Development and Validation of an Alternative Scale on Financial Literacy of Members of Savings and Credit Cooperatives in Region XI

Ria Diosa Abalos Caliao[1], Christian Paul Sarong Moyon[2]

University of Mindanao, Davao City, Philippines

DOI: https://dx.doi.org/10.47772/IJRISS.2025.91100228

Received: 10 November 2025; Accepted: 20 November 2025; Published: 05 December 2025

ABSTRACT

A new scale for assessing financial literacy among savings and credit cooperative members in Region XI was created and refined in this study using a sequential exploratory mixed-method design. The work started with interviews that helped compile the first set of items. Afterward, these items were tested through a survey, and the data were examined using exploratory and confirmatory factor analyses to verify the scale's structure and validity. The study found five key dimensions of financial literacy: financial discipline, planned borrowing, shared learning, risk preparedness, and future financial security. Each dimension demonstrated solid reliability and validity, resulting in a localized and statistically sound framework for assessing financial literacy within the cooperative setting. These findings indicate that financial literacy extends beyond personal knowledge and money management; it also encompasses shared practices, readiness for financial risks, and careful long-term planning. This scale allows governments, cooperatives, and educational institutions to develop targeted programs that support cooperative sustainability, promote responsible financial behavior, and enhance members' financial capability. Furthermore, this research aligns with the country's financial inclusion goals and reinforces global efforts toward sustainable development.

Keywords: Confirmatory Factor Analysis, Construct Development, Construct Validation, Exploratory Factor Analysis, Financial Literacy, Member- Cooperative, Sequential Exploratory Mixed-methods

SDG Indicator: #1 (SDG Goal 1: No Poverty) #4 (SDG 4: Quality Education

INTRODUCTION

Many programs have been launched to strengthen people's understanding of essential financial concepts, yet financial literacy in the Philippines remains a persistent concern (Inquiro, 2025). Although research on financial literacy has increased, methodological problems continue to compromise the accuracy, comparability, and relevance of these studies (Brochado & Mendes, 2021). Menkhoff (2020) notes that without long-term followup studies, it is challenging to determine whether financial education results in lasting behavioral changes. Prado et al. (2022) also emphasize the urgent need for evaluation tools tailored to specific contexts, as many existing institutions—such as cooperatives and informal lending systems—do not adequately represent the economic and cultural realities experienced by the population.

In the Philippines, financial literacy remains an enormous issue. In line with this, Mistrean (2024) stresses that financial literacy encompasses essential skills "involving processes of generating income, managing expenses, and making investments. The issue is further underscored by Inquiro Philippines (2025), which finds that about 25% of Filipino adults exhibit adequate financial literacy, with Metro Manila averaging 35% compared to just 20% in rural areas. Developing these skills can help individuals build basic budgeting habits, better manage unexpected expenses, and save for significant future purchases such as homes, cars, or land (Widjaja et al., 2020).

In addition to fostering knowledge of insurance and pension products that support financial inclusion (SarpongKumankoma, 2023; Xu et al., 2022; Hasan et al., 2021; Grohmann et al., 2018), financial literacy also

emphasizes the importance of responsible debt repayment, which benefits both community well-being and the broader economy. A variety of factors shape financial literacy. Social and demographic influences are considered the most significant, whereas technical and Islamic factors have received relatively little attention (Rehman & Mia, 2024). They also note that, although recent studies have primarily overlooked psychological and cultural factors, these elements remain essential in shaping financial literacy. Future investigations should integrate these factors to gain a more comprehensive understanding, as the present findings suggest. The analysis shows that there is no universally accepted framework for the determinants of financial literacy.

Despite the advantages of financial literacy, a significant portion of the world's population still lacks fundamental financial knowledge (Anshika & Singla, 2022; Goyal & Kumar, 2021; Santini et al., 2019; Garg & Singh, 2018). Although financial education programs can enhance understanding (Bayar et al., 2020; Nguyen & Nguyen, 2020; Lursadi, 2019; Wagner & Walstad, 2019), researchers emphasize that education alone is not enough to eliminate financial illiteracy (Carpena et al., 2019; Dewi, Febrian et al., 2020; Boehnke et al., 2018).

Researchers have highlighted that offering financial education globally can be an effective way to boost financial literacy (Bayar et al., 2020; Nguyen & Nguyen, 2020; Carpena et al., 2019; Mabula & Han, 2018). Battersby (2020) notes that the type of institution where individuals save also influences their financial literacy and saving habits. Beyond knowledge, financial attitudes and behaviors are essential for promoting literacy, as Carpena and Zia (2020) argue that these factors are key in making prudent financial decisions. This is further supported by the 2022 ESG Country Card from Home Credit Philippines, which highlights a substantial financial literacy gap among Filipinos, limiting their ability to manage their finances effectively, make informed decisions, and mitigate financial risks.

The organization emphasized the importance of enhancing financial education, as a significant number of people lack the necessary knowledge and expertise to make informed financial decisions. As Van der Cruijsen et al. (2021) highlight, individuals with greater financial literacy are more adept at understanding insurance, retirement planning, and financial institutions, which enables them to achieve long-term economic success. As noted by Yeh et al. (2021), overestimating one's financial literacy can diminish its benefits, often resulting in inadequate retirement planning and poor investment decisions. Officially known as Region XI, the Davao Region makes a significant contribution to the country's economic and developmental landscape. Comprising five provinces—Davao de Oro, Davao del Norte, Davao del Sur, Davao Oriental, and Davao Occidental—the region has demonstrated notable economic growth and resilience. In 2023, the economy grew by 6.7%, surpassing the trillion-peso mark, underscoring the importance of financial literacy, including the avoidance of predatory loans and establishing emergency savings. The services sector contributed 60.9% of the region's output (Philippine Statistics Authority, 2024). Financial literacy has long been recognized as a crucial component of financial education and a key factor in achieving better financial well-being (Kwabena et al., 2024). It is assumed that as financial responsibilities shift more toward individuals in increasingly complex economic landscapes, improved financial literacy will lead to better decision-making and more favorable financial outcomes for individuals and their communities (Warmath & Zimmerman, 2019).

Financial literacy has been measured in many studies using a range of evaluation methods. Rieger (2020) notes that these measures are generally only loosely linked, revealing a critical research problem that is commonly overlooked. While primarily examining stock investment decisions, Rieger's study recommended a composite approach using two distinct variables, offering a potential advancement over traditional techniques. Although Rieger mainly focused on stock investment choices, his study suggested using a composite strategy with two different variables to enhance current techniques. Likewise, Lyons (2021) highlighted that, despite multiple efforts, there remains no universally recognized definition or method for evaluating financial literacy.

To evaluate financial literacy among G20 nations—which include the US, Canada, Germany, India, and Australia—the Organization for Economic Co-operation and Development (OECD) has introduced a standardized tool through a questionnaire. To facilitate cross-national comparisons, this toolkit aims to collect relevant indicators of financial literacy, inclusion, resilience, and holistic financial well-being in each country. The three main components of digital financial literacy—behavior, attitudes, and knowledge—are assessed by

the questionnaire's items. Nonetheless, it is specifically designed to gather information from industrialized countries, particularly those that are G20 members (OECD, 2022). Its application in developing nations may be limited by its failure to consider geographic and cultural factors adequately.

Most people in Nepal's agrarian economy lack literacy; hence, the issue of financial literacy remains out of context. These rural residents' strength has been agri-cooperatives, which rely primarily on non-profit groups for support. However, considering that most of its executive members lack financial literacy or are financially illiterate, the viability of cooperatives may be at risk once external technical assistance is withdrawn. Understanding the basic economic concepts required to make informed choices about savings and investments depends on financial literacy. To evaluate financial literacy in Nepali cooperatives, Aryal and Panta (2015) used this measure. Although the findings were positive, the study was restricted to executive members of seed-selling cooperatives and may not be representative of all cooperatives in Nepal. Additionally, the research highlights that financial literacy could vary by location, as the study was limited to cooperatives in the country's hilly regions.

To measure financial literacy among Indonesian lecturers, Dewi et al. (2020) developed a self-assessment tool encompassing eight key areas: behavior, decision-making, goal-setting, capability, skills, subjective knowledge, experience, and awareness. The analysis reveals a significant correlation between financial literacy and financial expertise. To evaluate this experience, the study examined whether lecturers had undertaken activities such as saving with alternative financial institutions, participating in the stock market, managing personal assets, tracking expenditures, and maintaining contingency savings. These results are considered beneficial for academic administration; however, it is essential to acknowledge that samples from different regions may not be directly comparable or applicable to this tool. Through multiple initiatives across Asia, the ACCU works to improve financial literacy among credit union members (ACCU, 2025). Findings from the NATCCO Network's (2025) ACCESS tool revealed that members possessed sufficient skills in borrowing, saving, and basic numeracy. Yet, a significant difference remained between what they knew in theory and how they applied it in real-life financial situations.

