

Financial Literacy of Millennials in Bengaluru: Levels, Educational Gradients and Links to Investment Behaviour

Murali R¹, Dr. Nasa Dhanaraj²

¹Research Scholar, Department of Commerce, School of Commerce, Presidency University, Bengaluru, India

²Research Supervisor and Assistant Professor, School of Commerce, Presidency University, Bengaluru, India

Abstract

Purpose: This study assesses the level of financial literacy among millennials in Bengaluru, India, examines whether it varies with educational qualification, and tests its association with investment behaviour. It also identifies the underlying dimensions that structure millennials' financial literacy.

Design/methodology/approach: A descriptive, cross-sectional survey was administered to 150 millennials (born 1981–1996) selected through convenience sampling. A 15-item instrument (Cronbach's $\alpha = .842$) captured financial knowledge, saving behaviour, investment awareness and financial planning. Data were analysed in SPSS using percentage analysis, descriptive statistics, Pearson's chi-square test with Cramér's V , Spearman's rank correlation, Pearson's correlation and exploratory factor analysis.

Findings: Half the respondents displayed moderate financial literacy, 30% high and 20% low ($M = 68.45$, $SD = 12.56$). Educational qualification was significantly associated with literacy level, $\chi^2(4, N = 150) = 15.53$, $p = .004$, Cramér's $V = .23$: the share of highly literate respondents rose from 20.0% among undergraduates to 42.5% among professional-degree holders, while low literacy fell from 36.0% to 5.0%. Financial literacy was strongly and positively correlated with investment behaviour ($r = .68$, $p < .01$), sharing 46% of variance. Four dimensions—financial knowledge, saving behaviour, investment awareness and financial planning—explained 68.38% of total variance, with financial knowledge the dominant dimension (27.50%) and financial planning the least consolidated (8.98%).

Practical implications: Formal education reduces the risk of low financial literacy but does not by itself produce high literacy. Workplace, curriculum-based and point-of-sale financial education aligned with India's National Strategy for Financial Education should prioritise retirement, tax and long-term goal planning.

Originality/value: The study offers effect-size-based evidence on the educational gradient in financial literacy and its link with investment behaviour for millennials in India's leading technology hub, a cohort and city that remain under-represented in the Indian financial literacy literature.

Keywords: Financial literacy; Millennials; Investment behaviour; Educational qualification; Financial planning; Bengaluru

JEL Classification: D14, G41, G53, I22

1. Introduction

Financial literacy- the knowledge, skills and confidence needed to make informed decisions about saving, borrowing, investing and planning for retirement—has become a core life skill as individuals assume greater responsibility for their own financial security (Lusardi & Mitchell, 2014, 2023). Evidence worldwide shows that low financial literacy is widespread and associated with lower saving, weaker retirement preparation, limited stock market participation, and greater financial fragility (Klapper & Lusardi, 2020; van Rooij et al., 2011, 2012). As financial products multiply and transactions migrate to digital platforms, the consequences of poor financial understanding have grown more severe, and digital channels have added new competencies to what it means to be financially literate (Lyons & Kass-Hanna, 2021; OECD, 2023).

Millennials, conventionally defined as those born between 1981 and 1996 (Dimock, 2019), now form the core of the working-age population and are at the life stage at which financial decisions carry long-term consequences: buying homes, insuring families, servicing debt and building retirement wealth. They have also come of age alongside rapid financial digitalisation, giving them unprecedented access to mutual funds, equities, insurance and digital payments. Access, however, is not the same as understanding. Studies of Indian millennials report low to moderate literacy, poor command of concepts such as the time value of money and the interest-rate–bond–price relationship, and wide variation across demographic groups (Mohta & Shunmugasundaram, 2022, 2023).

Bengaluru offers a distinctive setting in which to study these issues. As India’s leading technology and start-up hub, the city has a large, highly educated, digitally active millennial workforce that is extensively exposed to market-linked investment products. If financial literacy gaps persist even in such a population, the case for targeted financial education becomes considerably stronger. Yet empirical work on millennial financial literacy in India has concentrated on other regions, notably Delhi-NCR (Mohta & Shunmugasundaram, 2022, 2023, 2024), and seldom reports effect sizes or examines the dimensional structure of literacy.

Against this background, the present study (a) measures the level of financial literacy among millennials in Bengaluru, (b) tests whether literacy varies with educational qualification, (c) examines the association between financial literacy and investment behaviour, and (d) identifies the underlying dimensions of millennials’ financial literacy. The study contributes in three ways. First, it provides effect-size-based evidence on the educational gradient in financial literacy, showing where along the literacy distribution education matters most. Second, it quantifies the strength of the link between literacy and investment behaviour for a digitally active cohort. Third, it shows that financial planning is the least consolidated dimension of millennials’ literacy, which has direct implications for the design of financial education under India’s National Strategy for Financial Education 2020–2025 (Reserve Bank of India, 2020).

The remainder of the paper is organised as follows. Section 2 reviews the theoretical and empirical literature and identifies the research gap. Section 3 sets out the research questions, objectives and hypotheses. Section 4 describes the methodology, Section 5 presents the results, and Section 6 discusses the findings. Sections 7 to 9 present implications, limitations and the conclusion.

