

Antecedents of Investment App Adoption Among Generation Z: An Extended UTAUT Perspective on Financial Literacy, Digital Financial Skills, and Financial Well-Being

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Abstract:

While the rise of the digital investment platforms in India is explosive, the financial behavior of the first generation that has grown up entirely in the digital era (Generation Z) is still not well understood in the academic literature, especially in the case of the hill-state of Uttarakhand. In the current cross-sectional study, the Unified Theory of Acceptance and Use of Technology (UTAUT) with Financial Capability Theory is used to explain why Gen Z students would be interested in investing in an application. The proposed model situates Financial Literacy (FL), Budgeting Behaviour (BB), and Digital Financial Skills (DFS) as antecedents of Financial Well-being (FWB), which in turn drives Investment App Adoption (IAA) intention. Primary data were gathered from 404 undergraduate and postgraduate students enrolled in Higher Educational Institutions (HEIs) in Uttarakhand using a structured questionnaire. Structural Equation Modelling (SEM) was performed in AMOS v21 following Anderson and Gerbing's (1988) two-stage approach. Confirmatory Factor Analysis (CFA) established sound measurement properties (CFI = 0.992; RMSEA = 0.024). All four structural paths were significant, and Financial Well-being fully mediated every antecedent–adoption relationship. The findings extend UTAUT into the financial technology domain and carry actionable implications for FinTech developers, HEI administrators, and policymakers seeking to foster responsible investment behaviour among India's younger population.

Keywords: Financial Literacy, Budgeting Behaviour, Digital Financial Skills, Financial Well-being, Investment App Adoption, Gen Z.

1. Introduction

The financial services setup in India has been reshaped at a pace rarely witnessed in any comparable economy. Within the span of a decade, the country moved from a predominantly cash-based transaction model to one in which more than 117 billion digital payment transactions were processed through the Unified Payments Interface (UPI) alone in 2023–24 (National Payments Corporation of India [NPCI], 2024). A new generation of mobile-first investment apps, such as Zerodha, Groww, Upstox, Paytm Money, etc., has brought in a revolution in the world of retail investing, significantly reducing the threshold for investors. The process of opening demat account, buying mutual funds and monitoring equity portfolios has become a simple quick task in a matter of minutes on a mobile phone screen.

The generation defined broadly as those born from 1997 to 2012 (Dimock, 2019) is the most natural group to take advantage of these opportunities. Unlike Generation Y, Gen Z is a generation that has been born into a world of touchscreens, social media and on-demand digital services and thus has been taught to be digitally fluent. However, being fluent with digital does not necessarily equal digital investment behaviour. A number of studies in diverse emerging-economy settings have consistently found that financial literacy scores are low among young adults (Lusardi & Mitchell, 2014; Potrich et al., 2016), that investment narratives found on social media platforms are often superficial, and that the adoption of investments has been low, even though awareness of investment platforms is high.

The case of Uttarakhand offers a very telling empirical context. Uttarakhand, a predominantly mountainous state, has seen a surge in its Gen Z population alongside a surge in its digital infrastructure, with higher education institutions clustered in central universities, deemed universities, and private universities in Dehradun, Haridwar and Roorkee. Smartphone penetration in Uttarakhand crossed 78 percent in 2023 (Telecom Regulatory Authority

of India [TRAI], 2023), yet investment app adoption among young people in the state remains underexplored relative to metropolitan centres (Kumar et al., 2026).

Theoretically, the dominant framework for understanding technology adoption, the UTAUT developed by Venkatesh et al. (2003) focuses on social influence, facilitating conditions, effort expectancy, and performance expectancy as determining factors of behavioural intention. While UTAUT has been applied productively in digital banking (Martins et al., 2014), mobile payments (Liébana-Cabanillas et al., 2020), and e-commerce (Moorthy et al., 2014; Anuj et al., 2024), its application to investment app adoption through the specific lens of financial capability constructs is limited. The present study bridges this gap by extending UTAUT with Financial Capability Theory (Kempson et al., 2006), which argues that financial behaviour is a joint product of financial knowledge (literacy), financial skills (budgeting and digital financial competencies), and enabling dispositions (financial well-being). Integrating these two frameworks allows the study to go beyond generic technology acceptance and provide a mechanism-level explanation of why and how Gen Z students come to adopt or avoid investment applications.

The study therefore follows the objectives: (1) to measure the reliability and validity of the measurement model across Financial Literacy, Budgeting Behaviour, Digital Financial Skills, Financial Well-being, and Investment App Adoption constructs; (2) to test the structural paths from the three antecedents to Financial Well-being and from Financial Well-being to Investment App Adoption; and (3) to test the mediating role of Financial Well-being in the antecedent–adoption relationships. The rest of this paper is organized as follows: Literature review and formulation of hypotheses in Section 2, research methodology in Section 3, findings in Section 4, discussion of findings in Section 5, and future research areas and implications in Section 6.

2. Literature Review And Hypothesis Development

2.1 Theoretical Foundation: UTAUT and Financial Capability Theory

Venkatesh et al. (2003) developed (UTAUT) after a all-inclusive integration of eight competing technology acceptance models, the resulting framework proposed four basic constructs namely PE, EE, SI and FC as determinants of Use Behaviour and Behavioural Intention. Venkatesh et al. (2012) subsequently prolonged UTAUT into the voluntary consumer technology context (UTAUT2), adding Habit, Price Value, and Hedonic Motivation.

Financial Capability Theory, articulated by Kempson et al. (2006) and operationalised in subsequent work by the UK Money Advice Service (2013) and the Organisation for Economic Co-operation and Development (OECD, 2016), argues that effective financial behaviour is underpinned by three inter-related capacities: the capability to act (financial literacy and skills), opportunity to act (access to products and markets), and motivation to act (attitudes and well-being). The theory is particularly applicable to young adult populations whose financial capability is still forming and whose behavioural intentions are sensitive to competency signals. The present study draws upon this framework to operationalise Financial Literacy, Budgeting Behaviour, and Digital Financial Skills as distinct but related financial capability constructs, and Financial Well-being as the motivating state that translates capability into adoption intention.

The integration of UTAUT and Financial Capability Theory is theoretically warranted because UTAUT explains the technology-specific mechanisms of adoption while Financial Capability Theory accounts for the domain-specific preconditions financial knowledge, skills, and well-being that must be in place before technology-mediated financial behaviour can occur. Prior work has called explicitly for theoretical pluralism in FinTech adoption research (Taherdoost, 2018; Ozili, 2022) and the present integration responds to this call in the specific context of investment app adoption.

