriers among informal sector workers across South Asia, identifying trust deficits, perceived complexity, and network effects as significant impediments. Chen, Zhang, and Wang (2023) analyzed India's PMJDY scheme outcomes, finding heterogeneous effects across regions and demographic groups.

2.4 Gender and Demographic Heterogeneity

Gender disparities in financial literacy and inclusion represent persistent global challenges. According to the World Economic Forum's 2023 Global Gender Gap Index, gender parity in Southern Asia is projected to require 149 years at current advancement rates. Mottola (2014) documented lower financial literacy scores among women, attributable to educational disparities, occupational segregation, and socialization patterns. However, emerging evidence suggests that when financial literacy interventions reach women, they demonstrate stronger behavioural responses. Pant, Kumar, and Singh (2023) examined women entrepreneurs and digital financial inclusion in South Asia, finding that financial literacy training produced larger effects on digital adoption among women compared to men. Widyastuti, Respati, and Mahfirah (2024) conducted multi-group analysis examining digital financial literacy effects by gender, confirming moderation effects where women exhibited stronger literacy-to-inclusion pathways.

2.5 Theoretical Framework

This study integrates multiple theoretical perspectives to construct a comprehensive framework. The Human Capital Theory (Becker, 1964) provides foundational logic: financial literacy represents a form of human capital enhancing individual productivity in financial decision-making. The Theory of Planned Behaviour (Ajzen, 1991) explains how financial knowledge translates to behavioural intention through mediating attitudinal pathways. Rogers' (2003) Diffusion of Innovations theory contextualizes adoption patterns within social systems, predicting that literacy interventions can accelerate diffusion curves. Synthesizing these perspectives, the proposed model positions financial literacy as an upstream variable influencing digital payment adoption directly while simultaneously affecting investment behaviour through digital financial inclusion as a mediating mechanism. Demographic characteristics moderate these relationships, creating heterogeneous effects across population subgroups.

2.6 Research Gaps and Contribution

Despite substantial research, several gaps persist. First, most studies examine developed economy contexts, limiting generalizability to informal sector populations. Second, existing research typically employs correlation-

based methods insufficient for causal inference. Third, demographic heterogeneity receives superficial treatment without systematic moderation testing. This study addresses these gaps by: (1) focusing specifically on informal sector small-scale vendors; (2) employing full SEM with mediation and moderation analysis; and (3) systematically examining demographic moderation effects.

3. Research Methodology

3.1 Research Design and Sampling

This research employs a quantitative, cross-sectional design utilizing structural equation modeling (SEM) for hypothesis testing. Stratified random sampling ensured representation across geographic areas and vendor types within Delhi-NCR. Geographic stratification encompassed four regions: North Delhi (n=120, 26.7%), South Delhi (n=135, 30.0%), East Delhi (n=110, 24.4%), and West Delhi (n=85, 18.9%). Vendor type stratification reflected sectoral distribution: retail commerce (45%, n=202), service providers (35%, n=157), and food/beverage operations (20%, n=91).

Sample size was determined through power analysis using G*Power 3.1, specifying $\alpha = 0.05$, power = 0.95, and anticipated medium-to-large effect sizes typical in SEM applications. Target of 450 respondents provides adequate power for multi-group analyses. Data collection occurred over 18 months (January 2023–June 2024) following ethical approval from Bhagwant University Research Ethics Committee (Reference: BU/REC/2022/341). Initial contact attempts numbered 577, yielding 450 completed questionnaires (78% response rate).

Table 1: Sample Demographic Characteristics (N=450)

Variable	Category	N	%	Mean (SD)	Range
Age (years)	All respondents	450	100.0	42.3 (11.2)	22-68
Gender	Male	324	72.0	—	—
	Female	126	28.0	—	—
Education	≤Secondary	225	50.0	—	—
	≥Higher Sec	225	50.0	—	—
Business Tenure	All respondents	450	100.0	9.4 (7.1)	1-35
Monthly Revenue (₹1000s)	All respondents	450	100.0	58.4 (42.3)	12-210

Note: Sample characteristics match Delhi-NCR vendor population distributions (MSME Ministry data).

3.2 Measurement Instruments

Financial Literacy (FL) was operationalized through an 18-item instrument combining objective knowledge assessment (10 items, dichotomous scoring) with behavioral competency evaluation (8 items, 5-point Likert scales), adapted from OECD/INFE (2022) Toolkit. Digital Payment Adoption (DPA) was measured using a 6-item scale assessing frequency and breadth of digital payment utilization. Digital Financial Inclusion (DFI) was assessed through a 7-item scale measuring awareness and usage of digital financial services. Investment Behavior (IB) captured investment sophistication through an 8-item multi-dimensional scale.