A recent survey in Cateel, Davao Oriental, found that many cooperative members exhibited a satisfactory level of financial literacy, especially in areas such as borrowing, saving, and basic numeracy. However, the study also revealed a significant gap between members' theoretical understanding of financial concepts and their ability to apply them in practice. Even though respondents participated in financial literacy orientations and training sessions offered by their cooperatives, many still faced challenges in managing loan repayments, preparing budgets, and saving money effectively. This difference suggests that while financial education programs have increased awareness, they have not yet translated into meaningful changes in how people manage their finances (Mendez, Lintogonan, and Antenorio, 2023).

All models of financial literacy share three broad dimensions: financial behavior (FB), financial attitude (FA), and financial knowledge (FK). Together, these dimensions enable individuals to make informed decisions and achieve financial well-being. Atkinson and Messy (2012) developed this framework under the OECD/INFE, noting that "financial literacy is measured in terms of knowledge, behavior, and attitudes."

In 2022, a study by Navarro and Murcia examined the financial standing of borrowers from various microfinance organizations in Digos City, providing a new perspective on the local economic landscape. The study found three key factors—financial resilience, investment discipline, and debt freedom—that were significantly correlated and satisfied the requirements for internal consistency. These components were identified as key to supporting borrowers' financial stability. However, it is essential to recognize that the study's research instrument was designed exclusively for microfinance institutions. In the Theory of Planned Behavior, a person's intention to act depends mainly on their attitude toward that specific action. In the area of financial planning and debt management, this reflects individuals' beliefs and evaluations of the pros and cons of managing money and debt. Khan (2024) emphasizes that attitude has a direct impact on investment intentions. These results are corroborated by research from She et al. (2023), Shih et al., and Pandurugan and Shammakhi (2024). In this field, Albert

Bandura's Social Cognitive Theory plays a vital role, stressing the importance of self-efficacy in explaining how people manage debt and plan their finances.

As defined by Bandura (1997), self-efficacy refers to the belief in one's ability to carry out the necessary actions to face future challenges. This belief plays a central role in guiding decision-making, effort, and persistence. Within SCT, individuals with higher financial self-efficacy tend to make prudent investment decisions, manage debt effectively, and maintain regular saving habits. According to Bandura, self-efficacy—the conviction that one can perform the actions required to handle future circumstances—has a substantial influence on people's decision-making, effort, and capacity for perseverance in the face of adversity (Bandura, 1997). According to Social Cognitive Theory (SCT), individuals with a high level of financial self-efficacy are more likely to practice prudent investment, debt management, and saving.

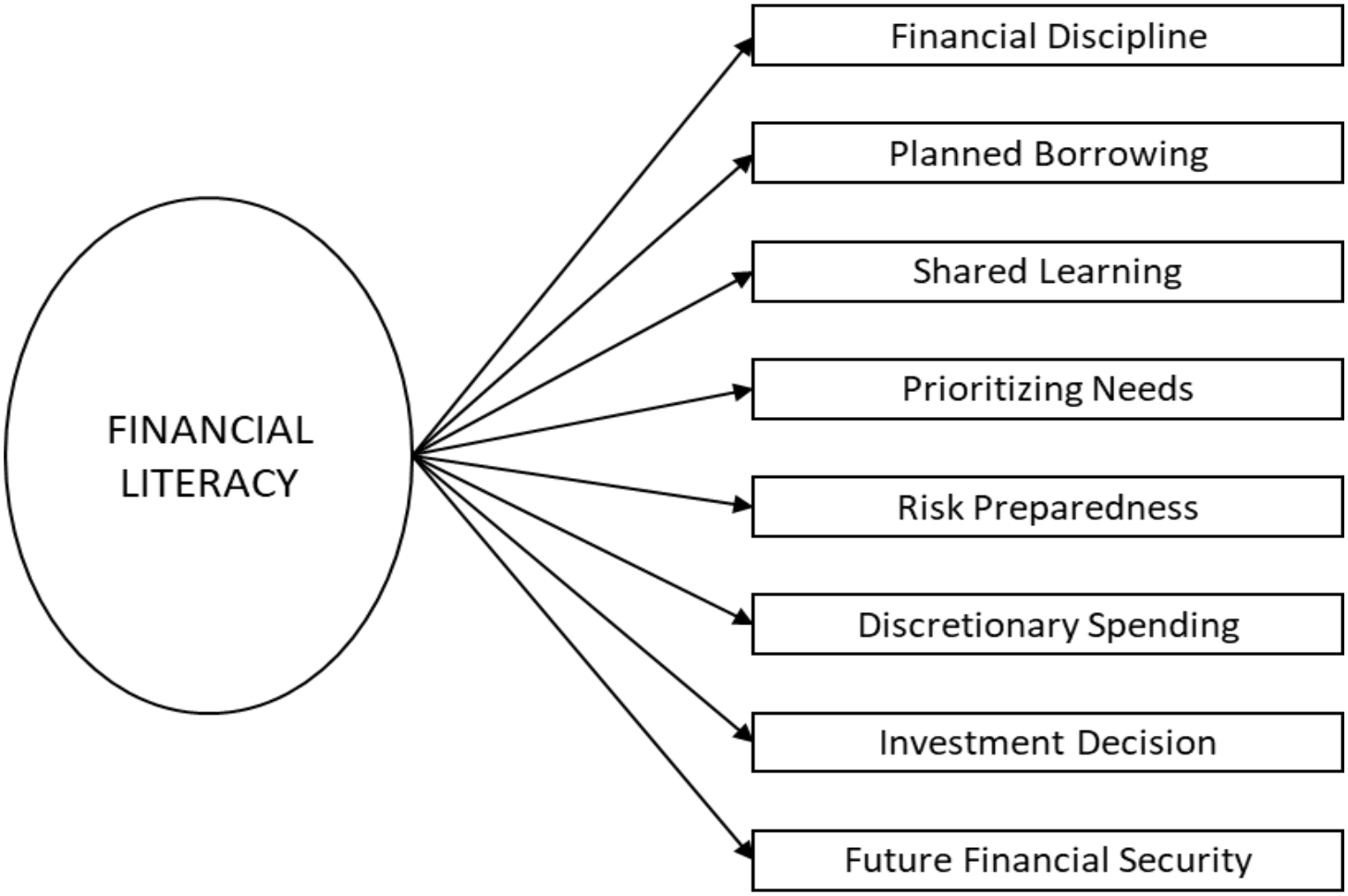

Figure 1. Loaded Factors after the Exploratory Factor Analysis Conducted

The diagram depicts the results of an exploratory factor analysis (EFA) conducted on financial literacy, which produced eight dimensions: financial discipline, planned borrowing, shared learning, prioritizing needs, risk preparedness, discretionary spending, investment decisions, and future financial security.

This study aims to bridge gaps in current models by integrating additional elements discovered through exploratory analysis to create and validate a financial literacy assessment tool for cooperative members in Region XI. The purpose of the tool is to provide a solid foundation for specialized training programs, enable members to make sound financial decisions, and enhance the sustainable development of cooperatives in the region. The study focuses on three main objectives: (1) identifying the core financial literacy factors relevant to cooperative members in Region XI, (2) developing a financial literacy scale for savings and credit cooperatives, and (3) validating the resulting scale.

The World Bank (2022) asserts that it is key to combating extreme poverty and enhancing inclusive prosperity. In the same vein, the United Nations Capital Development Fund (UNCDF) highlights its role in supporting the creation of opportunities and promoting fair economic growth, thereby contributing to the achievement of the SDGs by 2030. By highlighting key factors that can inform policy-making and the implementation of capacitybuilding programs, this study aims to help cooperatives tackle financial management challenges while contributing to SDG Goal 1: No Poverty. By examining these critical factors, the study seeks to enhance financial literacy programs and assist cooperative members in developing the competencies necessary for long-term financial security and sustainability. In line with SDG Goal 4: Quality Education, this study aims to enhance financial management by offering accessible, high-quality education with a focus on financial literacy, promoting lifelong learning, and fostering confident financial decision-making. Ultimately, this study aims to empower cooperative members, enhance their financial and economic resilience, and foster inclusive growth within the cooperative sector. Moreover, the study seeks to support cooperative members in low-income communities who utilize cooperatives for savings, loans, and livelihood activities, but face challenges in financial management. Enhancing their financial literacy and money management skills can help individuals make informed financial decisions, reduce debt, and plan for a more secure future. In addition to supporting their families, this will also benefit nearby companies and contribute to the neighborhood's finances. By identifying critical elements that can guide cooperative leaders in formulating policies and implementing capacity-building programs, this study aims to address financial management issues in alignment with SDG Goal 1: No Poverty. The study aims to enhance financial literacy initiatives and equip cooperative members with the necessary skills for financial stability and long-term sustainability by examining these key elements. This study also aims to address financial management challenges in alignment with SDG Goal 4: Quality Education by delivering inclusive and high-quality education with a strong focus on financial literacy, enabling lifelong learning and confident financial decision-making. Ultimately, this study will contribute to the empowerment of cooperative members, nurturing economic resilience and promoting inclusive growth within the sector.