2.2 Financial Literacy (FL) and Financial Well-being (FWB)

Financial literacy (FL) is generally considered as the amalgamation of behaviours, attitudes, and financial knowledge, that enables individuals to make optimum financial conclusions (Lusardi & Mitchell, 2014; OECD/INFE, 2018). Despite considerable variation in operationalisation across studies, there is broad

convergence around the knowledge domains. In India, Agarwal et al. (2015) found that FL of college students was significantly lesser than the average of the adults of the nation, and the FL on investment knowledge questions was very poor in the hill state region of India.

Prior studies have depicted the association amid FL and FWB. In a large U.S. national sample, Xiao and O'Neill (2018) showed that financial literacy was a forecaster of positive financial behaviour, which was also a predictor of financial well-being. In India, Garg and Singh (2018) found similar patterns with financial knowledge positively correlated with lower levels of financial anxiety and higher levels of financial decision-making confidence, among students. The objective financial well-being (measured as wealth-to-income ratio) was directly and positively affected by FL according to Lind et al. (2020) who analysed Swedish longitudinal data. The current study thus posits the following hypothesis:

H1: A positive substantial relationship was obtained amongst FL and FWB among the students of Gen Z in Uttarakhand.

2.3 Budgeting Behaviour (BB) and Financial Well-being (FWB)

The process of budgeting – planning, recording and monitoring one's income and spending – is considered the most basic financial management skill and a good indicator of desirable financial outcomes (Garman & Fogue, 2011; Joo & Grable, 2004). In a pivotal study, Ameriks et al. (2003) found that the households in which a budget was recorded were able to save substantially more over 10 years, net of income and demographic factors. The young adult literature showed that those who engaged in regular budgeting scored lower on financial stress and higher on financial confidence for both Australian university students (Beal and Delpachitra, 2003) and a large sample of the Swedish young adult population (Strömbäck et al., 2017).

Within the Indian context, Tyagi et al. (2023) and Deb & Joy (2021) concluded that Indian students belonging to the Gen Z cohort who had a satisfactory financial attitude and budgeted regularly were likely to save, invest, and exhibit a positive financial attitude, all of which were part of the financial well-being. Another pathway in the financial literacy well-being link that is enhanced by budgeting is financial self-efficacy (Xiao and Porto, 2017). The present study validates budgeting behaviour as an independent capability driver of FWB as the Financial Capability Theory argues that skills are separate from knowledge:

H2: There is significant positive BB on FWB of Gen Z students of Uttarakhand.

2.4 Digital Financial Skills (DFS) and Financial Well-being (FWB)

The third dimension of financial skills that is emerging is DFS, the capacity to use digital payment systems, to assess financial products for the internet and to use technology to manage personal finances – and it is gaining significance in the wake of the rise of the FinTech services (Klapper et al., 2016; Morgan & Trinh, 2019). The construct is not limited to financial literacy but also involves technical skills of conducting transactions, investing and safeguarding oneself in digital financial settings. Atkinson and Messy (2012) singled out the digital financial skills as a particular aspect of the OECD financial literacy framework which is empirically distinguishable and is relevant for younger generations.

There are several paths by which digital financial skills have been demonstrated to have a relationship with well-being outcomes. Digital skills enable workers to gain access to financial products offering higher yields and to compare the costs of these across providers, which translates into objective financial outcomes (Klapper & Lusardi, 2020; Anuj et al., 2025). Second, their decision fatigue and financial anxiety are reduced in digital environments, which boosts their subjective financial wellbeing (Morgan & Trinh, 2019). Third, digital financial skills buffer the effects of shocks on households by allowing households to manage their finances in a more flexible manner (Bongomin et al., 2018). Digital financial skills are likely a more direct determinant of well-being than financial literacy, because many UPI and investment applications in the Indian context demand a certain amount of digital financial skills to use safely and effectively:

H3: The DFS have a positive effect on the FWB of students in Uttarakhand belonging to Gen Z.

2.5 Financial Well-being (FWB) and Investment App Adoption (IAA)

The concept of well-being is now emerging as a key intervening factor in accounting for financial behaviours and is well-defined as having a sagacity of financial security, the ability to pay their future and current financial commitments, and making financial decisions that enable them to enjoy life (Consumer Financial Protection Bureau [CFPB], 2015; Chauhan, Anuj & Chandra, 2026). Objective financial indicators include income, wealth, while subjective FWB is the subjective psychological state of security, confidence and freedom from stress that triggers or precludes financial acumen (Netemeyer et al., 2018; Sharma et al., 2023).

In technology adoption studies, positive psychological states (or well-being) have been found to reduce perceived risk, boost acceptance of new digital services, and enhance technology adoption intentions (Martins et al., 2014; Cham et al., 2022; Anuj et al., 2023; Chauhan et al., 2025). On the specific level of investment app adoption, those in a good state of financial well-being tend to feel more positive about their investment opportunities than those in bad health, to spend more mental effort exploring investment opportunities, and to continue using investment platforms over time (Falahati & Sabri, 2012; Hira & Mugenda, 1998). On the other hand, financial stress on the negative side of financial well-being has been associated to financial avoidance behaviours such as avoidance of investing-related digital platforms (Mugenda et al., 1990):

H4: FWB significantly and positively influences IAA among Gen Z students of Uttarakhand.

2.6 Mediating Role of Financial Well-being

The mediation hypotheses make logical sense based on the theoretical chain: Financial Literacy, Budgeting Behaviour, and Digital Financial Skills build financial capability, which in turn produces a state of positive financial well-being, which, in turn, motivates investment app adoption. This sequence is consistent with the Financial Capability Theory assumption that capability needs to lead to the motivational state before it manifests in behaviour. Previous empirical studies confirm this order: Joo and Grable (2004) showed that financial knowledge behaviour relationships are fully mediated by financial satisfaction; Xiao and O'Neill (2018) showed that financial behaviour is a mediator among financial literacy and well-being; and Cham et al. (2022) showed that well-being is a mediator among financial knowledge and financial outcomes.

H5: FWB fully mediates the association among FL and IAA.

H6: FWB fully mediates the association among BB and IAA.

H7: FWB fully mediates the association among DFS and IAA.