2. Theoretical Background and Review of Literature

2.1 Conceptualising financial literacy

Early definitions treated financial literacy mainly as knowledge of personal finance concepts (Chen & Volpe, 1998). Subsequent work argued that the construct had been defined inconsistently and proposed that it should capture both understanding and the ability to apply that understanding to decisions (Huston, 2010; Remund, 2010). The OECD/International Network on Financial Education adopted a broader view that combines financial knowledge, financial behaviour and financial attitudes, and this tripartite framework now underpins most international measurement (Atkinson & Messy, 2012; OECD, 2020, 2023). Lusardi and Mitchell (2014) popularised a parsimonious knowledge measure built around three concepts—interest compounding, inflation and risk diversification—which has since been used in more than 100 countries (Klapper et al., 2015). Their later review describes how this work has matured into a distinct field linking literacy to wealth, retirement readiness and financial resilience (Lusardi & Mitchell, 2023).

Recent systematic and bibliometric reviews confirm the construct’s multidimensional character. Goyal and Kumar (2021) map the intellectual structure of the field and identify financial behaviour, retirement planning and financial education as dominant themes. Zaimovic et al. (2023), reviewing 1,071 articles, identify 21 determinants of financial literacy—led by education, gender, age and income—and 17 outcomes, including retirement planning, financial inclusion and risk diversification. Chhillar and Arora (2023) similarly highlight socio-demographic determinants, while Lyons and Kass-Hanna (2021) argue that digital financial literacy should be treated as an extension of the traditional construct as financial services move online.

2.2 Theoretical underpinning

Two theories frame this study. Human capital theory (Becker, 1964) views knowledge as an asset that individuals acquire through education and experience and that yields returns over time. Lusardi and Mitchell (2014) extend this logic to financial literacy, modelling it as a form of human capital that individuals invest in and that raises returns on savings and lowers the cost of financial mistakes. This perspective predicts that literacy will rise with formal education, which lowers the cost of acquiring financial knowledge. The theory of planned behaviour (Ajzen, 1991) explains how knowledge translates into action: knowledge shapes attitudes and perceived behavioural control, which in turn shape intentions and behaviour. Raut (2020) applied this framework to Indian investors and found that financial literacy and attitudes shape stock investment intentions. Together, the two theories imply that education should be associated with higher financial literacy (H1) and that financial literacy should be associated with more active and informed investment behaviour (H2).

2.3 Financial literacy levels among young adults and millennials

Large-scale surveys consistently document modest literacy levels. The Standard & Poor's Global Financial Literacy Survey found that only about one in three adults worldwide understood basic financial concepts, with India among the lower-scoring countries (Klapper et al., 2015). Successive OECD/INFE surveys report similar patterns, with persistent gaps by age, gender, education and income (Atkinson & Messy, 2012; OECD, 2020, 2023). In urban India, Agarwalla et al. (2015) found that working young adults displayed weak financial knowledge relative to international peers, with literacy varying by gender, education, income and family background.

Evidence specific to millennials is growing. In Delhi-NCR, Mohta and Shunmugasundaram (2022) found that most millennial investors had low basic and advanced literacy and struggled with the time value of money and bond pricing; literacy rose with education and income. A second study by the same authors reported that most millennials had low financial knowledge and that literacy was significantly related to risk capacity and risk propensity (Mohta & Shunmugasundaram, 2023). Linge et al. (2025), studying 773 working young adults across India, showed that peer influence and attitudes towards money shape both objective and subjective literacy. Outside India, She et al. (2024) found that financial knowledge, attitudes and self-efficacy shape the financial behaviour and well-being of Malaysian millennials, while Philippas and Avdoulas (2020) linked literacy to financial well-being among Greek university students. These studies indicate that millennials' literacy is neither uniformly low nor uniformly adequate, and that it varies systematically with individual characteristics.

2.4 Education as a determinant of financial literacy

Education is the most consistently reported predictor of financial literacy (Zaimovic et al., 2023). Early studies in the United States and Australia found that students and adults with more formal education, and particularly those with business or economics training, scored higher on financial knowledge (Chen & Volpe, 1998; Worthington, 2006). Cross-country evidence confirms a steep education gradient (Klapper et al., 2015; Lusardi & Mitchell, 2014), and Indian studies report the same pattern among young workers and millennials (Agarwalla et al., 2015; Mohta & Shunmugasundaram, 2022). Baker et al. (2021) found that even highly educated Indian professional women lacked awareness of advanced financial concepts, which suggests that general education may raise basic literacy without guaranteeing advanced competence.

The evidence on deliberate financial education is mixed. An early meta-analysis found that the effects of financial education on downstream behaviour were small and decayed within months (Fernandes et al., 2014). A later meta-analysis of 76 randomised experiments, however, found that financial education has meaningful causal effects on both financial knowledge and financial behaviour, comparable to education interventions in other domains (Kaiser et al., 2022). Longitudinal evidence also shows that financial literacy is fairly stable over time and predicts later financial outcomes (Angrisani et al., 2023). Taken together, this literature suggests that education—general and financial—shapes literacy, but the size and durability of its effects are open empirical questions.

2.5 Financial literacy and investment behaviour

A substantial body of research links financial literacy to investment decisions. Using Dutch household data, van Rooij et al. (2011) showed that individuals with low literacy are significantly less likely to participate in the stock market. Al-Tamimi and Kalli (2009) found that literacy shaped the investment decisions of UAE investors, and Raut (2020) reported that it influenced Indian investors' intentions to invest in equities. Among Indian millennials, Mohta and Shunmugasundaram (2024) found that financial literacy weakened the effect of risk tolerance on risky investment intentions. This suggests that more literate millennials invest more cautiously and in a better-informed way, rather than simply investing more. Kumar et al. (2023) further showed that digital financial literacy and financial capability support autonomous financial decision-making and well-being. Klapper and Lusardi (2020) add cross-country evidence that literacy is associated with greater saving, more prudent credit use and stronger financial resilience.