The study's final findings will provide a foundation for subsequent research on financial literacy among cooperative members, supporting researchers in conducting both exploratory and confirmatory factor analyses. The findings of this study will contribute theoretical references and literature that can assist future researchers in both scholarly and non-scholarly endeavors.

MATERIALS AND METHODS

Research Respondents

Using both qualitative and quantitative analysis, this exploratory research project sought to answer the study's research questions.

Qualitative Phase

In-depth, one-on-one interviews were conducted with three key personas of Tagum Cooperative - Board of Director, Manager and Member. The insights gathered from these interviews served as the basis for developing the statements for the quantitative phase of the study. They were chosen in accordance with the goals of the study given that they offered insightful information about the critical role that financial literacy plays among cooperative members. The results of Guest, Bunce, and Johnson (2006), who suggested that interviewing three to five persons can be used as a starting point to evaluate the validity of the research, are consistent with this methodology.

Participants in this study had to meet the qualifying requirements of Savings and Credit Cooperatives in Region XI, namely those in the provinces of Davao de Oro, Davao del Norte, Davao del Sur, and Davao Oriental, in order to be eligible, and Davao Occidental, where the Savings and Cooperatives, such as Panabo Multipurpose Cooperative (PMPC), King Cooperative (KC), Samulco Multipurpose Cooperative, and Nabunturan Integrated Cooperative (NICO) are also situated. Following Creswell and Creswell (2018), this study defines its boundaries

through delimitations. Non-members in good standing (non-MIGS) and cooperatives that are not primarily savings and credit in nature were excluded from this study.

Quantitative Phase

In this study, two rounds of surveys were administered to respondents who met specific criteria: they had to be of legal age and in good standing as members of the selected Savings and Credit Cooperative. Printed questionnaires were distributed to eligible members resulting in 415 responses for the Exploratory Factor Analysis (EFA). After completing the EFA, a new round of printed questionnaires was distributed to other cooperatives, yielding 425 responses for the Confirmatory Factor Analysis (CFA).

Sample sizes were determined in line with established literature, considering the rule of thumb and item-toresponse ratio (White, 2021, p. 2; Hair et al., 2019, p. 633; Wolf et al., 2013, p. 10). Stratified sampling ensured that participants adequately reflected the composition of the target population. As McLeod (2015) notes, a population can be described based on characteristics relevant to the study's objectives. The final sample size was calculated by dividing the total number of items in the validated instrument by its overall count.

Materials and Instruments

Two key methods were employed in this study to collect data: surveys and personal interviews. The instruments were specifically designed to assess respondents' perceptions and the variables that influence their financial literacy.

Qualitative Phase

The interview guide was reviewed and validated by a team of experts to ensure it supported the study's objectives. The qualitative data were analyzed using a combination of manual coding and thematic analysis, following the guidelines outlined by Saldaña (2021). The transcripts from the interviews were coded, with essential sections highlighted to record participants' responses, and the codes were subsequently organized into potential themes. Thematic analysis was conducted using Braun and Clarke's (2006) six-phase framework to ensure the study maintained methodological rigor. The process began with immersing in the data to gain a thorough understanding, followed by generating initial codes to capture significant features. Next, potential themes were identified and carefully reviewed to ensure they accurately represented the data. Each theme was then clearly defined and named, and the findings were compiled into the final report. This systematic approach provided a detailed, trustworthy, and transparent analysis of the qualitative data, ensuring that the insights drawn were both credible and well-grounded. The questionnaire was assessed by experts and achieved an average rating of 4.3, demonstrating excellent reliability for the survey items.

Quantitative Phase

The reliability assessment resulted in a Cronbach's alpha of 0.807. As indicated by Hair, Black, Babin, Anderson, and Tatham (1998), a value of 0.70 or higher is widely accepted as the minimum standard for an instrument to be considered reliable. A 5-point scale was used to assess responses. A score of 5 means "Strongly Agree," reflecting very strong agreement, 4 means "Agree," 3 indicates "Neutral," 2 represents "Disagree," and 1 corresponds to "Strongly Disagree," showing very low agreement.

Design and Procedure

A sequential exploratory design was adopted for this research, combining elements of both qualitative and quantitative methods.

Qualitative Phase

Qualitative approaches are first used to establish the constructs, followed by validation through quantitative methods, in line with Creswell and Plano Clark (2018). According to DeVellis (2017), this methodological design is especially suited for the rigorous process of developing and validating measurement instruments.

Quantitative Phase

This stage involves validating and testing the constructs and indicators identified during the qualitative phase using quantitative techniques. A structured questionnaire, developed from these statements, is administered to a broader sample of cooperative members to confirm reliability.

Figure 2 depicts the phases followed in the development and validation of the scale. The study started with a thorough desk review, examining theoretical studies and relevant literature to identify prior research on the effects of financial literacy. Manual coding and thematic analysis were then applied to refine the factor structure, followed by Exploratory Factor Analysis (EFA) for scale development. Finally, construct validity and Confirmatory Factor Analysis (CFA) were performed to validate the final scale model.

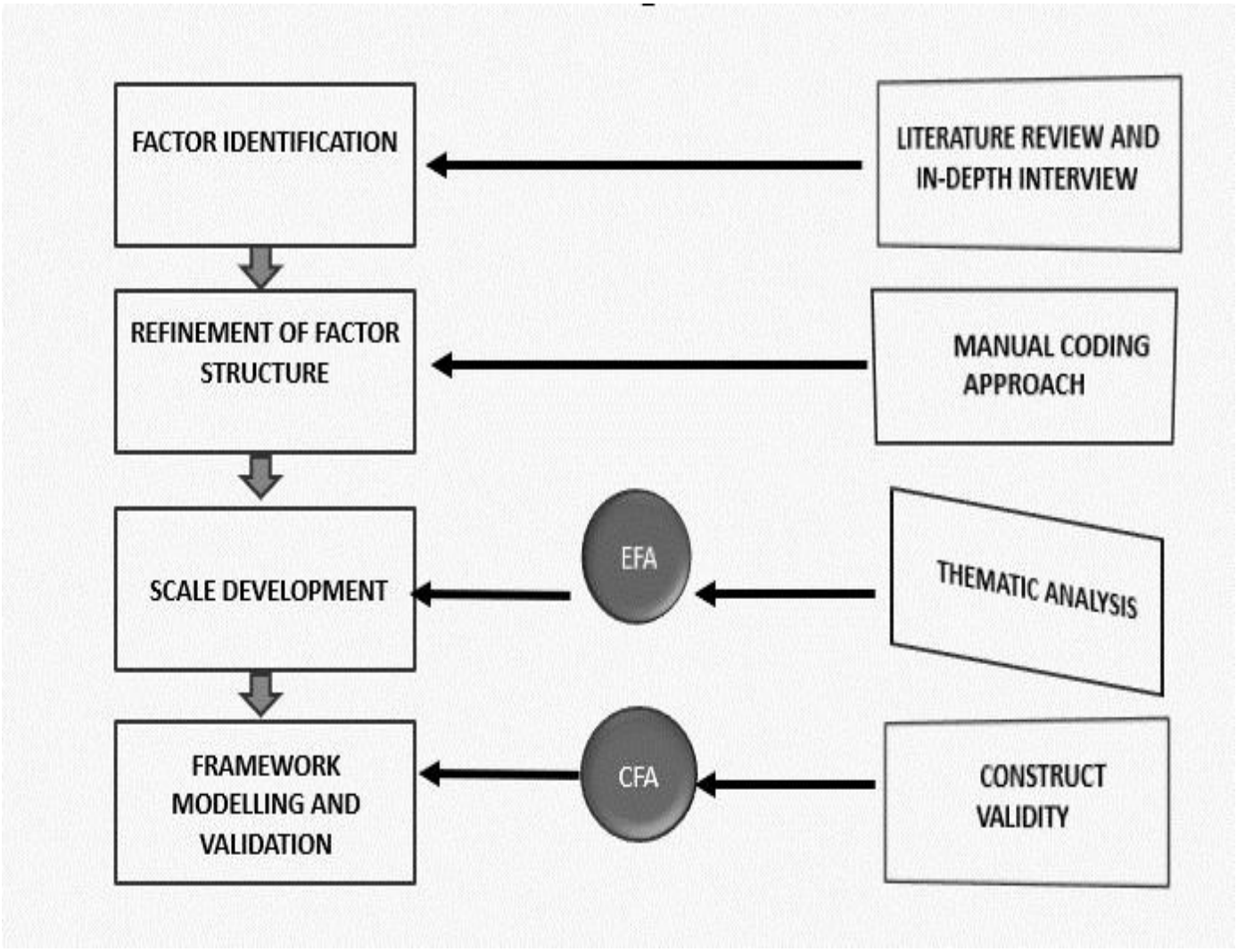

Figure 2. The Scale Development and Validation Process

Data Collection Procedure

Before initiating data collection, the researcher sought and obtained approval from the course facilitator, the research adviser, and the members of the advisory committee. Their input, including feedback, suggestions, and any recommended revisions, was carefully considered, and formal clearance was granted for the presentation of