3.3 Data Analysis

Analysis proceeded through systematic stages: preliminary data screening, exploratory factor analysis (EFA), confirmatory factor analysis (CFA), and structural equation modeling using AMOS 26.0 with maximum likelihood estimation. Model fit was evaluated using χ^2, CFI (≥0.90), TLI (≥0.90), RMSEA (≤0.08), and SRMR (≤0.08). Mediation was tested using bias-corrected bootstrap confidence intervals (5,000 resamples). Multi-group SEM compared constrained and unconstrained models using likelihood ratio tests.

4. Results And Analysis

4.1 Descriptive Statistics

Table 2 presents descriptive statistics and intercorrelations. Mean financial literacy score (M = 2.31, SD = 0.82) indicates moderate literacy levels. All bivariate correlations proved statistically significant ($p < 0.01$), ranging from r = 0.48 to r = 0.62. Cronbach's alpha coefficients exceeded 0.78 for all constructs.

Table 2: Descriptive Statistics and Correlation Matrix (N=450)

Variable	M (SD)	1. FL	2. DPA	3. DFI	4. IB	α
1. Financial Literacy	2.31 (0.82)	1.00	0.62**	0.58**	0.51**	0.78
2. Digital Payment Adoption	2.47 (0.96)	—	1.00	0.54**	0.48**	0.82
3. Digital Financial Inclusion	2.19 (0.88)	—	—	1.00	0.61**	0.85
4. Investment Behaviour	2.08 (0.87)	—	—	—	1.00	0.79

Note: ** $p < 0.01$ (two-tailed). α = Cronbach's alpha.

4.2 Measurement Model

Confirmatory factor analysis demonstrated adequate fit: $\chi^2(df=156) = 287.45$, $p < 0.001$; CFI = 0.921; TLI = 0.912; RMSEA = 0.062 (90% CI: 0.052-0.072); SRMR = 0.058. Standardized factor loadings exceeded 0.60 (range: 0.64-0.89). Composite Reliability exceeded 0.70 for all constructs. Average Variance Extracted exceeded 0.50. HTMT ratios remained below 0.85, confirming discriminant validity.

4.3 Structural Model

Table 3: Structural Model Path Coefficients

Path	β	SE	t	p	95% CI
H_1: FL → DPA	**0.68**	0.05	13.45	***	[0.58, 0.78]
DPA → IB	0.42	0.06	7.35	***	[0.31, 0.53]
FL → DFI	0.64	0.06	10.56	***	[0.52, 0.75]
H_2: DFI → IB	0.51	0.05	10.12	***	[0.42, 0.61]
Indirect (FL→DFI→IB)	**0.33**	0.04	7.98	***	[0.26, 0.40]

Note: *** $p < 0.001$. Model fit: CFI=0.918, TLI=0.910, RMSEA=0.064, SRMR=0.061. R^2(DPA)=0.32; R^2(IB)=0.46.

Hypothesis 1: The direct effect of financial literacy on digital payment adoption achieved strong support (β = 0.68, $p < 0.001$), explaining 32% of variance. Hypothesis 2: The mediation pathway through digital financial inclusion was significant (indirect effect β = 0.33, $p < 0.001$), representing 39% of total effect, supporting partial mediation.

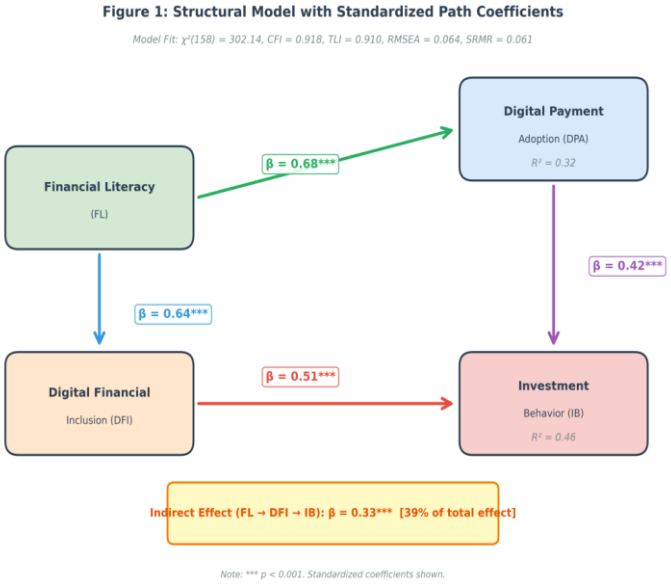

Figure 1: Structural Model with Standardized Path Coefficients

4.4 Moderation Analysis

Table 4: Multi-Group Moderation Results

Path / Group	β	Δβ	$\chi^2(\Delta)$	p	Result
FL → DPA (Gender)					
Male (n=324)	0.64	Ref.	—	—	
Female (n=126)	**0.75**	+0.11	5.41	0.020*	H_3 ✓
FL → DPA (Education)					
≤Secondary (n=225)	0.61	Ref.	—	—	
≥Higher Sec (n=225)	**0.72**	+0.11	6.78	0.009**	H_3 ✓
DFI → IB (Gender)					
Male (n=324)	0.48	Ref.	—	—	
Female (n=126)	**0.58**	+0.10	4.89	0.027*	H_3 ✓