3. Research Methodology

3.1 Research Design

The study implements a positivist epistemic stance, operationalised through a quantitative, cross-sectional survey design. A deductive approach was employed: hypotheses derived from UTAUT and Financial Capability Theory were tested against empirical data collected through a structured questionnaire administered once at a defined point in time. Cross-sectional designs are appropriate when the research objective is to capture the contemporaneous relationship among variables across a population, as opposed to longitudinal designs that track change over time (Bryman, 2016; Creswell, 2014). The limitation of temporal precedence inherent in cross-sectional designs is acknowledged in Section 6.

3.2 Research Context: Gen Z in Uttarakhand HEIs

Uttarakhand's higher education sector comprises 14 state universities, 4 central universities, 13 deemed universities, and over 200 affiliated colleges, collectively enrolling approximately 3.5 lakh students as of 2023 (All India Survey on Higher Education [AISHE], 2023). The students in the state are mostly from Uttarakhand and neighbouring states, and the socioeconomic background is relatively homogenous, with middle-class families in the public sector and government service. Urban districts like Dehradun and Haridwar have almost achieved near-universal adoption of smartphones among this cohort, while partially achieved in rural mountain districts

like Chamoli and Pithoragarh (Kaushal & Anuj, 2022). This partial digital connection, along with the evolving and growing ecosystem of FinTech (Joshimath UPI rollout, digital banking via Uttarakhand Gramin Bank), creates a unique and policy-relevant setting to explore the adoption of Gen Z FinTech.

3.3 Target Population and Sampling

The target population were the Gen Z, undergraduate and postgraduate students (18-26 years) of HEIs in Uttarakhand, 2023-24. Stratified purposive sampling technique was used and the stratification was done on the basis of institution type (central university, state university, deemed university, private college), geographic cluster (Dehradun division, Kumaon division, Garhwal division outside Dehradun) and gender. For the paper-based questionnaires, convenience sampling was employed at the institution in each stratum, and the online (Google Forms) questionnaires were administered in addition via the snowball sampling method using institution WhatsApp groups. This is a combination of both modes, which correlates with best practices in student survey research in India (Kumar, 2014).

450 questionnaires were given out. Following the exclusion of 46 questionnaires with incomplete or straight-line responses (category responses that are the same for all 21 items), 404 usable questionnaires remained, resulting in an effective response rate of 89.8 percent. The number of observations is quite large and follows the recommendations for SEM of Hair et al. (2014), who indicate a minimum of 10 observations for each free parameter, which equals 52 in this case, with a conventional threshold of $N \geq 200$.

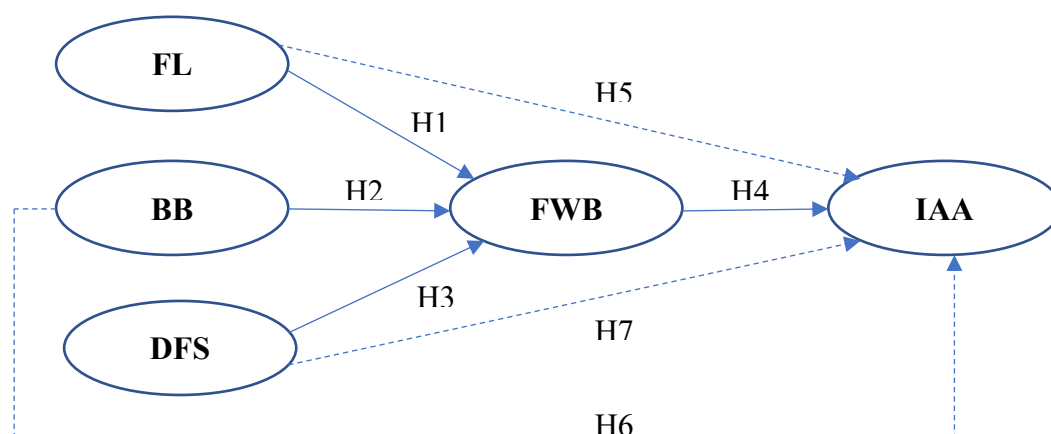
3.4 Measurement Instruments

Items of the constructs are evaluated on a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). Items were translated forward to Hindi and back translated independently by another bilingual academic and then pilot-tested with 30 students (not a part of the main sample) as recommended by Brislin (1980). Where a semantic drift was found in the back-translation, minor rewording was used. All original items have been left to be included.

For Financial Literacy (FL: 6 items) instruments were adapted from OECD/INFE (2018) and Lusardi and Mitchell (2011), Budgeting Behaviour (BB: 6 items) instruments were adapted from Strömbäck et al. (2017) and Kempson et al. (2006). For Digital Financial Skills (DFS 3 items) instruments were adapted from Morgan and Trinh (2019), and Klapper et al. (2016). The items measure comfort with online transactions, the ability to compare digital financial products and competence in mobile financial applications. Financial Well-being (FWB 3 items) instruments were adapted from CFPB (2015) and Netemeyer et al. (2018). Investment App Adoption (IAA 3 items) were adapted from Venkatesh et al. (2003) UTAUT Behavioural Intention scale and Cham et al. (2022). Items assess intention to use investment apps in the near future, frequency of planned usage, and recommendation intention.

Using the nested relationship of constructs, the conceptual framework is proposed.

Figure 1: Hypothesised Model



Legends → FL: Financial Literacy, BB: Budgeting Behaviour, DFS: Digital Financial Skills, FWB: Financial Well-being, IAA: Investment App Adoption.

3.5 Analytical Approach

Data analysis was conducted in two phases following Anderson and Gerbing (1988). In Stage 1, Confirmatory Factor Analysis (CFA) was conducted in AMOS v21 to evaluate the measurement model across four criteria: (a) indicator reliability (standardised factor loadings $\lambda \geq 0.70$); (b) construct reliability (Composite Reliability $CR \geq 0.70$); (c) convergent validity (Average Variance Extracted $AVE \geq 0.50$); and (d) discriminant validity measured via the Fornell-Larcker criterion ($AVE > \text{shared variance with other constructs}$) and the Maximum Shared Variance ($MSV < AVE$). Model fit was evaluated using $CMIN/DF < 3$, $CFI > 0.95$, $RMSEA < 0.06$, $SRMR < 0.08$, and $GFI > 0.90$ (Hu & Bentler, 1999; Kline, 2015).