the research proposal. Ethical approval was also obtained from the University of Mindanao Ethics Review Committee (UMERC), under protocol number UMERC-2025-012, before conducting the in-depth interviews. Furthermore, informed consent was obtained from all three participants to ensure that their involvement was voluntary and that they fully understood the objectives and scope of the study.

Additionally, an approval letter was formally transmitted to the head of the cooperative's office engaged in the quantitative phase, as well as to the Chief Executive Officers of the selected Savings and Credit Cooperatives in the region, to obtain institutional consent and support for the research.

Qualitative Phase

The study initiated with desk research, examining theoretical studies and relevant literature to identify prior research on the impact of financial literacy. After this, qualitative data were collected through individual interviews with participants. The item statements were generated and validated using thematic analysis, following Braun and Clarke's (2006) six-phase framework for thematic analysis. This framework provides a clear and systematic procedure for analyzing and reporting patterns in qualitative data. The six phases included: (1) familiarization with the data and transcription, (2) generating initial codes, (3) searching for themes, (4) reviewing the identified themes, (5) defining and naming each theme, and (6) compiling the final report.

From the in-depth interviews, an initial set of 200 items was created. Through a systematic reduction process, the number of items was narrowed down to 80 and ultimately refined to 55 by combining items that conveyed similar ideas.

Quantitative Phase

In the quantitative portion of the study, the researcher applied both Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA). EFA was conducted first to establish the survey's framework, using Bartlett's test of sphericity to check factorability and the Kaiser-Meyer-Olkin (KMO) index to determine the adequacy of the sample. The KMO index serves as a metric for assessing sample adequacy, comparing observed and partial correlations to confirm whether the data are appropriate for consolidation into factors. This metric ranges from 0 to 1, with a minimum value of 0.6 recommended for satisfactory factor analysis; however, values closer to 1 are preferred. The study confirms the dimensionality and reliability of the constructs using Principal Component Analysis (PCA), focusing on an Eigenvalue of at least 1.0. In EFA, loadings of 0.40 or above are typically considered acceptable, as they show that an item meaningfully contributes to a factor. Items below this threshold are usually removed to improve the scale's validity and reliability (Costello & Osborne, 2005; Field, 2018; Hair et al., 2019). Cattell's scree plot was used to visually represent the factors, while the latent root criterion guided the determination of the number of dimensions.

The researchers applied these parameters to explore the main factors that define cooperative members. The identified dimensions of financial literacy were then categorized, with all items organized according to their specific characteristics within a cohesive framework. Confirmatory Factor Analysis (CFA) was conducted to identify which dimensions of financial literacy have the most decisive influence on cooperative members. For the model to be deemed acceptable, it is essential to achieve favorable values for the chi-square relative to the degrees of freedom (CMIN/df), as well as the Goodness of Fit Index (GFI), Tucker-Lewis Index (TLI), and Comparative Fit Index (CFI) to validate the final model of the scale.

A CMIN/df ratio of 3.0 or lower is generally considered acceptable, as it serves as a key indicator of how much removing one or more methods affects the model's fit to the data (Hair et al., 2019). A GFI value exceeding 0.95 indicates an excellent model fit, reflecting the proportion of the variance-covariance matrix that the model successfully accounts for and explains. The Tucker-Lewis Index (TLI) indicates the degree to which the chisquare statistic changes between two models compared to the chi-square of the independent model, with a value of 0.95 or higher considered ideal (Hair et al., 2019). The CFI, with a benchmark of 0.95, indicates how much better the evaluated model fits the data compared to a model assuming no relationships among variables. Evaluating model fit typically involves both the CFI and RMSEA, with values above 0.90 for CFI and below

0.05 for RMSEA considered acceptable. The null hypothesis that the RMSEA equals 0.05 is tested using the PCLOSE one-tailed test. Hu and Bentler (1999) support adopting slightly more flexible cutoffs when appropriate. An RMSEA cutoff of 0.06 is suggested, while a more stringent CFI threshold of 0.95 or higher is recommended. The model fit may be deemed "close" if the $\chi 2$ p-value is not statistically significant ($p > 0.05$) (Kenny 2024). To pinpoint the key factor of financial literacy within the cooperative context, the researcher applied these parameters. Among the three models analyzed, model four was deemed the best fit because it satisfied the predefined evaluation criteria. Participants were thoroughly informed about the study's purpose, design, and any potential risks, ensuring their participation was both voluntary and fully informed. Data confidentiality was strictly maintained through anonymization and secure storage. Names of Savings and Credit Cooperatives were shared only with explicit consent, and all results were presented in summary form.

Following the implementation of the Data Privacy Act of 2012 in the Philippines, ethical clearance was granted by UMERC. Participants were explicitly informed that they could withdraw from the study at any point without any repercussions. The survey and interview questions were designed to minimize discomfort, and participants were free to skip any items that made them feel uneasy. To ensure the study remained unbiased and ethically sound, the researcher disclosed all connections with the cooperative. In addition to offering valuable insights into financial literacy, the study ensured the validity of its conclusions by strictly adhering to ethical standards and protecting the rights of participants. The study not only offered valuable insights into financial literacy but also ensured the credibility of its findings by upholding ethical standards and respecting the rights of all participants.

RESULTS AND DISCUSSION

This section provides a detailed account of the results and the analysis drawn from the participants' responses. It outlines the key dimensions that shape financial literacy within the Savings and Credit Cooperatives in Region XI and presents the confirmatory factor analysis supporting these findings.

Dimensions of financial literacy of members of the Savings and Credit Cooperative

The following section outlines the analytical framework used in the study, which incorporates Bartlett's test of sphericity and the KMO measure. In addition to assessing latent roots, Cattell's scree plot is used to examine the data visually. Principal component analysis is also applied, with a rotated component matrix employed to clarify the underlying patterns within the dataset.

Table 1. Sampling Adequacy and Multi-dimensionality

Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.97
Bartlett's Test of Sphericity	Approx. Chi-Square	17568
	df	1485
	Sig.	0

Kaiser-Meyer-Olkin Index of Sampling Adequacy. Table 1 provides the outcomes of Bartlett's test of sphericity and the KMO measure. The EFA reported a KMO score of 0.963, which exceeds the minimum requirement of 0.60 significantly. This result indicates that the sample is representative of the population being examined (Kaiser & Rice, 1974). In turn, it confirms that the dataset is fit for factor analysis.

Bartlett's Test of Sphericity. The Bartlett's test of sphericity has a significant p-value with less than 0.05, indicating that the correlation matrix and the variables are sufficiently correlated for factor analysis. It indicates

that the test value is statistically significant (17567.98) with a degree of freedom (df) of 1485 and a significance level of 0.00 (Jones et al., 2021).