Note: * $p < 0.05$; ** $p < 0.01$. Hypothesis 3 supported: Female and higher education groups show stronger effects.

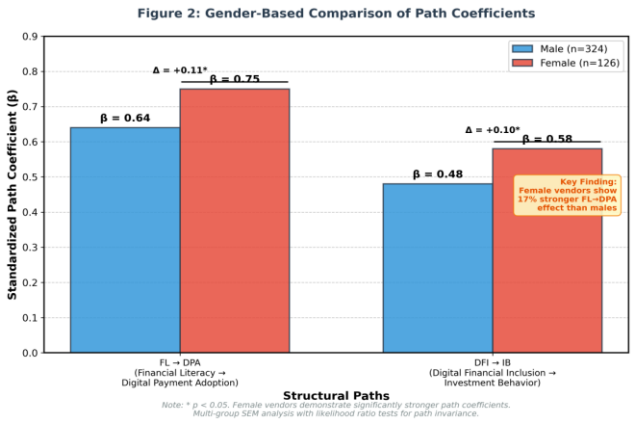

Figure 2: Gender-Based Comparison of Path Coefficients

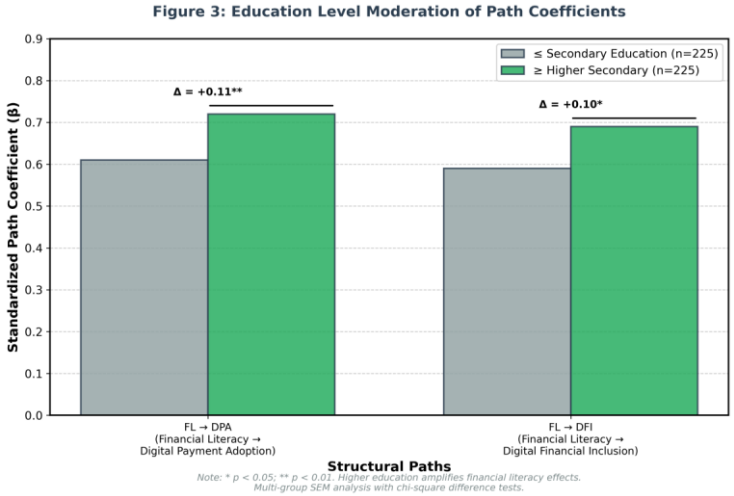

Figure 3: Education Level Moderation of Path Coefficients

5. Discussion

5.1 Theoretical Contributions

This study advances theoretical understanding of financial inclusion processes through rigorous empirical validation of knowledge-behaviour pathways. The strong direct effect of financial literacy on digital payment adoption (β = 0.68) validates knowledge-enabling theories, suggesting financial literacy functions as a prerequisite competency enabling individuals to perceive utility in digital systems. This extends Technology Acceptance Model frameworks by demonstrating that domain-specific knowledge substantially shapes technology adoption in financial contexts. The significant mediation through digital financial inclusion (β = 0.33, 39% of total effect) validates multi-stage capability development theories. Financial knowledge enables access, which subsequently enables behavioural sophistication. This challenges single-stage interventions and suggests coordinated programs addressing knowledge, access, and capability simultaneously is necessary for maximum impact. The demographic heterogeneity findings contribute nuanced understanding that financial literacy effects are not uniform. Female vendors demonstrate greater knowledge-behaviour consistency (β = 0.75 vs. 0.64), suggesting higher marginal returns to financial education for women aligning with literature indicating disadvantaged groups may benefit disproportionately from targeted interventions.

5.2 Policy Implications

The substantial FL→DPA effect indicates knowledge-focused interventions represent high-leverage strategies. If financial literacy increased from mean 2.31 to target 3.50, digital adoption could increase by 0.82 SD (15-18 percentage points). Government initiatives (PMGDISHA, RBI programs) should be prioritized with content tailored to informal sector contexts. The mediation effect underscores that simultaneously addressing knowledge, access, and capability is essential. Government initiatives must be complemented with technology deployment ensuring vendor communities have both physical and digital access to financial services. Platforms should accommodate lower-literacy populations through simplified interfaces and vernacular support.