In Stage 2, the structural model was evaluated. Mediation was evaluated using bootstrapped indirect effects (5,000 resamples) within AMOS Preacher and Hayes (2008). The outcomes of mediation test depicted significant with the 95 percent bias-corrected confidence interval.

4. Results

4.1 Demographic Profile of Respondents

Table 1 summarises the demographic profile of the 404 respondents. Male participants constituted a slight majority at 55.4 percent ($n = 224$) against 44.6 percent females ($n = 180$), a distribution broadly consistent with Uttarakhand's higher education gender ratio as reported in AISHE (2023). All respondents fell within the Gen Z age bracket (18–26 years), with the modal age group being 19–22 years, reflecting the dominant undergraduate phase. The majority were enrolled in undergraduate programmes (B.Com, BBA, B.Sc.) at state and deemed universities, with postgraduate students (MBA, M.Com, M.Sc.) constituting approximately 28 percent of the sample.

Table 1

Demographic Profile of Respondents (N = 404)

Characteristic	Category	Frequency (n)	Percentage (%)
Gender	Male	224	55.4
	Female	180	44.6
Age Group	18–20 years	156	38.6
	21–22 years	162	40.1
	23–26 years	86	21.3
Programme Level	Undergraduate (B.Com / BBA / B.Sc.)	291	72.0

	Postgraduate (MBA / M.Com / M.Sc.)	113	28.0
Institution Type	Central / State University	218	53.9
	Deemed / Private Institution	186	46.1
Smartphone Ownership	Yes	404	100.0
Investment App Awareness	Aware of at least one investment app	362	89.6
Investment App Usage	Currently use an investment app	164	40.6

4.2 Descriptive Statistics

Descriptive statistics are item-level and construct-level statistics reported in Table 2, based on the 404 responses that were not missing. All the items were rated on a 1-5 Likert scale. The skewness values ranged from 0.167 to 0.083, whereas the kurtosis values were between 1.143 and 0.778, and both were within the acceptable range of ± 7 for kurtosis and ± 2 for skewness, which are indicators of the approximate univariate normality (Hair et al., 2014). Mean scores across all constructs hovered near the midpoint of the scale (approximately 3.0), suggesting neither strong endorsement nor strong rejection of the measured attitudes, and highlighting meaningful variance for subsequent SEM analysis. Cronbach's alpha coefficients ranged from 0.837 (FWB) to 0.915 (FL), all above the 0.70 threshold as proposed by Nunnally (1978).

Table 2

Item-Level Descriptive Statistics (N = 404)

Construct	Item	Mean	SD	Skewness	Kurtosis
Financial Literacy ($\alpha = 0.915$)	FL1	3.050	1.211	-0.011	-0.973
	FL2	3.109	1.207	-0.074	-0.961
	FL3	2.995	1.250	0.009	-1.049
	FL4	2.983	1.284	-0.017	-1.077
	FL5	3.002	1.275	-0.012	-1.048
	FL6	3.032	1.219	-0.069	-0.965

Construct Mean	—	3.028	1.041	—	—
Budgeting Behaviour ($\alpha = 0.887$)	BB1	2.988	1.235	0.023	-0.968
	BB2	3.124	1.236	-0.062	-0.900
	BB3	3.097	1.225	-0.063	-0.914
	BB4	3.035	1.306	0.083	-1.101
	BB5	2.998	1.279	-0.059	-1.046
	BB6	3.064	1.223	-0.082	-0.987
Construct Mean	—	3.051	1.000	—	—
Digital Financial Skills ($\alpha = 0.840$)	DFS1	3.017	1.211	0.034	-0.941
	DFS2	2.993	1.245	0.006	-1.011
	DFS3	3.238	1.095	-0.026	-0.778
Construct Mean	—	3.083	1.032	—	—
Financial Well-being ($\alpha = 0.837$)	FWB1	3.047	1.230	0.006	-0.976
	FWB2	3.067	1.221	0.052	-0.971
	FWB3	2.995	1.238	0.025	-1.010
Construct Mean	—	3.036	1.068	—	—
Investment App Adoption ($\alpha = 0.859$)	IAA1	3.084	1.323	-0.167	-1.109
	IAA2	3.097	1.283	-0.110	-1.075
	IAA3	2.985	1.329	-0.036	-1.143
Construct Mean	—	3.055	1.159	—	—

4.3 Common Method Bias (CMB) Assessment

As suggested by (Podsakoff et al., 2003) in a cross-sectional study CMB is a potential concern. Harman's single-factor test was administered by using all 21 items into an exploratory factor analysis with no rotation and constraining the solution to one factor. The single unrotated factor reported for 29.7 percent of total variance, which is below the 50 percent threshold that indicates serious CMB (Podsakoff et al., 2003). Additionally, the procedural remedy of scale separation presenting different constructs in distinct, labelled sections of the questionnaire with instructional reminders was implemented during data collection. These two checks collectively suggest that CMB is unlikely to pose a serious validity threat in the present study.

4.4 Confirmatory Factor Analysis (CFA)

A five-factor CFA model was specified in IBM AMOS 26.0, with each item loading only on its intended construct and the five factors acceptable to correlate freely. The measurement model yielded excellent fit: $\chi^2(179) = 220.109$, CMIN/DF = 1.230, CFI = 0.992, SRMR = 0.030, RMSEA = 0.024 (90% CI [0.010, 0.034], PClose = 1.000), GFI = 0.951, AGFI = 0.937. These indices uniformly exceeded or met the recommended thresholds (Table 3), providing strong support for the hypothesised factor structure.

Table 3

Model Fit Indices

Fit Index	Obtained Value	Recommended Threshold
CMIN/DF	1.230	1–3
CFI	0.992	> 0.95
GFI	0.951	> 0.90
AGFI	0.937	> 0.85
SRMR	0.030	< 0.08
RMSEA	0.024	< 0.06
RMSEA 90% CI	[0.010, 0.034]	Upper bound < 0.08
PClose	1.000	> 0.05
NFI	0.956	> 0.90
TLI (NNFI)	0.990	> 0.95

All standardised factor loadings exceeded the recommended threshold of 0.70 (Hair et al., 2014), ranging from 0.706 (DFS1) to 0.882 (DFS2), and all were statistically significant at $p < 0.001$ (t-values 13.996 to 19.479), as detailed in Table 4.