2.6 Financial literacy, saving and long-term financial planning

Financial planning—budgeting, tax planning, insurance and, above all, retirement planning—is where low literacy is most costly over time. Van Rooij et al. (2012) showed that literacy increases the likelihood of retirement planning, which in turn raises household wealth. Lusardi et al. (2021) found that people with low literacy are more likely to be financially fragile and less able to cope with shocks. Morgan and Long (2020) linked literacy to formal saving and financial inclusion in an emerging Asian economy. Goyal et al. (2021) identify financial literacy as a central antecedent of personal financial management behaviour, encompassing budgeting, saving, investing and planning. In India, Baker et al. (2021) found that understanding of advanced concepts was a key predictor of retirement planning among professional women. Standard personal finance frameworks treat these planning domains as integral components of financial capability (Garman & Forgue, 2018; Kapoor et al., 2017).

2.7 Research gap

The review reveals four gaps. First, Indian evidence on millennial financial literacy is geographically concentrated, chiefly in Delhi-NCR, and little is known about Bengaluru, despite its large, educated and investment-active millennial workforce. Second, most Indian studies report whether demographic associations are statistically significant but not how large they are or where in the literacy distribution they occur. Third, few studies examine financial literacy and investment behaviour together with the dimensional structure of literacy in the same sample. Fourth, although planning-related competencies carry the largest long-term consequences, it is unclear whether they form a well-developed component of millennials' literacy. This study addresses these gaps.

3. Research Questions, Objectives and Hypotheses

3.1 Research questions

- RQ1. What is the level of financial literacy among millennials in Bengaluru?
- RQ2. Is financial literacy significantly associated with educational qualification?
- RQ3. Is financial literacy significantly associated with investment behaviour?
- RQ4. What underlying dimensions constitute the financial literacy of millennials?

3.2 Research objectives

- O1. To measure the level of financial literacy among millennials in Bengaluru.
- O2. To examine the association between educational qualification and financial literacy.
- O3. To analyse the relationship between financial literacy and investment behaviour.
- O4. To identify the underlying dimensions of millennials' financial literacy.

3.3 Hypotheses

Drawing on human capital theory and prior evidence of an education gradient (Becker, 1964; Lusardi & Mitchell, 2014; Mohta & Shunmugasundaram, 2022), and on the theory of planned behaviour and prior evidence linking literacy to investment decisions (Ajzen, 1991; Raut, 2020; van Rooij et al., 2011), the following hypotheses were tested:

H1: Educational qualification is significantly associated with the financial literacy level of millennials.

H2: Financial literacy is significantly and positively associated with the investment behaviour of millennials.

4. Research Methodology

4.1 Research design and setting

The study used a descriptive, cross-sectional survey design. It was conducted in Bengaluru, Karnataka, one of India's major technology and economic hubs, which has a large millennial population.

4.2 Population, sample and sampling

The target population comprised millennials, defined as individuals born between 1981 and 1996 (Dimock, 2019), living or working in Bengaluru. Because no sampling frame was available and time was limited, convenience sampling was used, yielding 150 usable responses. A screening question on year of birth ensured that only respondents born between 1981 and 1996 were included; the age bands in Table 1 reflect respondents' age at the time of the survey. The questionnaire was self-administered and distributed both online and in person among working millennials across the city. The sample of 150 gives a respondent-to-item ratio of 10:1 for the 15-item instrument, which meets the commonly recommended threshold for exploratory factor analysis (Hair et al., 2019).

4.3 Instrument and measures

Primary data were collected through a structured questionnaire in two parts. Part A recorded demographic characteristics (gender, age and educational qualification). Part B contained 15 items covering four domains drawn from the literature: financial knowledge (interest rates, inflation and risk diversification; Lusardi & Mitchell, 2014), saving behaviour (regular saving, emergency funds and budgeting), investment awareness (mutual funds, stock markets and insurance) and financial planning (retirement, tax and long-term goal planning; Garman & Fogue, 2018; Kapoor et al., 2017). Each item was rated on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree). Item scores were summed and rescaled to a 0–100 composite financial literacy score using the formula $(\sum \text{item scores} - 15) / 60 \times 100$. Following the classification widely used since Chen and Volpe (1998), respondents scoring below 60 were classified as having low literacy, those scoring 60 to 79 as moderate, and those scoring 80 or above as high. Investment behaviour was measured separately with five items on the same five-point scale, covering regularity of investing (for example, systematic investment plans), diversification across asset classes, participation in market-linked products such as mutual funds and equities, periodic portfolio review, and goal-based investing; the item mean formed the investment behaviour score. Secondary data were drawn from publications of the Reserve Bank of India, the Securities and Exchange Board of India (SEBI) and the OECD, and from peer-reviewed literature.