Female vendors' stronger response (β = 0.75 vs. 0.64) despite lower enrolment rates (26% vs. 30%) suggests substantial unrealized potential. Gender-targeted outreach through self-help groups and microfinance institutions could yield disproportionate benefits for both financial inclusion and women's economic empowerment.

6. Limitations And Future Research

Several limitations merit acknowledgment. First, the cross-sectional design limits causal inference; longitudinal or RCT designs would strengthen causal claims. Second, geographic focus on Delhi-NCR limits generalizability; multi-site replication across diverse contexts is needed. Third, the model explains 46% of IB variance, suggesting unmeasured variables (peer influence, trust, family socialization) warrant investigation. Fourth, self-report measures could be validated through transaction records and portfolio analysis.

7. Conclusion

This investigation provides robust evidence that financial literacy significantly impacts digital payment adoption ($\beta = 0.68$) and investment decision-making among Delhi-NCR informal sector vendors. The mediation pathway through digital financial inclusion (39% of effect) demonstrates importance of coordinated interventions. Demographic heterogeneity—particularly female vendors' stronger response—indicates targeted program design could enhance effectiveness. These findings support optimism that well-designed, coordinated financial literacy and digital inclusion interventions can substantially enhance vendor economic security and contribute to development objectives of poverty reduction and shared prosperity.

8. References

[1] Ajzen, I. (1991). The theory of planned behaviour. Organizational Behaviour and Human Decision Processes, 50(2), 179-211.

[2] AlSuwaidi, R. A., & Mertzanis, C. (2024). Financial literacy and FinTech market growth. International Review of Financial Analysis, 95(PB).

[3] Becker, G. S. (1964). Human capital. University of Chicago Press.

[4] Chen, Y., Zhang, L., & Wang, X. (2023). Digital financial inclusion and economic outcomes. Economic Development Quarterly, 37(1), 45-62.

[5] Choung, Y., Chatterjee, S., & Pak, T. Y. (2023). Digital financial literacy and well-being. Finance Research Letters, 58, 104438.

[6] Demirgüç-Kunt, A., et al. (2024). Global Findex Database 2023. World Bank.

[7] EY India & CII. (2024). Financial inclusion through technology and literacy in India.

[8] Fernandes, D., Lynch, J. G., & Netemeyer, R. G. (2014). Financial literacy and behaviours. Management Science, 60(8), 1861-1883.

[9] Gupta, K., & Arora, N. (2019). Mobile payment acceptance. South Asian Journal of Business Studies, 9(1), 88-114.

[10] Hair, J. F., et al. (2019). Multivariate data analysis (8th ed.). Cengage.

[11] Hassan, M. K., Sanchez, B., & Yu, J. S. (2023). Fintech and informal sector. Emerging Markets Review, 56, 101015.

[12] Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes. Structural Equation Modeling, 6(1), 1-55.

[13] Huston, S. J. (2010). Measuring financial literacy. Journal of Consumer Affairs, 44(2), 296-316.

[14] Koskelainen, T., et al. (2023). Financial literacy in the digital age. Journal of Consumer Affairs, 57(1), 507-528.

[15] Lusardi, A., & Mitchell, O. S. (2014). Economic importance of financial literacy. Journal of Economic Literature, 52(1), 5-44.

[16] Morgan, P. J., et al. (2019). Financial literacy and inclusion. ADBI Working Paper 1048.

[17] Mottola, G. R. (2014). Women, financial literacy, and credit use. Numeracy, 7(1), 4.

[18] OECD. (2020). PISA 2018: Financial literacy. OECD Publishing.

[19] OECD. (2023). International Survey of Adult Financial Literacy. OECD Publishing.

[20] Pant, R. P., Kumar, V., & Singh, A. (2023). Women entrepreneurs and digital inclusion. Small Business Economics, 61(4), 947-967.

[21] RBI. (2024). Annual Report 2023-24. Reserve Bank of India.

[22] Rogers, E. M. (2003). Diffusion of innovations (5th ed.). Free Press.

[23] Venkatesh, V., et al. (2012). Consumer acceptance of IT. MIS Quarterly, 36(1), 157-178.

[24] Widyastuti, U., Respati, D. K., & Mahfirah, T. F. (2024). Digital financial literacy: Gender analysis. Humanities and Social Sciences Letters, 12(1), 33-42.

[25] World Economic Forum. (2023). Global Gender Gap Report 2023. WEF.

[26] Yadav, M., & Banerji, P. (2024). Systematic review on digital financial literacy. SN Business & Economics, 4, 142.

[27] Zaimovic, A., et al. (2023). Mapping financial literacy: A systematic review. Sustainability, 15(12), 1-30.