Table 4

CFA Factor Loadings, Composite Reliability, and AVE

Construct	Item	Std. Loading (λ)	t-value	CR	AVE	MSV
Financial Literacy (FL)	FL1	0.832	—	0.916	0.645	0.323
	FL2	0.797	18.719***			
	FL3	0.805	18.990***			
	FL4	0.766	17.658***			
	FL5	0.795	18.650***			
	FL6	0.819	19.479***			
Budgeting Behaviour (BB)	BB1	0.732	—	0.887	0.568	0.382
	BB2	0.784	15.192***			
	BB3	0.740	14.314***			
	BB4	0.763	14.769***			
	BB5	0.724	13.996***			
	BB6	0.777	15.053***			
Digital Financial Skills (DFS)	DFS1	0.706	—	0.849	0.655	0.434
	DFS2	0.882	15.414***			
	DFS3	0.829	14.980***			
Financial Well-being (FWB)	FWB1	0.756	—	0.839	0.634	0.434

	FWB2	0.811	15.943***			
	FWB3	0.820	16.097***			
Inv. App Adoption (IAA)	IAA1	0.829	—	0.860	0.672	0.432
	IAA2	0.774	16.605***			
	IAA3	0.854	18.174***			

Note: *** $p < 0.001$.

4.5 Validity Measures

Table 5 shows the matrix of model validity comprising of CR, AVE, MSV, MaxR(H), and the Fornell-Larcker norm for discriminant validity. Construct reliability was found to be satisfactory with all CR values above 0.70. For convergent validity all AVE values were above the 0.50 (Fornell & Larcker, 1981). Important, a comparison of the size of the MSV and the AVE revealed that MSV was smaller than AVE for all constructs, which indicates discriminant validity (Hair et al., 2014), and a comparison of all inter-construct correlations in the corresponding row and column, which suggest meaningful but not redundant inter-construct relationships.

Table 5

Model Validity Matrix

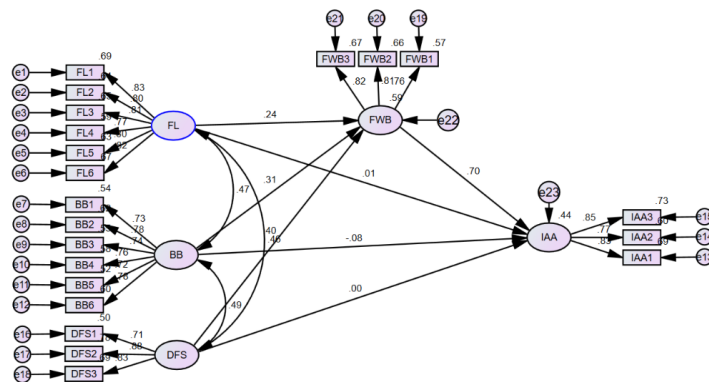
	CR	AVE	MSV	MaxR(H)	FL	BB	IAA	DFS	FWB
FL	0.916	0.645	0.323	0.917	0.803				
BB	0.887	0.568	0.382	0.889	0.472***	0.754			
IAA	0.860	0.672	0.432	0.865	0.370***	0.358***	0.820		
DFS	0.849	0.655	0.434	0.870	0.464***	0.493***	0.426***	0.809	
FWB	0.839	0.634	0.434	0.842	0.568***	0.618***	0.657***	0.659***	0.796

Note: *** $p < 0.001$.

4.6 Structural Model Results (Hypothesis Testing H1–H4)

Following satisfactory measurement model assessment, the structural model was assessed with maximum-likelihood estimation in AMOS v21. Structural model fit was $\chi^2(179) = 220.109$, CMIN/DF = 1.230, CFI = 0.992, RMSEA = 0.024 identical to the measurement model given the saturated measurement specification. Table 6 depicts the t-values, standardised path coefficients, and hypothesis decisions.

Figure 2: Structural model



All four structural hypotheses were supported. Digital Financial Skills appeared as the strongest predictor of Financial Well-being ($\beta = 0.395$, $t = 6.606$, $p < 0.001$), with Budgeting Behaviour ($\beta = 0.310$, $t = 5.453$, $p < 0.001$) and Financial Literacy ($\beta = 0.238$, $t = 4.511$, $p < 0.001$). Financial Well-being depicted a large positive effect on Investment App Adoption ($\beta = 0.701$, $t = 7.213$, $p < 0.001$). Collectively, the three antecedents (FL, BB, DFS) explained $R^2 = 64.8\%$ of variance in Financial Well-being, and Financial Well-being explained $R^2 = 49.1\%$ of variance in Investment App Adoption intention.

Table 6

Hypothesis Testing Summary

Hypothesis	Structural Path	Std. β	t-value	p-value	Decision
H1	Financial Literacy (FL) → Financial Well-being (FWB)	0.238	4.511	< 0.001	Supported
H2	Budgeting Behaviour(BB) → Financial Well-being (FWB)	0.310	5.453	< 0.001	Supported
H3	Digital Financial Skills (DFS) → Financial Well-being (FWB)	0.395	6.606	< 0.001	Supported
H4	Financial Well-being (FWB) → Investment App Adoption (IAA)	0.701	7.213	< 0.001	Supported

4.7 Mediation Analysis (Hypotheses H5–H7)

Mediation was established using indirect bootstrapped effects with 5,000 resamples in AMOS. Table 7 presents the direct effects (with FWB in the model), indirect effects through FWB, and their significance. All direct effects of FL, BB, and DFS on IAA depicts non-significant when FWB was involved ($p > 0.05$), while all indirect effects were significant ($p < 0.001$), indicating full mediation for all three antecedent–outcome relationships.

Table 7

Mediation Analysis Results (Bootstrapped Indirect Effects, 5,000 Resamples)

Hypothesis	Path	β Direct	β Indirect	Significance	Mediation Type
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H5	FL → FWB → IAA	0.009 (n.s.)	0.167***	< 0.001	Full Mediation
H6	BB → FWB → IAA	−0.078 (n.s.)	0.217***	< 0.001	Full Mediation
H7	DFS → FWB → IAA	−0.001 (n.s.)	0.277***	< 0.001	Full Mediation

Note: *** $p < 0.001$; n.s. = not significant ($p > 0.05$).

The largest indirect effect was from DFS to FWB to IAA ($\beta = 0.277$), underlining the imperativeness of digital financial skills as a capability driver of the adoption process via well-being. The FL mediated indirect path ($\beta = 0.167$) had the smallest value, indicating that financial knowledge has a more indirect effect of increasing investment app adoption by facilitating the financial security and confidence. These results in total support Hypotheses H5, H6 and H7.