4.4 Data analysis

Data were analysed using IBM SPSS. The sample was described with frequency and percentage analysis, and the literacy score with descriptive statistics. Internal consistency was assessed with Cronbach's alpha, using .70 as the threshold (Nunnally & Bernstein, 1994). H1 was tested with Pearson's chi-square test of independence; the strength of association was measured with Cramér's V , interpreted using Cohen's (1988) benchmarks, and cell-level patterns were examined with adjusted standardised residuals ($|z| > 1.96$). Because both variables are ordinal, Spearman's rank correlation was also calculated to test for a monotonic trend. H2 was tested with Pearson's product-moment correlation. Finally, exploratory factor analysis was carried out using principal component extraction with varimax rotation. Sampling adequacy was assessed with the Kaiser–Meyer–Olkin (KMO) measure

(Kaiser, 1974) and Bartlett's test of sphericity, and factors with eigenvalues greater than 1 were retained (Hair et al., 2019).

5. Data Analysis and Results

5.1 Profile of respondents

Table 1
Demographic Profile of Respondents (N = 150)

Variable	Category	Frequency	Percentage
Gender	Male	85	56.7
	Female	65	43.3
Age group	27–30 years	52	34.7
	31–35 years	61	40.6
	36–43 years	37	24.7
Educational qualification	Undergraduate	50	33.3
	Postgraduate	60	40.0
	Professional degree	40	26.7

Note. Source: Primary data.

Table 1 shows that the sample was moderately male-dominated (56.7%). The largest age group was 31–35 years (40.6%), followed by 27–30 years (34.7%) and 36–43 years (24.7%), so about three-quarters of respondents were in their late twenties to mid-thirties, the stage at which household formation, home loans and long-horizon investment decisions are concentrated. All respondents held at least an undergraduate degree, and two-thirds (66.7%) held a postgraduate or professional qualification. This reflects Bengaluru's highly educated knowledge-sector workforce and should be kept in mind when interpreting the literacy levels reported below.

5.2 Level of financial literacy

Table 2
Distribution of Respondents by Financial Literacy Level

Financial literacy level	Frequency	Percentage	Cumulative %
Low	30	20.0	20.0
Moderate	75	50.0	70.0
High	45	30.0	100.0
Total	150	100.0	

Note. Source: Primary data.

Table 3

Descriptive Statistics of the Financial Literacy Score

Variable	<i>N</i>	<i>M</i>	<i>SD</i>	95% CI for <i>M</i>	<i>CV</i> (%)
Financial literacy score	150	68.45	12.56	[66.42, 70.48]	18.35

Note. CI = confidence interval; *CV* = coefficient of variation ($SD/M \times 100$).

Tables 2 and 3 show that half the respondents (50.0%) had moderate financial literacy, 30.0% had high literacy and 20.0% had low literacy. The mean score of 68.45 (95% CI [66.42, 70.48]) confirms a moderate overall level. The coefficient of variation of 18.35% indicates moderate dispersion: respondents shared a common base of financial understanding but differed meaningfully around it. Notably, one in five respondents remained in the low category even though every respondent held at least a bachelor's degree, which suggests that formal education alone does not ensure financial competence.

Responses to individual items show a positive saving orientation: 61.3% of respondents reported saving part of their income regularly. Mutual funds were the most preferred investment avenue, ahead of savings accounts and fixed deposits. Respondents were more familiar with conventional products such as savings accounts, fixed deposits and insurance than with retirement planning, pension schemes, stock market investing and risk management.

5.3 Reliability of the instrument

Table 4

Reliability Statistics

Construct	No. of items	Cronbach's α
Financial literacy scale	15	.842

The 15-item scale returned a Cronbach's alpha of .842, well above the .70 threshold (Nunnally & Bernstein, 1994). This indicates good internal consistency and supports the use of the composite score in subsequent analyses.

5.4 Educational qualification and financial literacy (H1)

Table 5

Cross-Tabulation of Educational Qualification and Financial Literacy Level

Educational qualification	Low	Moderate	High	Total
Undergraduate	18 (36.0%) [+3.46]	22 (44.0%) [−1.04]	10 (20.0%) [−1.89]	50
Postgraduate	10 (16.7%) [−0.83]	32 (53.3%) [+0.67]	18 (30.0%) [0.00]	60
Professional degree	2 (5.0%) [−2.77]	21 (52.5%) [+0.37]	17 (42.5%) [+2.01]	40
Total	30 (20.0%)	75 (50.0%)	45 (30.0%)	150

Note. Row percentages in parentheses; adjusted standardised residuals in square brackets. Residuals beyond ± 1.96 indicate cells that differ significantly from independence at the .05 level.

Table 6

Chi-Square Test Results: Educational Qualification and Financial Literacy

Statistic	Value	df	p
Pearson chi-square (χ^2)	15.53	4	.004
Cramér's <i>V</i>	.23		.004
Spearman's ρ (ordinal trend)	.29		< .001
Decision on H1	Supported		

Note. No expected cell count was below 5 (minimum expected count = 8.0). Statistics were recomputed from the cross-tabulation in Table 5.

Educational qualification was significantly associated with financial literacy level, $\chi^2(4, N = 150) = 15.53, p = .004$, so **H1 is supported**. Cramér's *V* of .23 represents a medium effect for a 3×3 table (Cohen, 1988), and Spearman's ρ of .29 ($p < .001$) confirms that literacy rises steadily with each level of education.