Latent Roots Criterion. The total variance explained outlines the Eigenvalues of each factor and the amount of variance they account for, helping to interpret the results. As presented in Table 2, nine factors were identified from the items included in the analysis, based on the latent root criterion. Table 2. Total Variance Explained Table 2. Total Variance Explained

Factor	Initial Eigenvalue	% of Variance	Cumulative %
1	25.582	46.512	46.512
2	2.552	4.641	51.153
3	2.19	3.981	55.134
4	1.622	2.95	58.084
5	1.42	2.583	60.666
6	1.259	2.289	62.956
7	1.16	2.109	65.065
8	1.027	1.868	66.933
9	1.011	1.838	68.771

Together, these nine dimensions explain 68.711% of the total variance in the dataset. The first factor has an initial eigenvalue of 25.582 and accounts for 46.512% of the variance. The second factor exhibits an eigenvalue of 2.552, accounting for 4.641%. The third factor has an eigenvalue of 2.19, explaining 3.981% of the variance. The fourth factor records an eigenvalue of 1.622, accounting for 2.95%. The fifth factor has an eigenvalue of 1.42, representing 2.583% of the variance. The sixth factor, with an eigenvalue of 1.259, explains 2.289%. The seventh factor shows an eigenvalue of 1.16 and contributes 2.109%. The eighth factor has an eigenvalue of 1.027, accounting for 1.868% of the variance. The ninth factor has an initial eigenvalue of 1.011, which corresponds to 1.838% of the variance. Taken together, all nine factors account for 68.77% of the total variance in the dataset.

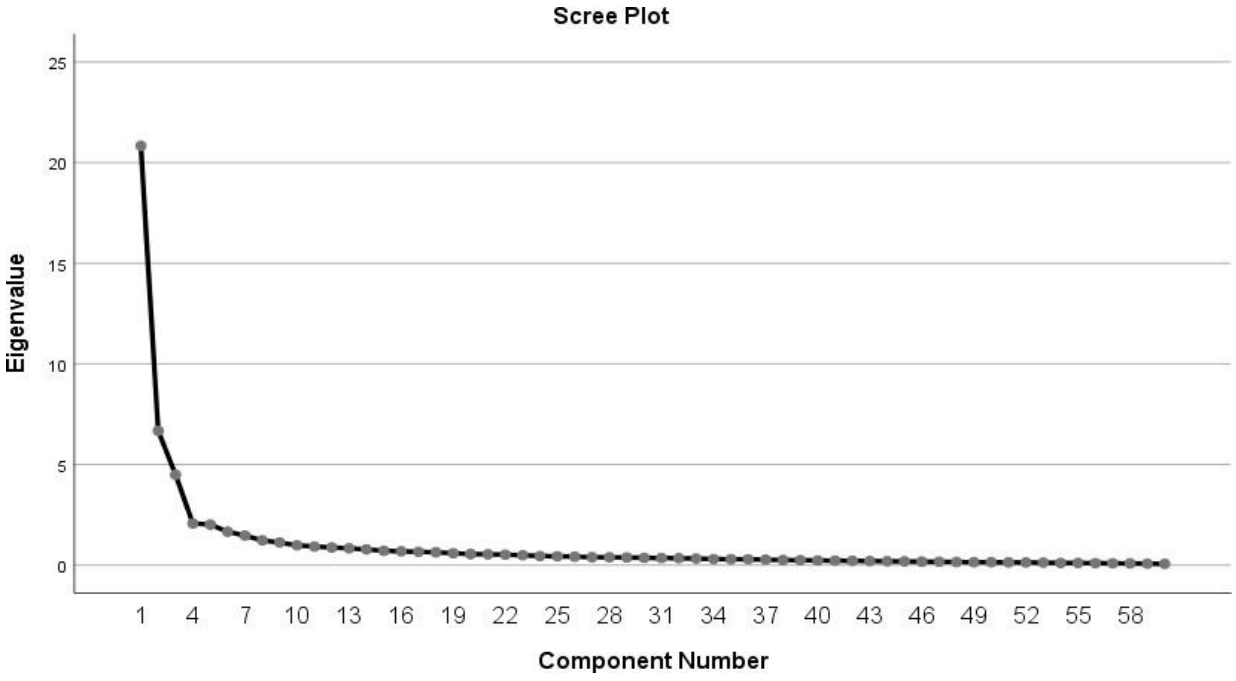

Figure 2. Scree Plot Showing the Extracted Factor

Cattell's Scree Plot. In the Cattell scree plot, the graph shows components along the X-axis and their corresponding eigenvalues along the Y-axis. Cattell's scree test indicates that when the curve levels off and forms an "elbow," all components after this point, including the one at the beginning of the elbow, should be ignored. As illustrated in Figure 2, eight (8) parameters must be considered before the trajectory becomes predominantly straight. Upon examining all elements with eigenvalues of 1.00 or greater, we identified eight (8) key drivers of financial literacy in Savings and Credit Cooperatives in the Davao Region.

Table 3. Rotated Component Matrix Showing Factor Loadings of Items in Extracted Dimensions via VARIMAX Rotation

	Factor Loading								
ITEM	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
Item 6	0.715								
Item 3	0.706								
Item 5	0.702								
Item 7	0.665								
Item 8	0.654								
Item 9	0.648								
Item 4	0.638								
Item 10	0.638								
Item 1	0.629								
Item 2	0.611								
Item 11	0.562								
Item 18		0.707							
Item 20		0.702							
Item 19		0.636							
Item 21		0.63							
Item 22		0.617							
Item 34		0.525							
Item 33		0.514							
Item 17		0.504							

Item 23		0.494							
Item 37		0.484							
Item 35		0.465							
Item 39			0.706						
Item 41			0.666						
Item 40			0.637						
Item 38			0.575						
Item 42			0.555						
Item 36			0.457						
item 52				0.632					
Item 54				0.631					
Item 53				0.612					
item 55				0.571					
item 51				0.517					
Item 25					0.725				
Item 26					0.706				
Item 24					0.609				

Item 27					0.571				
Item 28					0.501				
Item 29					0.472				
Item 31						0.723			
Item 30						0.646			
Item 32						0.555			
Item 47						0.43	0.425		
Item 44							0.669		
Item 45							0.658		

Item 43							0.588		
Item 46							0.52		
Item 14								0.673	
Item 13								0.672	
Item 15								0.564	
Item 12								0.499	
Item 16								0.452	
Item 48									0.736
Item 49									0.731
Item 50									0.626
	Extraction Method: Principal Component Analysis.								
	Rotation Method: Varimax with Kaiser Normalization.								
	a) Rotation converged in 11 iterations.								

Rotated Component Matrix. Table 3: The factor loadings of the observed variables were examined using principal component analysis to determine the underlying factor structure. To maintain the reliability of the analysis, items with loadings below 0.40 were excluded, while loadings above this threshold were considered significant, especially given that the sample size exceeded 300 (Hair et al., 2019). After conducting the exploratory factor analysis, the researchers identified 55 items, which were organized into nine distinct factors representing the financial literacy of members in Savings and Credit Cooperatives in Region XI. Factors containing fewer than three items were removed to maintain robustness (Fuentes & Gono, 2023; Romero & Gono Jr., 2021; Gono Jr., 2024; Gono Jr. & Pacoy, 2021; Gono & Sales, 2024). The analysis consisted of 11 iterations, based on patterns observed among items within each group. Ultimately, 52 of the 55 items were retained, forming eight factors.

The identified factors, or dimensions, were then named based on the shared features and the nature of the items comprising each factor, as follows: (1) Financial Discipline, (2) Planned Borrowing, (3) Shared Learning, (4) Prioritizing Needs (5) Risk Preparedness, (6) Discretionary Spending, (7) Investment Decision (8) Future Financial Security. These items have factor loadings below the cut-off of ±0.40. Villarba and Moyon, as cited in Hair et al. (2019), note that when the sample size exceeds 300, a factor loading of 0.40 or higher is considered significant, thus serving as the cutoff point for retaining items in factor analysis. Factor nine (9), Debt Management Plan, was not considered in this research because it consisted of only three developed items. In EFA/Confirmatory Factor Analysis (CFA), factors with less than three items are deemed weak and unstable (Haie et al., 2019).

Factor Correlations. Presented in this section are the results and analysis of the factor correlations, which show the magnitude of correlation among the nine extracted factors.

Table 4. Constructs and Loadings under the First Factor Financial Discipline

Item Number	Item Statements	Factor Loading
Item 6	I live within my means by spending only what I can afford to spend.	0.715
Item 3	I manage my credit by borrowing responsibly and paying on time.	0.706
Item 5	I stay mindful to avoid setbacks that could derail my progress	0.702
Item 7	I borrow responsibly and make sure I fully understand any financial agreement before committing.	0.665
Item 8	I avoid impulse buying and focus on needs over wants.	0.654
Item 9	I avoid overspending to keep my budget balanced.	0.648
Item 4	I track my expenses regularly so I know exactly where my money goes.	0.638
Item 10	I practice financial responsibility by prioritizing saving, regardless of the amount.	0.638
Item 1	I prioritize savings for emergencies to prepare for unexpected situations.	0.629
Item 2	I save a portion of my earnings regularly.	0.611
Item 11	I manage my credit wisely by borrowing only what I can afford to repay	0.562

Factor 1 – Financial Discipline. Table 4: Factor 1 resulted in the extraction of 11 items. Among these, the pattern coefficients ranged from 0.562 to 0.715. The statement "I manage my credit wisely by borrowing only what I can afford to repay" recorded the lowest coefficient at 0.562. At the same time "I live within my means by spending only what I can afford to spend" had the highest at 0.715. All coefficients surpassed the minimum requirement of 0.40. Overall, the 11 items collectively represent the Financial Literacy of Savings and Credit Cooperative members, which is described as "Financial Discipline."