5. Discussion

5.1 Summary of Findings

The study aims to explore the reasons behind intention to use investment applications among Gen Z students in Uttarakhand by adapting UTAUT and Financial Capability theory. There were seven hypotheses tested and all seven were supported. When taken together, the results provide a clear picture: Investment app adoption among Gen Z students is not merely about the technology they have access to, or how comfortable they are with digital. It's also a reflection of the quality of their financial well-being, which is built on financial knowledge, budgeting habits, and digital financial competency.

5.2 Theoretical Contributions

The study contributes in a number of unique ways to the literature. Firstly, it broadens the scope of UTAUT from the general context of technology acceptance to financial technology acceptance, i.e., investment apps. Prior research on technology uses in the milieu of FinTech has focused on mobile payments (Liébana-Cabanillas et al., 2020), internet banking (Martins et al., 2014), and cryptocurrency (Cham et al., 2022); however, the investment app context has its own challenges in that users need to adapt to the technology and also have the domain-specific skills and knowledge of financial literacy and budgeting information skills. The study explicitly includes Financial Capability Theory constructs and UTAUT logic to offer a more in-depth and mechanism-based explanation of adoption.

Secondly, the results of full mediation for Financial Well-being in all three antecedent–adoption pathways are theoretically important. It indicates that financial capability constructs (FL, BB, DFS) do not directly influence the adoption of investment apps, but rather affect it through a common motivation that is the subjective feeling of financial security and confidence. This converges with Joo and Grable's (2004) proposition that financial satisfaction mediates financial knowledge behaviour relationships, and extends this logic specifically to digital investment technology adoption. The implication is that financial capability building initiatives will produce investment app adoption gains primarily to the extent that they improve subjective financial well-being, not merely objective knowledge.

Third, the finding that Digital Financial Skills ($\beta = 0.395$) outperforms Financial Literacy ($\beta = 0.238$) and Budgeting Behaviour ($\beta = 0.310$) in foreseeing Financial Well-being adds nuance to the financial capability literature. In the digital-native Gen Z context, the ability to navigate digital financial environments safely and effectively may be more immediately relevant to felt financial security than abstract knowledge of compound interest or disciplined budgeting the traditional pillars of financial literacy programmes. This echoes Morgan and Trinh (2019) who found digital financial skills to be the dominant predictor of financial well-being in a Southeast

Asian youth sample, and suggests that financial education for Gen Z must be redesigned with digital competency at its centre.

5.3 Practical Implications

For FinTech platform developers and investment app providers operating in Uttarakhand and similar hill-state markets, the large significant effect of Financial Well-being on Investment App Adoption ($\beta = 0.701$) indicates that reducing financial anxiety and building user confidence through in-app financial education modules, risk simulators, beginner investment guides, and loss-framed psychological safety features should be central to user acquisition and retention strategies. Designing for users who are cognitively and emotionally ready to invest, rather than assuming this readiness, is likely to produce more durable adoption.

For Higher Educational Institutions in Uttarakhand, the results call for integrated financial literacy curricula that address all three capability dimensions concurrently. Financial literacy workshops alone the predominant format in Indian HEIs are unlikely to move the adoption needle if they do not also develop practical budgeting habits (BB) and hands-on digital financial skills (DFS). Experiential learning formats simulated portfolio management, UPI-linked campus savings programmes, FinTech lab modules would address capability gaps in a more holistic and practically relevant manner.

The results highlight the need for the national (SEBI, Ministry of Finance) and state (Uttarakhand government) policymakers to embed digital financial skills development as part of the National Strategy for Financial Education (2020–2025) and specifically focus on the 18-26 age group in Hill states. Incentive schemes based on grants for investment in financial capability education of underserved youth populations in financial markets, with a positive impact on responsible investment adoption, may represent a powerful lever for financial inclusion.

6. Conclusion, Limitations, And Future Directions

The study aimed to investigate the intention of students from Gen Z to use investment apps in the context of HEI in Uttarakhand using the extended UTAUT model with the constructs of Financial Capability Theory. The study used CFA in AMOS v21 with 404 valid responses that showed excellent model fit and all seven hypotheses were supported. Financial Literacy, Budgeting Behaviour and Digital Financial Skills were all positive and significant predictors of Financial Well-being and Financial Well-being was a strong predictor of the intention to adopt Financial Skills App. Most crucially, Financial Well-being was found to fully mediate all three pathways of antecedent adoption, which provided evidence that it was the psychological pathway between Financial Capability and digital investment behaviour.

There are a few caveats. This cross-sectional design makes it difficult to make a cause-effect statement in the very literal sense; longitudinal or experimental designs would better support the cause-effect statement. The sample consists of students of Uttarakhand HEIs, restricting the generalisability to the population of non-students from the Gen Z, older and younger cohorts and other states in India with different digital infrastructure profiles. Social desirability risk exists with self-reported data, with the near-midpoint response means (around 3.0 on each of the constructs) indicating that the responding was honest rather than aspirational. Given the need to include only six items in the instrument for Financial Literacy, based on a longer multidimensional measurement tradition, there is a need for future studies to include more comprehensive financial literacy batteries. Additionally, potentially important moderators' family financial socialisation, parental income, peer investment behaviour was not included and could meaningfully qualify the main effects.

Possible further research directions to the model are fruitful. First, it would be better to have longitudinal studies that follow the same group of individuals from the very beginning of their intention to adopt to their ongoing level of behaviour to examine habits of adoption (Venkatesh et al., 2012). Second, cross-state comparative studies would test the boundary conditions of the model and would highlight the institutional factors which moderate the capability–adoption relationship at the state level (such as banking infrastructure, regulation of FinTech). Third, qualitative complementary data from in-depth interviews with investment app users and non-users would shed light on the lived experience of financial well-being and its impact on financial investment decision-making, complementing the quantitative data. Fourth, the model can be expanded to incorporate the constructs of the

UTAUT on the supply side: PE, EE, SI, and FC to determine if the financial capability pathway is a complement or alternative to the generic technology acceptance pathway in the context of an investment app.