The row percentages and adjusted residuals show where this association is concentrated. The share of respondents with low literacy falls sharply as education rises, from 36.0% among undergraduates to 16.7% among postgraduates and 5.0% among professional-degree holders, while the share with high literacy more than doubles, from 20.0% to 42.5%. Undergraduates are significantly over-represented in the low-literacy group ($z = +3.46$), and professional-degree holders are significantly under-represented there ($z = -2.77$) and over-represented in the high-literacy group ($z = +2.01$). The postgraduate group does not differ significantly from expectation in any category. The effect of education therefore operates mainly at the two ends of the distribution: advanced professional education protects against low literacy, while undergraduate education leaves a sizeable minority at risk. At the same time, more than half of professional-degree holders (52.5%) remained only moderately literate, so advanced education is far from a guarantee of high literacy.

5.5 Financial literacy and investment behaviour (H2)

Table 7

Pearson Correlation Between Financial Literacy and Investment Behaviour

Variable	1	2
1. Financial literacy	—	
2. Investment behaviour	.68**	—

Note. $N = 150$. 95% CI for $r = [.58, .76]$; $r^2 = .46$. ** $p < .01$ (two-tailed).

Financial literacy showed a strong, positive and significant correlation with investment behaviour, $r(148) = .68, p < .01$, 95% CI [.58, .76], so **H2 is supported**. By Cohen's (1988) benchmarks this is a large effect: the two variables share about 46% of their variance ($r^2 = .46$). Millennials with higher literacy reported markedly more active and informed investment behaviour. Because the analysis is bivariate and cross-sectional, the association should not be read as one-directional causation. Investment experience may also build financial knowledge through learning by doing.

*5.6 Dimensions of financial literacy: exploratory factor analysis***Table 8**

KMO and Bartlett's Test

Test	Value
Kaiser–Meyer–Olkin measure of sampling adequacy	.801
Bartlett's test of sphericity: approx. χ^2	654.33
<i>df</i>	105
<i>p</i>	< .001

The KMO value of .801 falls in the “meritorious” range (Kaiser, 1974), and Bartlett's test was significant, $\chi^2(105) = 654.33, p < .001$, indicating that the correlation matrix was suitable for factor analysis.

Table 9

Total Variance Explained

Factor	Eigenvalue	% of variance	Cumulative %
F1: Financial knowledge	4.125	27.50	27.50
F2: Saving behaviour	2.864	19.09	46.59
F3: Investment awareness	1.921	12.81	59.40
F4: Financial planning	1.347	8.98	68.38

Note. Extraction method: principal component analysis. Only factors with eigenvalues > 1 are shown.

Table 10

Rotated Component Matrix

Item	F1	F2	F3	F4
Knowledge of interest rates	.812			
Understanding of inflation	.785			
Risk diversification	.761			
Regular savings		.834		
Emergency fund maintenance		.798		
Budget preparation		.756		
Mutual fund awareness			.842	

Item	F1	F2	F3	F4
Stock market awareness			.806	
Insurance awareness			.723	
Retirement planning				.828
Tax planning				.794
Long-term goal setting				.751

Note. F1 = financial knowledge; F2 = saving behaviour; F3 = investment awareness; F4 = financial planning. Extraction: principal component analysis; rotation: varimax with Kaiser normalisation. Loadings below .50 are suppressed. The remaining three of the 15 items did not load at or above .50 on any factor and are therefore not shown; they were retained in the composite score and the reliability analysis.

Four factors with eigenvalues greater than 1 were extracted, together explaining 68.38% of total variance, which exceeds the 60% benchmark commonly applied in the social sciences (Hair et al., 2019). Every retained item loaded strongly on its intended factor (.723–.842) with no cross-loadings, indicating a clean and theoretically coherent structure. Financial knowledge (interest, inflation and diversification) was the dominant dimension, accounting for 27.50% of variance, followed by saving behaviour (19.09%), investment awareness (12.81%) and financial planning (8.98%). The four factors map closely onto the knowledge–behaviour–application distinction in the literature (Atkinson & Messy, 2012; Huston, 2010).

6. Findings and Discussion

This section interprets the main findings in light of theory and prior evidence. Table 11 summarises the hypothesis tests.

Table 11
Summary of Hypothesis Testing

Hypothesis	Test	Result	Effect size	Decision
H1: Education ↔ financial literacy	χ^2 test	$\chi^2(4) = 15.53, p = .004$	$V = .23$ (medium)	Supported
H2: Financial literacy ↔ investment behaviour	Pearson r	$r = .68, p < .01$	$r^2 = .46$ (large)	Supported

6.1 A functional but incomplete level of financial literacy

Eighty per cent of respondents had moderate or high literacy, but only 30% reached the high level and 20% remained low ($M = 68.45$). Bengaluru's millennials have a working command of everyday finance, but most lack the depth needed for complex, long-horizon decisions. This profile is more favourable than the low literacy reported for millennials in Delhi-NCR (Mohta & Shunmugasundaram, 2022, 2023) and for urban working youth in India a decade ago (Agarwalla et al., 2015). The difference is plausibly explained by the sample's education profile and exposure to the city's technology-driven, investment-active work environment. The more important point, however, is that a moderate mean in an entirely graduate-educated sample is a warning rather than a reassurance. If one in five degree-holders in India's most digitally advanced city has low literacy, gaps among

less-educated and less-connected populations are likely to be wider, consistent with international survey evidence (Klapper et al., 2015; OECD, 2023).