Financial discipline and well-being are closely intertwined. To establish the financial literacy levels, several research studies (Salleh, Kassim, & Kassim, 2019; Maîtrot, 2019; Sangwan & Nayak, 2020; Sangwan, Samanta, & Nayak, 2020) conducted surveys on the practices of financial planning, investing, and paying bills. There is general agreement regarding budgeting, credit card usage, and savings behavior, as well as the concept of maintaining order in the handling of personal funds in all behavioral manifestations.

To properly balance their income and costs, individuals who practice financial discipline are better at creating and adhering to budgets, avoiding overspending, effectively managing their expenses, and pursuing long-termplanning (Chhatoi et al., 2020).

Table 5. Constructs and Loadings under the Second Factor Planned Borrowing

Item Number	Item Statements	Factor Loading
Item 18	I understand how to manage loans responsibly by being aware of interest rates and making informed decisions.	0.707
Item 20	I ensure that I repay what I owe on time to avoid penalties and build trust	0.702
Item 19	I feel and deeper sense of purpose, knowing that my financial contribution contributes to the success and well-being the entire cooperative community	0.636
Item 21	I carefully evaluate every investment to ensure it aligns	0.63
	with my financial goals	

Item 22	I practice responsible borrowing by planning carefully before taking out a loan.	0.617
Item 34	I find that learning the basics of financial management is easier when simple tools and clear step-by-step guidelines are provided.	0.525
Item 33	I understand that cooperative savings are not protected by PDIC, so I take extra care to prepare.	0.514
Item 17	I use the cooperative's savings plan to help me stay financially disciplined.	0.504
Item 23	I actively support the cooperative by saving regularly, investing in capital shares, and using its services.	0.494
Item 37	I list down all my financial obligations to get a clear picture of what I need to pay	0.484
Item 35	I balance my finances while also considering the cooperative's goal and responsibilities	0.465

Factor 2 – Planned Borrowing. Table 5 Factor 2 produced and retained eleven (11) items. The pattern coefficients of these items ranged from 0.465 to 0.707. The pattern coefficient for the specific statement "I understand how to manage loans responsibly by being aware of interest rates and making informed decisions" is 0.707. In contrast, the pattern coefficient for the statement " I balance my finances while also considering the cooperative's goal and responsibilities " is 0.465. The coefficient value of the item exceeds the minimum requirement of 0.40.

The eleven (11) derived items indicate that the Financial Literacy of Savings and Credit Cooperative members can be grouped under the factor "Planned Borrowing." This reflects that members show financial literacy when they approach borrowing with foresight, assessing affordability, repayment ability, interest costs, and loan purpose to ensure responsible financial decisions and long-term stability.

According to the research of Gallo, Minetti, and Aristei (2024), entrepreneurs who possess more financial knowledge are less likely to be deterred from pursuing funding. According to this, financial literacy lessens dependency on unofficial or unfavorable funding sources by assisting people in making more assertive and effective borrowing plans.

Table 6. Constructs and Loadings under the Third Factor Shared Learning

Item Number	**Item Statements**	**Factor Loading**
Item 39	I share financial knowledge with others to help build a financially literate community.	0.706
Item 41	I also consult cooperative staff when I need guidance on savings, loans, or investment options.	0.666
Item 40	I seek advice from experienced members to learn from their financial practices and insights.	0.637
Item 38	I stick to a budget to manage my income and expenses effectively.	0.575
Item 42	I know that with savings and loans, compound interest helps my money grow faster the longer I keep it invested	0.555
Item 36	I actively participate in the cooperative's investment program to help grow my finances.	0.457

Factor 3 – **Shared Learning.** "As shown in Table 6, Factor 3 removed five (5) items. Their pattern coefficients varied between 0.517 and 0.706, with the maximum coefficient recorded for "I share financial knowledge with others to help build a financially literate community" which was 0.706. It was lowest for the statement " I actively participate in the cooperative's investment program to help grow my finance" which was 0.517. The five (5) derived items suggest that the Financial Literacy of members of savings and credit cooperatives attributes or factor structure is titled "Shared Learning" Before and during the COVID-19 pandemic, those with greater financial literacy were more likely to seek the advice of qualified financial advisors (Rabbani, Heo, & Grable, 2021) Financially literate families are more likely to seek advice and information before making important financial decisions, which improves their borrowing and saving habits (Kim et al., 2021; Xu et al., 2022). indicates the financial data that was obtained from colleagues, friends, and classmates (John et al., 2024; Alshebami & Aldhyani, 2022).

Researchers have highlighted that financial literacy can be improved through multiple accessible approaches, including online financial platforms, one-on-one tutorials, consultations with investment experts, public talks, financial awareness campaigns, literacy events, interactive videos and games, workplace training, virtual seminars, practical discussions, social media initiatives, and education at all levels (Ye & Kulathunga, 2019; Amagir et al., 2018).

Table 7. and Loadings under the Fourth Factor Prioritizing Needs

Item Number	Item Statements	Factor Loading
Item 52	I prioritize paying off those loans with the highest interest rates.	0.632
Item 54	I need to stay consistent, be disciplined, and have the right mindset to achieve financial freedom.	0.631
Item 53	I am actively seeking additional sources of income to enhance my financial security.	0.612
Item 55	I receive valuable tools and guidance from the cooperative that contributes to my success.	0.571
item 51	I make sure to prioritize my needs over my wants to stay financially disciplined.	0.517

Factor 4 – Prioritizing Needs. Table 7 indicates that the fourth factor consists of five (5) extracted items. The

item coefficients range from 0.517 to 0.632. The statement "I prioritize paying off those loans with the highest interest rates" recorded the highest loading at 0.632, while the statement "I make sure to prioritize my needs over wants to stay financially disciplined" showed the lowest loading at 0.517. All item coefficients exceed the minimum acceptable threshold of 0.40. These five items collectively define the factor structure labeled "Prioritizing Needs," which reflects an important dimension of financial literacy among members of Savings and Credit Cooperatives.

Most individuals who practice budgeting tend to separate their expenses into needs and wants (Zhang, Thomas, & Garbarino, 2022). Their study shows that people with stronger financial literacy skills are less likely to engage in impulsive or materialistic spending because they can more clearly distinguish between essential and nonessential expenses and prioritize what is necessary (Karnadi & Pangestu, 2020). Similar findings were reported by Saripada et al. (2024), who noted that students with higher levels of financial literacy were more cautious in handling their money and were better able to differentiate needs from wants when preparing their budgets. Xiao (2018) also stressed that helping individuals identify the difference between needs and wants when managing their finances, setting a budget, and making spending choices is a key element of financial literacy education.

Table 8. Constructs and Loadings under the Fifth Factor Risk Preparedness

Item Number	Item Statements	Factor Loading
Item 25	I understand that the loan application process, including background checks, helps assess my financial behavior and reliability.	0.725
Item 26	By participating in surveys and sharing honest feedback, I contribute to efforts that improve financial education for all members.	0.706
Item 24	I participate in surveys, webinars, and seminars offered by the cooperative to assess and strengthen my financial knowledge.	0.609
Item 27	I practice risk management to stay financially prepared for emergencies	0.571
Item 28	I maintain accurate and responsible financial records to manage my cooperative funds	0.501
Item 29	I regularly check my savings and loan passbook to stay updated on my account status	0.472

Factor 5 – Risk Preparedness. Table 8 shows that the fifth factor extracted seven (5) items. The coefficient values of this factor range from 0.472 to 0.725. The statement "I understand that the loan application process, including background checks, helps assess my financial behavior and reliability" had the highest coefficient value of 0.725. In contrast, the statement " I regularly check my savings and loan passbook to stay updated on my account status" had the lowest value of the pattern coefficient, which is 0.472. All the coefficient values fall within the minimum requirement of 0.40. All six (6) items extracted point toward the importance of members becoming financially literate. If risk preparedness is factored in, the impact becomes even more comprehensive. Financial literacy not only covers budgeting, saving, credit management, and understanding interest rates, but also the ability to anticipate and prepare for risks such as emergencies, income loss, economic downturns, or unexpected expenses.