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] All India Survey on Higher Education (AISHE). (2023). AISHE report 2022–23. Ministry of Education, Government of India.
- [4] Ameriks, J., Caplin, A., & Leahy, J. (2003). Wealth accumulation and the propensity to plan. *Quarterly Journal of Economics*, 118(3), 1007–1047. <https://doi.org/10.1162/00335530360698487>
- [5] Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin*, 103(3), 411–423. <https://doi.org/10.1037/0033-2909.103.3.411>
- [6] Anuj, Chauhan, J. S., Agarwal, P., Kumar, H., Sharma, M., & Thapliyal, M. (2024). Analysing antecedent and consequences of trust in m-commerce for sustainability in tourism industry in Uttarakhand. *International Journal of Electronic Business*, 19(2), 139-155.
- [7] Anuj, Kaushal, D., Upadhyay, R. K., Sharma, A., & Chauhan, J. (2025). A study on workcation tourism: buying behaviour and the mediating role of travel intentions during the COVID-19 pandemic: an empirical study in Uttarakhand. *International Journal of Business Excellence*, 37(2), 206-223.
- [8] Anuj, Upadhyay, R. K., Kargeti, H., & Sharma, A. (2023). Adoption of digital marketing among tourism industry of Uttarakhand in India. *International Journal of Business Excellence*, 29(1), 80-97.
- [9] Atkinson, A., & Messy, F. (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>
- [10] Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Prentice-Hall.
- [11] Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51(6), 1173–1182. <https://doi.org/10.1037/0022-3514.51.6.1173>
- [12] Beal, D. J., & Delpachitra, S. B. (2003). Financial literacy among Australian university students. *Economic Papers*, 22(1), 65–78. <https://doi.org/10.1111/j.1759-3441.2003.tb00337.x>
- [13] Bhatt, P., & Bhatt, R. K. (2023). FinTech and the future of financial services: A bibliometric analysis and systematic literature review. *Journal of Risk and Financial Management*, 16(2), 92. <https://doi.org/10.3390/jrfm16020092>
- [14] Bongomin, G. O. C., Ntayi, J. M., Munene, J. C., & Malinga, C. A. (2018). Mobile money and financial inclusion in sub-Saharan Africa: The moderating role of social networks. *Journal of African Business*, 19(3), 361–384. <https://doi.org/10.1080/15228916.2017.1416214>
- [15] Brislin, R. W. (1980). Translation and content analysis of oral and written materials. In H. C. Triandis & J. W. Berry (Eds.), *Handbook of cross-cultural psychology* (Vol. 2, pp. 389–444). Allyn & Bacon.
- [16] Bryman, A. (2016). *Social research methods* (5th ed.). Oxford University Press.

- [17] Cham, T.-H., Cheah, J.-H., Memon, M. A., Fam, K.-S., & Joel, J. L. (2022). Digitalization and its impact on contemporary marketing strategies and practices. *Journal of Marketing Management*, 38(11–12), 1277–1284. <https://doi.org/10.1080/0267257X.2022.2088655>
- [18] Chauhan, J. S., Sharma, A., Sharma, A., Ahalawat, K., & Agarwal, P. (2025, February). AI-Driven decision making in wellness tourism: Understanding consumer preferences and optimizing tourism strategies. In *2025 First International Conference on Advances in Computer Science, Electrical, Electronics, and Communication Technologies (CE2CT)* (pp. 663-669). IEEE.
- [19] Chauhan, S., Anuj, & Chandra, T. (2026, March). The effect of trust and security on intention to use digital platforms for tourism-related activities in uttarakhand: A mediation role of attitude towards use. In *AIP Conference Proceedings* (Vol. 3365, No. 1, p. 030022). AIP Publishing LLC.
- [20] Consumer Financial Protection Bureau (CFPB). (2015). Financial well-being: The goal of financial education. CFPB.
- [21] Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). SAGE Publications.
- [22] Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319–340. <https://doi.org/10.2307/249008>
- [23] Deb, R., & Joy, T. (2021). Gen Z investors in India: Financial behaviour in the digital era. *Vision: The Journal of Business Perspective*, 25(4), 441–452. <https://doi.org/10.1177/09722629211005490>
- [24] Dimock, M. (2019, January 17). Defining generations: Where millennials end and generation Z begins. Pew Research Center. <https://www.pewresearch.org/fact-tank/2019/01/17/where-millennials-end-and-generation-z-begins/>
- [25] Falahati, L., & Sabri, M. F. (2012). An exploratory study of personal financial well-being determinants: Examining the moderating effect of gender. *Asian Social Science*, 8(4), 198–210. <https://doi.org/10.5539/ass.v8n4p198>
- [26] Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 39–50. <https://doi.org/10.2307/3151312>
- [27] Garg, N., & Singh, S. (2018). Financial literacy among youth. *International Journal of Social Economics*, 45(1), 173–186. <https://doi.org/10.1108/IJSE-11-2016-0303>
- [28] Garman, E. T., & Fogue, R. (2011). *Personal finance* (11th ed.). South-Western Cengage Learning.
- [29] Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2014). *Multivariate data analysis* (7th ed.). Pearson.
- [30] Hira, T. K., & Mugenda, O. M. (1998). Predictors of financial satisfaction: Differences between retirees and non-retirees. *Financial Counseling and Planning*, 9(2), 75–83.
- [31] Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6(1), 1–55. <https://doi.org/10.1080/10705519909540118>
- [32] Joo, S. H. (2008). Personal financial wellness. In J. J. Xiao (Ed.), *Handbook of consumer finance research* (pp. 21–33). Springer.
- [33] Joo, S. H., & Grable, J. E. (2004). An exploratory framework of the determinants of financial satisfaction. *Journal of Family and Economic Issues*, 25(1), 25–50. <https://doi.org/10.1023/B:JEEI.0000016722.37994.9f>