6.2 Education protects against low literacy but does not guarantee high literacy

Education was significantly associated with financial literacy (medium effect). Low literacy fell from 36.0% among undergraduates to 5.0% among professional-degree holders, and high literacy rose from 20.0% to 42.5%. The result supports human capital theory (Becker, 1964; Lusardi & Mitchell, 2014) and agrees with Indian and international evidence on the education gradient (Agarwalla et al., 2015; Mohta & Shunmugasundaram, 2022; Zaimovic et al., 2023). The residual analysis adds two nuances. First, the gradient is asymmetric: advanced education is most effective at removing people from the low-literacy group (only 2 of 40 professionals), while its effect on reaching high literacy is weaker. Second, the medium effect size and the fact that more than half of professional-degree holders were only moderately literate show that general education is an imperfect substitute for financial education. This echoes Baker et al.'s (2021) finding that highly educated professionals often lack advanced financial concepts, and it is consistent with experimental evidence that dedicated financial education produces gains beyond those of general schooling (Kaiser et al., 2022). For policy, undergraduates are the group where low literacy is concentrated and where intervention is most likely to pay off.

6.3 Financial literacy is closely tied to investment behaviour

Financial literacy and investment behaviour were strongly correlated ($r = .68$), sharing about 46% of their variance. The size of this association is notable for a bivariate relationship and is consistent with evidence that literacy shapes stock market participation and investment choices (Al-Tamimi & Kalli, 2009; Raut, 2020; van Rooij et al., 2011). In theory-of-planned-behaviour terms, financial knowledge strengthens perceived behavioural control and confidence, making millennials more willing to engage with market-linked products (Ajzen, 1991). Read alongside Mohta and Shunmugasundaram (2024), who found that literacy tempers risky investment intentions, the result suggests that literacy is associated with better-informed rather than simply more aggressive investing. The strong preference for mutual funds over savings accounts and fixed deposits in this sample is consistent with this reading: literate millennials appear to favour professionally managed, diversified market products over direct high-risk exposure. The relationship is also likely to be reciprocal: Bengaluru's millennials have easy access to investment platforms, and investing experience can itself build literacy. Either way, investment behaviour and literacy move together, so interventions targeting one are likely to strengthen the other.

6.4 Financial planning is the least consolidated dimension of literacy

Financial literacy had four dimensions. Financial knowledge explained the most variance (27.50%) and financial planning the least (8.98%). The factor structure supports the multidimensional view of financial literacy as knowledge, behaviour and application (Atkinson & Messy, 2012; Huston, 2010; Remund, 2010). The ordering of the factors is itself informative. Millennials' literacy is organised mainly around conceptual knowledge and saving discipline, and much less around forward-looking planning such as retirement, tax and long-term goals. This agrees with the item-level responses in Section 5.2, where respondents were relatively less familiar with retirement planning, pension schemes and diversification than with traditional products such as savings accounts, fixed deposits and insurance. It also mirrors international evidence that planning-related competencies lag behind basic knowledge even when they matter most for long-term wealth (Lusardi et al., 2021; van Rooij et al., 2012). For a cohort whose working lives will largely be spent under defined-contribution pension arrangements such as the National Pension System, this planning gap is the most consequential weakness revealed by the study.

6.5 Synthesis

Together, the findings show that millennials in Bengaluru have a solid base of financial knowledge and saving habits, that this base is stronger among the more educated, and that it is closely associated with investment behaviour. The weakest link is planning: the ability to turn knowledge into long-horizon decisions about retirement, tax and life goals. Formal education reduces the risk of low literacy but does not close this planning gap on its own.

7. Implications

7.1 Theoretical implications

The study supports the combined use of human capital theory and the theory of planned behaviour to explain financial literacy. Education functions as an input to literacy, and literacy is closely linked with investment behaviour. The asymmetric education gradient refines human capital accounts by showing that general education mainly removes people from the low-literacy group rather than lifting them to high literacy. The emergence of planning as a distinct but weakly consolidated factor supports treating financial literacy as a multidimensional construct rather than a single knowledge score (Goyal & Kumar, 2021; Huston, 2010).

7.2 Practical and policy implications

- a) **Higher education institutions** should embed applied personal-finance modules in undergraduate programmes across disciplines, since this is where low literacy is concentrated.
- b) **Employers**, particularly Bengaluru's technology and services firms, should offer workplace financial-wellness programmes focused on retirement adequacy, the National Pension System, tax planning and goal-based investing, delivered at decision points such as onboarding, appraisal and tax-declaration cycles.
- c) **Financial institutions and fintech platforms** should provide "just-in-time" education at the point of product choice, along with clear disclosures and planning tools, because the effects of generic education tend to fade over time (Fernandes et al., 2014).
- d) **Regulators and policymakers** (RBI, SEBI, PFRDA and NCFE) should give greater weight to long-term planning content within the National Strategy for Financial Education (Reserve Bank of India, 2020) and use digital and social media channels to reach young professionals.

8. Limitations and Directions for Future Research

The findings should be interpreted in light of several limitations. First, convenience sampling and a sample of 150 drawn from a single city limit generalisability. Second, the cross-sectional, self-reported data do not allow causal inference, and the literacy–investment relationship may run in both directions. Third, the analyses are bivariate and do not control for income, occupation, gender or age, all of which are known correlates of literacy (Zaimovic et al., 2023). Fourth, the sample contained no respondents without a degree, so the education gradient is observed only among graduates. Future research should use probability sampling across Indian metropolitan and non-metropolitan areas and estimate multivariate or structural equation models that include income and occupation. It should also incorporate digital financial literacy (Lyons & Kass-Hanna, 2021) and financial well-being as outcomes, and use longitudinal or experimental designs to establish causal direction (Angrisani et al., 2023; Kaiser et al., 2022).