Financial literacy programs greatly enhance people's financial health, particularly when it comes to handling unforeseen financial challenges, according to Shaviro, Gangal, and Frees (2024). Families who have financially savvy members—particularly those who own assets—have substantially more stable spending patterns throughout recessions, claim Bertola and Lo Prete (2024).

Discovering financial resilience and financial literacy are positively correlated. People with greater financial literacy are more likely to be able to save money for emergencies and are less likely to experience economic shocks (Klapper & Lusardi, 2020). Emphasize how financial literacy prepares people to handle possible financial difficulties in later life, such as retirement, medical emergencies, and market swings (Mitchell, Michaud, & Lusardi, 2017).

Table 9. Constructs and Loadings under the Sixth Factor Discretionary Spending

Item Number	Item Statements	Factor Loading
Item 31	I also handle discretionary spending, like travel, with care and intention.	0.723
Item 30	I include giving to charity as part of my financial planning.	0.646

Item 32	I build an emergency fund to protect myself from unexpected financial challenges.	0.555
Item 47	I was able to handle my hospital bills independently without taking a loan.	0.43

Factor 6 – Discretionary Spending. Table 9 shows that the 6th factor extracted four (4) items. The coefficient values of this factor range from 0.43 to 0.723. The statement "I also handle discretionary spending, like travel, with care and intention" had the highest coefficient value of 0.723. In contrast, the statement “I was able to handle my hospital bills independently without taking a loan " had the lowest value of the pattern coefficient, which is 0.43 All the coefficient values fall within the minimum requirement of 0.40. All four (4) items extracted suggest that in financial literacy, discretionary spending also plays an important role in balancing finances. The data gathered revealed that members recognize the importance of discretionary spending in financial literacy. This suggests that participants consider financial literacy as enabling regulated enjoyment in addition to responsibility management, which enhances overall well-being and financial happiness.

A study by Enete, Heckman, and Lawson (2021), found that individuals were more inclined to donate to charity if they had longer financial planning horizons, higher subjective financial knowledge, a higher risk tolerance, and access to emergency cash from friends or family. This information was published in the Journal of Financial Counseling and Planning. One's financial security can be greatly impacted by travel and other discretionary expenses, claims Nizam (2024). A knowledgeable person can balance their goals, effectively manage their budget, and set away money for travel. Financially literate people can carefully manage their trip expenses, match them with more general financial goals, identify opportunity costs, and preserve their financial stability when making discretionary purchases (Mitchell and Hastings, 2019).

Table 10. Constructs and Loadings under the Seventh Factor Investment Decision

Item Number	**Item Statements**	**Factor Loading**
Item 44	I know that dividends are distributed as a return on my investment in the cooperative.	0.669
Item 45	I am confident in investing in a financially strong cooperative.	0.658
Item 43	I take time to study and seek guidance before making any investment decisions.	0.588
Item 46	I make it a habit to increase my savings whenever my income improves.	0.520

Factor 7 – Investment Decision. Table 10 shows that the seventh factor extracted four (4) items. The coefficient values of this factor range from 0.52 to 0.669. The statement "I know that dividends are distributed as a return on my investment in the cooperative" had the highest coefficient value of 0.699. In contrast, the statement "The company looks at the professional growth of the people" had the lowest value of the pattern coefficient, which is 0.651. All the coefficient values fall within the minimum requirement of 0.40. All four (4) items extracted suggest that financial literacy also includes informed investing, which enables members to understand risks and returns before investing, align investments with financial goals, and maximize opportunities such as capital build- up and cooperative products to ensure sound decisions, avoid costly mistakes, and secure long-term financial stability.

According to Rahmiyati and Somodiharjo (2024), the most important indicators of successful individual investment performance are financial literacy and investment decision-making. A study by Seraj, Alzain, and Alshebami (2022) found that financial literacy has a positive and significant impact on investment decisions.

They emphasize that participation in the stock market and financial decision-making is greatly influenced by financial literacy, with higher levels of literacy enhancing confidence in investments (Verma & Baveja, 2024).

Table 11. Constructs and Loadings under the Eight Factor Future Financial Security

Item Number	Item Statements	Factor Loading
Item 14	I set goals for retirement to ensure I have financial security in the future.	0.673
Item 13	I set long-term financial goals and work steadily to achieve them.	0.672
Item 15	I plan and save for education because I value long-term growth and opportunity	0.564
Item 12	I demonstrate financial responsibility by paying my bills on time to avoid penalties and establish a good credit record	0.499
Item 16	I work on establishing a good credit score to improve my access to fair credit	0.452

Factor 8 – Future Financial Security. Table 11 shows the eight-factor analysis yielded five items. The factor loadings ranged from 0.452 to 0.673. The statement, "I set goals for retirement to ensure I have financial security in the future," recorded the highest loading at 0.673, while "I work on establishing a good credit score to improve my access to fair credit" had the lowest loading of 0.452. All loadings exceeded the minimum acceptable threshold of 0.40. All five (5) items suggested that Financial Literacy indicate that Financial Literacy highlights the importance of future financial security, preparing for retirement, securing protection against unexpected risks, and pursuing investments that generate sustainable returns.

Research on retirement preparation in Japan highlights the importance of financial literacy, noting that enhancing financial knowledge generally requires institutional support. Financial literacy is shown to have a significant impact on individuals' financial decision-making. Financial literacy plays a key role in shaping individuals' long-term financial planning, investment choices, and management of savings, underscoring its importance as a foundation of overall financial well-being.

Retirement planning remains one of the largest financial literacy gaps among Filipino workers. Mendoza, Bunda, Pulohanan, et al. (2022), in their study "Financial Literacy and Retirement Planning Among Personnel of a Higher Learning Institution in the Philippines," found that only 13.4% of respondents had a dedicated retirement savings plan. The study underscores the gap between financial knowledge and actual financial practices, especially in long-term financial planning.Financially literate young professionals are better able to adjust their expectations regarding future financial needs, which supports more effective retirement planning and long-term financial stability (Singh, 2020). Individuals with higher financial literacy tend to manage risk more effectively and save more for retirement, whereas those with lower financial literacy are more prone to debt and have smaller retirement savings (Bruegel, 2022).

Confirmatory Factor Analysis

The following discussion centers on the final stage of the scale development process, which involves validating the item statements through confirmatory factor analysis to reflect financial literacy within Savings and Credit Cooperatives in Region XI. Following the guidelines of Hair et al. (2019), the study conducted an iterative model refinement process, testing five successive models to improve both theoretical consistency and statistical fit. The model fit indices were carefully assessed, and this iterative refinement process resulted in a model that achieved an acceptable and parsimonious fit across all five stages.

Table 12. Model Fit Indices Evaluation

	x^2	**X^2/df**	**CFI**	**TLI**	**RMSEA**	**PCLOSE**
Baseline Model	3561.5	2.55	0.862	0.852	0.061	0
Model 1	2305.62	2.77	0.884	0.872	0.065	0
Model 2	1764.36	2.22	0.92	0.91	0.182	0
Model 3	1465	2.28	0.928	0.916	0.055	0.013
Model 4	907	2.31	0.94	0.93	0.056	0.025
Model 5	**504.14**	**2.13**	**0.962**	**0.951**	**0.052**	**0.313**
Acceptable Values	<3.00		0.9	0.9	<0.08	<0.05
Good Fit Values	p<0.05		0.95	0.95	<0.08	<0.05

Table 12 presents the fit statistics from the confirmatory factor analysis (CFA) conducted to validate a financial literacy scale for members of Savings and Credit Cooperatives in Region XI. The reported fit indices include the chi-square (χ^2), the chi-square to degrees of freedom ratio (χ^2/df), the Comparative Fit Index (CFI), the Tucker–Lewis Index (TLI), the Root Mean Square Error of Approximation (RMSEA), and the PCLOSE test for assessing closeness of fit. These indices are widely used in structural equation modeling (SEM) to evaluate the adequacy of a proposed measurement model (Hu & Bentler, 1999; Kline, 2016).

The initial baseline model produced a χ^2 value of 3561.50 and a χ^2/df ratio of 2.55, which falls within the acceptable limit of less than 3.0. However, the CFI of 0.862 and TLI of 0.852 were below the recommended threshold of 0.90, indicating that the model's fit was inadequate. The RMSEA value of 0.061 was within an acceptable range; however, the PCLOSE value of 0.00 indicated that the model did not achieve a close fit, highlighting the need for further adjustments. As adjustments were implemented from Models 1 through 4, notable improvements were observed. The CFI increased from 0.884 in Model 1 to 0.940 in Model 4, while the TLI rose from 0.872 to 0.930. The χ^2/df ratios ranged from 2.22 to 2.31, all well below the 3.0 threshold, and RMSEA values remained between 0.055 and 0.065, indicating an acceptable model fit. However, the PCLOSE values remained low through Model 4, suggesting that although the modifications improved the overall fit, the model had not yet achieved a close fit.