- [34] Kaushal, D., & Anuj. (2022). Investigating the mediating effect of eWOM while exploring a higher education institutions. *International Journal of Business Innovation and Research*, 28(2), 205-226.
- [35] Kempson, E., Collard, S., & Moore, N. (2006). Measuring financial capability: An exploratory study (Consumer Research Report No. 37). Financial Services Authority.
- [36] 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>
- [37] Klapper, L., El-Zoghbi, M., & Hess, J. (2016). Achieving the sustainable development goals: The role of financial inclusion. CGAP.
- [38] Kline, R. B. (2015). Principles and practice of structural equation modeling (4th ed.). Guilford Press.
- [39] Kumar, H., Sofat, R., Walia, S. B., Sharma, M., Anuj, & Purohit, P. (2026). Does the availability of digital payment sway consumer buying behaviour?. *International Journal of Electronic Marketing and Retailing*, 17(4), 499-531.
- [40] Kumar, R. (2014). Research methodology: A step-by-step guide for beginners (4th ed.). SAGE Publications.
- [41] Liébana-Cabanillas, F., Singh, N., Kalinic, Z., & Carvajal-Trujillo, E. (2020). Examining the determinants of continuance intention to use and the moderating effect of the gender and age of users of NFC mobile payments: A multi-analytical approach. *Information Technology & Management*, 21(4), 209–232. <https://doi.org/10.1007/s10799-020-00320-8>
- [42] Lind, T., Ahmed, A., Skagerlund, K., Strömbäck, C., Västfjäll, D., & Tinghög, G. (2020). Competence, confidence, and gender: The role of objective and subjective financial knowledge in household finance. *Journal of Family and Economic Issues*, 41(4), 626–638. <https://doi.org/10.1007/s10834-020-09678-9>
- [43] Lusardi, A., & Mitchell, O. S. (2011). Financial literacy around the world: An overview. *Journal of Pension Economics and Finance*, 10(4), 497–508. <https://doi.org/10.1017/S1474747211000448>
- [44] 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>
- [45] Martins, C., Oliveira, T., & Popović, A. (2014). Understanding the Internet banking adoption: A unified theory of acceptance and use of technology and perceived risk application. *International Journal of Information Management*, 34(1), 1–13. <https://doi.org/10.1016/j.ijinfomgt.2013.06.002>
- [46] Moorthy, M. K., Weng-Wai, C., Mun, L. S., Yew-Ming, H., Yin-Fah, B. C., & Wei-Keong, D. (2014). An application of UTAUT model in understanding tourists' intention to use m-commerce. *International Journal of Management Excellence*, 3(2), 427–434.
- [47] Morgan, P. J., & Trinh, L. Q. (2019). Determinants and impacts of financial literacy in Cambodia and Viet Nam. *Journal of Risk and Financial Management*, 12(1), 19. <https://doi.org/10.3390/jrfm12010019>
- [48] Mugenda, O. M., Hira, T. K., & Fanslow, A. M. (1990). Assessing the causal relationship among communication, money management practices, satisfaction with financial status, and satisfaction with quality of life. *Lifestyles: Family and Economic Issues*, 11(4), 343–360.
- [49] National Payments Corporation of India (NPCI). (2024). Annual report 2023–24. NPCI.
- [50] Netemeyer, R. G., Warmath, D., Fernandes, D., & Lynch, J. G. (2018). How am I doing? Perceived financial well-being, its potential antecedents, and its relation to overall well-being. *Journal of Consumer Research*, 45(1), 68–89. <https://doi.org/10.1093/jcr/ucx109>
- [51] Nunnally, J. C. (1978). Psychometric theory (2nd ed.). McGraw-Hill.

- [52] OECD. (2016). OECD/INFE international survey of adult financial literacy competencies. OECD Publishing.
- [53] OECD/INFE. (2018). OECD/INFE toolkit for measuring financial literacy and financial inclusion. OECD.
- [54] Ozili, P. K. (2022). Theories of financial inclusion. In C. Goyal & M. S. Rathore (Eds.), *Handbook of research on theory and practice of global Islamic finance* (pp. 89–115). IGI Global. <https://doi.org/10.4018/978-1-7998-9470-1.ch004>
- [55] Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88(5), 879–903. <https://doi.org/10.1037/0021-9010.88.5.879>
- [56] Potrich, A. C. G., Vieira, K. M., & Mendes-Da-Silva, W. (2016). Development of a financial literacy model for university students. *Management Research Review*, 39(3), 356–376. <https://doi.org/10.1108/MRR-06-2014-0143>
- [57] Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, 40(3), 879–891. <https://doi.org/10.3758/BRM.40.3.879>
- [58] Securities and Exchange Board of India (SEBI) & Ministry of Finance. (2020). National strategy for financial education: 2020–2025. Government of India.
- [59] Sharma, A., Bhatt, S., Kapri, S. S., & Anuj. (2023). An examination of adoption of cash on delivery payment method among e-shoppers in India: Role of perceived security, risk, privacy and trust. *International Journal of Electronic Business*, 18(4), 373–391.
- [60] Strömbäck, C., Lind, T., Skagerlund, K., Västfjäll, D., & Tinghög, G. (2017). Does self-control predict financial behavior and financial well-being? *Journal of Behavioral and Experimental Finance*, 14, 30–38. <https://doi.org/10.1016/j.jbef.2017.04.002>
- [61] Taherdoost, H. (2018). A review of technology acceptance and adoption models and theories. *Procedia Manufacturing*, 22, 960–967. <https://doi.org/10.1016/j.promfg.2018.03.137>
- [62] Telecom Regulatory Authority of India (TRAI). (2023). Telecom subscription report, March 2023. TRAI.
- [63] Tyagi, S., Kargeti, H., Rastogi, N., & Tiwari, R. (2023, December). Exploring the Cognitive Framework: How Students Perceive AI in Financial Decision-Making. In *2023 International Conference on Advanced Computing & Communication Technologies (ICACCTech)* (pp. 597–602). IEEE.
- [64] UK Money Advice Service. (2013). Financial capability in the UK: Establishing a baseline. Money Advice Service.
- [65] Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, 27(3), 425–478. <https://doi.org/10.2307/30036540>
- [66] Venkatesh, V., Thong, J. Y. L., & Xu, X. (2012). Consumer acceptance and use of information technology: Extending the unified theory of acceptance and use of technology. *MIS Quarterly*, 36(1), 157–178. <https://doi.org/10.2307/41410412>
- [67] Xiao, J. J., & O'Neill, B. (2018). Propensity to plan, financial capability, and financial satisfaction. *International Journal of Consumer Studies*, 42(5), 501–512. <https://doi.org/10.1111/ijcs.12461>
- [68] Xiao, J. J., & Porto, N. (2017). Financial education and financial satisfaction: Financial literacy, behavior, and capability as mediators. *International Journal of Bank Marketing*, 35(5), 805–817. <https://doi.org/10.1108/IJBM-01-2016-0009>

- [69] Zhao, X., Lynch, J. G., & Chen, Q. (2010). Reconsidering Baron and Kenny: Myths and truths about mediation analysis. *Journal of Consumer Research*, 37(2), 197–206. <https://doi.org/10.1086/651257>