9. Conclusion

This study shows that millennials in Bengaluru possess a moderate level of financial literacy, built on reasonable financial knowledge and positive saving habits but weaker in long-term financial planning. Literacy rises with educational qualification, with advanced education protecting strongly against low literacy but not ensuring high literacy, and it is closely associated with investment behaviour. Because these patterns are found in one of India's most educated and digitally connected populations, they point to the need for targeted, planning-oriented financial education delivered jointly by educational institutions, employers, financial service providers and regulators. Strengthening these competencies will help millennials judge financial options, manage risk, build assets and secure their long-term financial well-being.

Declarations

Author contributions: Murali R: conceptualisation, methodology, data collection, formal analysis and writing (original draft). Nasa Dhanaraj: supervision, validation and writing (review and editing). Both authors read and approved the final manuscript.

Funding: This research received no specific grant from any funding agency in the public, commercial or not-for-profit sectors.

Conflict of interest: The authors declare that they have no conflict of interest.

Ethical considerations: The study used an anonymous, non-interventional questionnaire survey of adult respondents. Participation was voluntary, the purpose of the study was explained to respondents, and informed consent was obtained before data collection. No personally identifiable information was recorded, and responses were used only for academic research.

Data availability: The data supporting the findings of this study are available from the corresponding author on reasonable request.

References

- [1] Agarwalla, S. K., Barua, S. K., Jacob, J., & Varma, J. R. (2015). Financial literacy among working young in urban India. *World Development*, 67, 101–109. <https://doi.org/10.1016/j.worlddev.2014.10.004>
- [2] Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)
- [3] Al-Tamimi, H. A. H., & Kalli, A. A. B. (2009). Financial literacy and investment decisions of UAE investors. *The Journal of Risk Finance*, 10(5), 500–516. <https://doi.org/10.1108/15265940911001402>
- [4] Angrisani, M., Burke, J., Lusardi, A., & Mottola, G. (2023). The evolution of financial literacy over time and its predictive power for financial outcomes: Evidence from longitudinal data. *Journal of Pension Economics & Finance*, 22(4), 640–657.
- [5] Atkinson, A., & Messy, F.-A. (2012). *Measuring financial literacy: Results of the OECD/International Network on Financial Education (INFE) pilot study* (OECD Working Papers on Finance, Insurance and Private Pensions, No. 15). OECD Publishing. <https://doi.org/10.1787/5k9csfs90fr4-en>
- [6] Baker, H. K., Tomar, S., Kumar, S., & Verma, D. (2021). Are Indian professional women financially literate and prepared for retirement? *Journal of Consumer Affairs*, 55(4), 1416–1441. <https://doi.org/10.1111/joca.12332>
- [7] Becker, G. S. (1964). *Human capital: A theoretical and empirical analysis, with special reference to education*. University of Chicago Press.
- [8] Chen, H., & Volpe, R. P. (1998). An analysis of personal financial literacy among college students. *Financial Services Review*, 7(2), 107–128. [https://doi.org/10.1016/S1057-0810\(99\)80006-7](https://doi.org/10.1016/S1057-0810(99)80006-7)
- [9] Chhillar, N., & Arora, S. (2023). Financial literacy and its determinants: A systematic review. *Acta Universitatis Bohemae Meridionalis*, 26(1), 1–15. <https://doi.org/10.32725/acta.2023.001>
- [10] Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Lawrence Erlbaum Associates.
- [11] Dimock, M. (2019, January 17). *Defining generations: Where Millennials end and Generation Z begins*. Pew Research Center. <https://www.pewresearch.org/short-reads/2019/01/17/where-millennials-end-and-generation-z-begins/>
- [12] Fernandes, D., Lynch, J. G., Jr., & Netemeyer, R. G. (2014). Financial literacy, financial education, and downstream financial behaviors. *Management Science*, 60(8), 1861–1883. <https://doi.org/10.1287/mnsc.2013.1849>
- [13] Garman, E. T., & Fogue, R. E. (2018). *Personal finance* (13th ed.). Cengage Learning.
- [14] Goyal, K., & Kumar, S. (2021). Financial literacy: A systematic review and bibliometric analysis. *International Journal of Consumer Studies*, 45(1), 80–105. <https://doi.org/10.1111/ijcs.12605>

- [15] Goyal, K., Kumar, S., & Xiao, J. J. (2021). Antecedents and consequences of personal financial management behavior: A systematic literature review and future research agenda. *International Journal of Bank Marketing*, 39(7), 1166–1207. <https://doi.org/10.1108/IJBM-12-2020-0612>
- [16] Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). *Multivariate data analysis* (8th ed.). Cengage Learning.
- [17] Huston, S. J. (2010). Measuring financial literacy. *Journal of Consumer Affairs*, 44(2), 296–316. <https://doi.org/10.1111/j.1745-6606.2010.01170.x>
- [18] Kaiser, H. F. (1974). An index of factorial simplicity. *Psychometrika*, 39(1), 31–36. <https://doi.org/10.1007/BF02291575>
- [19] Kaiser, T., Lusardi, A., Menkhoff, L., & Urban, C. (2022). Financial education affects financial knowledge and downstream behaviors. *Journal of Financial Economics*, 145(2), 255–272. <https://doi.org/10.1016/j.jfineco.2021.09.022>
- [20] Kapoor, J. R., Dlabay, L. R., & Hughes, R. J. (2017). *Personal finance* (12th ed.). McGraw-Hill Education.
- [21] Klapper, L., & Lusardi, A. (2020). Financial literacy and financial resilience: Evidence from around the world. *Financial Management*, 49(3), 589–614. <https://doi.org/10.1111/fima.12283>
- [22] Klapper, L., Lusardi, A., & van Oudheusden, P. (2015). *Financial literacy around the world: Insights from the Standard & Poor's Ratings Services Global Financial Literacy Survey*. Standard & Poor's.
- [23] Kumar, P., Pillai, R., Kumar, N., & Tabash, M. I. (2023). The interplay of skills, digital financial literacy, capability, and autonomy in financial decision making and well-being. *Borsa Istanbul Review*, 23(1), 169–183. <https://doi.org/10.1016/j.bir.2022.09.012>
- [24] Linge, A. A., Kakde, B. B., & Jiwani, A. (2025). Factors affecting financial literacy and financial behavior of working young adults in India. *Indian Journal of Finance*, 19(11), 41–64. <https://doi.org/10.17010/ijf/2025/v19i11/174049>
- [25] Lusardi, A., Hasler, A., & Yakoboski, P. J. (2021). Building up financial literacy and financial resilience. *Mind & Society*, 20(2), 181–187. <https://doi.org/10.1007/s11299-020-00246-0>
- [26] Lusardi, A., & Mitchell, O. S. (2014). The economic importance of financial literacy: Theory and evidence. *Journal of Economic Literature*, 52(1), 5–44. <https://doi.org/10.1257/jel.52.1.5>
- [27] Lusardi, A., & Mitchell, O. S. (2023). The importance of financial literacy: Opening a new field. *Journal of Economic Perspectives*, 37(4), 137–154. <https://doi.org/10.1257/jep.37.4.137>
- [28] Lyons, A. C., & Kass-Hanna, J. (2021). A methodological overview to defining and measuring “digital” financial literacy. *Financial Planning Review*, 4(2), Article e1113. <https://doi.org/10.1002/cfp2.1113>
- [29] Mohta, A., & Shunmugasundaram, V. (2022). Financial literacy among millennials. *International Journal of Economics and Financial Issues*, 12(2), 61–66. <https://doi.org/10.32479/ijefi.12801>
- [30] Mohta, A., & Shunmugasundaram, V. (2023). Millennials’ financial literacy and risk behavior: Evidence from India. *International Review of Economics*, 70(4), 419–435. <https://doi.org/10.1007/s12232-023-00425-8>
- [31] Mohta, A., & Shunmugasundaram, V. (2024). Moderating role of millennials’ financial literacy on the relationship between risk tolerance and risky investment behavior: Evidence from India. *International Journal of Social Economics*, 51(3), 422–440. <https://doi.org/10.1108/IJSE-12-2022-0812>
- [32] Morgan, P. J., & Long, T. Q. (2020). Financial literacy, financial inclusion, and savings behavior in Laos. *Journal of Asian Economics*, 68, Article 101197. <https://doi.org/10.1016/j.asieco.2020.101197>
- [33] Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.). McGraw-Hill.

- [34] OECD. (2020). *OECD/INFE 2020 international survey of adult financial literacy*. OECD Publishing.
- [35] OECD. (2023). *OECD/INFE 2023 international survey of adult financial literacy* (OECD Business and Finance Policy Papers, No. 39). OECD Publishing. <https://doi.org/10.1787/56003a32-en>
- [36] 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. <https://doi.org/10.1080/1351847X.2019.1701512>
- [37] Raut, R. K. (2020). Past behaviour, financial literacy and investment decision-making process of individual investors. *International Journal of Emerging Markets*, 15(6), 1243–1263. <https://doi.org/10.1108/IJOEM-07-2018-0379>
- [38] Remund, D. L. (2010). Financial literacy explicated: The case for a clearer definition in an increasingly complex economy. *Journal of Consumer Affairs*, 44(2), 276–295. <https://doi.org/10.1111/j.1745-6606.2010.01169.x>
- [39] Reserve Bank of India. (2020). *National strategy for financial education: 2020–2025*. National Centre for Financial Education.
- [40] She, L., Ma, L., Sharif, S. P., & Karim, S. (2024). Millennials' financial behaviour and financial well-being: The moderating role of future orientation. *Journal of Financial Services Marketing*, 29(4), 1207–1224. <https://doi.org/10.1057/s41264-024-00281-9>
- [41] van Rooij, M., Lusardi, A., & Alessie, R. (2011). Financial literacy and stock market participation. *Journal of Financial Economics*, 101(2), 449–472. <https://doi.org/10.1016/j.jfineco.2011.03.006>
- [42] van Rooij, M. C. J., Lusardi, A., & Alessie, R. J. M. (2012). Financial literacy, retirement planning and household wealth. *The Economic Journal*, 122(560), 449–478. <https://doi.org/10.1111/j.1468-0297.2012.02501.x>
- [43] Worthington, A. C. (2006). Predicting financial literacy in Australia. *Financial Services Review*, 15(1), 59–79.
- [44] Zaimovic, A., Torlakovic, A., Arnaut-Berilo, A., Zaimovic, T., Dedovic, L., & Nuhic Meskovic, M. (2023). Mapping financial literacy: A systematic literature review of determinants and recent trends. *Sustainability*, 15(12), Article 9358. <https://doi.org/10.3390/su15129358>