The final model, referred to as Model 5, represented the best fit: $\chi^2 = 504.14$, $\chi^2/df = 2.13$, CFI = 0.962, and TLI = 0.951. Both the CFI and TLI exceeded the recommended threshold of 0.95, indicating a good fit (Hair et al., 2019). Additionally, the RMSEA was 0.052, well below the 0.08 cutoff, further supporting a solid model fit. Importantly, the PCLOSE value of 0.313 surpassed 0.05, confirming that the model achieved a close fit.

These results indicate that the final five-factor structure—comprising Financial Discipline (F1), Planned Borrowing (F2), Shared Learning (F3), Risk Preparedness (F5), and Future Financial Security (F8)—effectively represents financial literacy among members of the cooperative.

Additionally, three factors—Prioritizing Needs, Discretionary Spending, and Investment Decision—were not retained in the confirmatory factor analysis. While previous studies emphasize the significance of these factors,

ISSN No. 2454 -6186 | DOI: 10.47772/IJRISS | Volume IX Issue XI November 2025

the current findings indicate that they may not be as relevant within this specific context. This could be attributed to their limited relevance for members of Savings and Credit Cooperatives, given the diverse nature of the membership and the likelihood that these factors do not reflect their main financial priorities. The literature review revealed that previous studies on financial literacy seldom focused on factors such as prioritizing needs, investment decisions, and discretionary spending. These variables were not highlighted in previous studies, and the current findings also revealed their lack of significance. This suggests that these factors may be contextspecific or underrepresented in current financial literacy frameworks. Future studies should investigate their potential relevance across different settings.

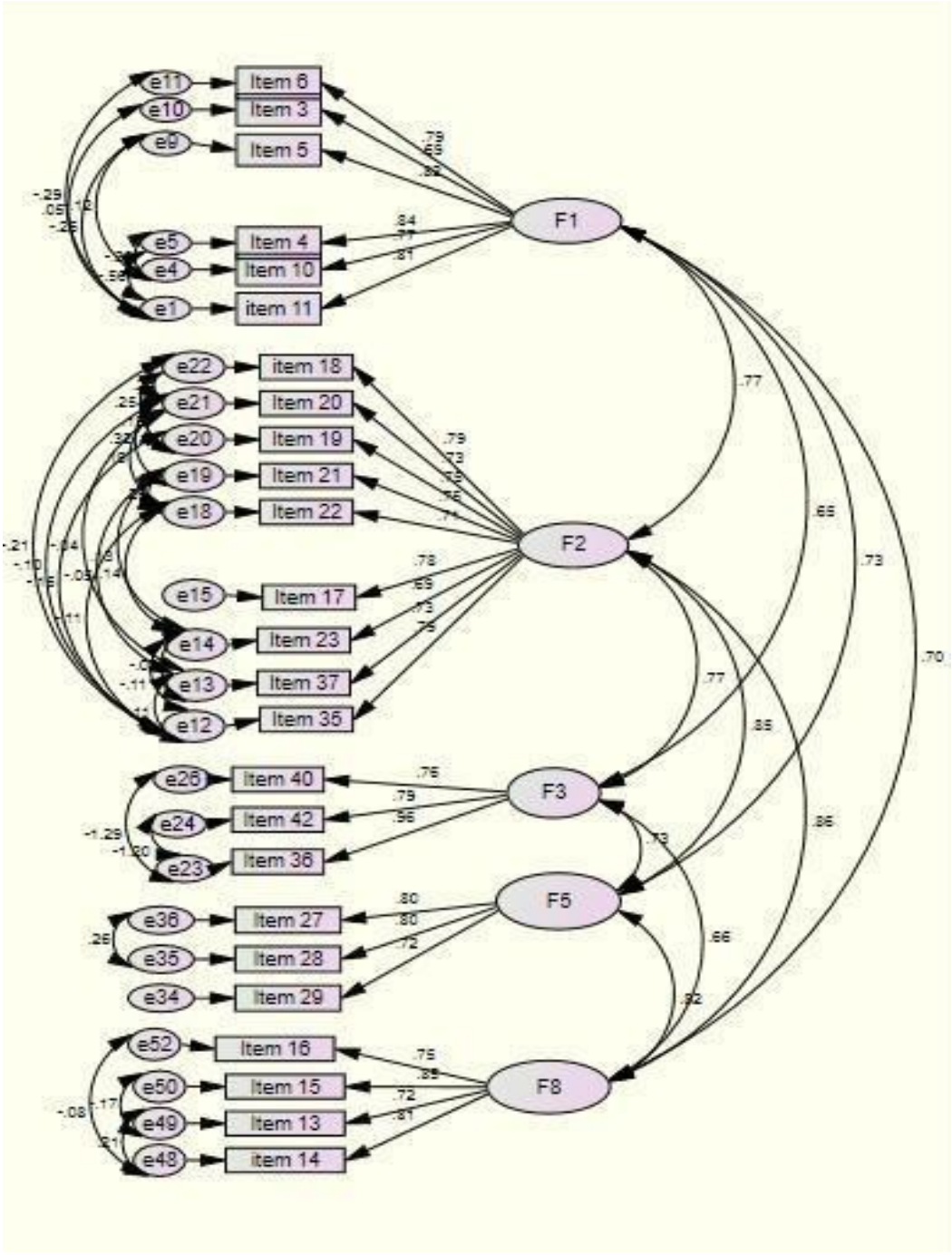

Figure 3. Final Model for Assessing Financial Literacy in Savings and Credit Cooperative Members in Region XI

Legend:

F1 - Financial Discipline F5 - Risk Preparedness

F2 - Planned Borrowing F8 – Future Financial Security

F3 - Shared Learning

This finding suggests that traditional financial literacy models may need to be adapted for cooperative settings, where members typically emphasize financial discipline, planned borrowing, shared learning, risk preparedness, and long-term financial security.

The progression from the baseline model to the final version highlights the importance of iterative refinement in CFA (Figure 3). Each modification addressed misfit issues, resulting in a model that satisfied both absolute and incremental fit criteria. The strong fit indices of the final model provide compelling evidence of its construct validity, supporting the reliability of the financial literacy scale developed for cooperative members in Region XI.

Table 13. Factor loadings for CFA Model 5

		Factor	**Estimate**	**S.E.**	**C.R.**	**P**
item11	<---	F1	1			
Item10	<---	F1	0.953	0.062	15.273	***
Item4	<---	F1	1.179	0.077	15.329	***
Item5	<---	F1	1.01	0.063	16.148	***
Item3	<---	F1	0.959	0.064	15.08	***
Item6	<---	F1	1.069	0.069	15.538	***
Item35	<---	F2	1			
Item37	<---	F2	0.963	0.057	16.96	***
Item23	<---	F2	0.857	0.061	14.073	***
Item17	<---	F2	0.984	0.057	17.256	***
Item22	<---	F2	0.864	0.059	14.636	***
Item21	<---	F2	0.935	0.057	16.262	***
Item19	<---	F2	0.917	0.059	15.425	***
Item20	<---	F2	0.905	0.06	15.031	***
item18	<---	F2	0.976	0.061	15.999	***
Item36	<---	F3	1			
Item42	<---	F3	0.768	0.055	13.963	***
Item40	<---	F3	0.765	0.059	12.889	***

Item29	<---	F5	1			
Item28	<---	F5	1.152	0.078	14.724	***
Item27	<---	F5	1.15	0.079	14.634	***
item14	<---	F8	1			
Item13	<---	F8	0.831	0.049	16.899	***
Item15	<---	F8	1.065	0.057	18.663	***
Item16	<---	F8	0.899	0.056	15.948	***

As illustrated in Figure 3, Factor 1, identified as Financial Discipline, exhibited strong loadings across all six items (Items 3, 4, 5, 6, 10, and 11), ranging from 0.953 to 1.179. These high loadings confirm that the items effectively capture the concept of financial discipline, reflecting consistent behaviors such as managing expenditures and maintaining financial accountability. Similarly, Factor 2, labeled Planned Borrowing, comprised nine items (Items 17, 18, 19, 20, 21, 22, 33, and 34) with loadings ranging from 0.857 to 0.984, indicating a robust measurement of structured borrowing practices among cooperative members. Additionally, Factor 3, Shared Learning, consisted of three items (Items 36, 40, and 42) with loadings between 0.765 and 1.000, highlighting the importance of peer learning and collaborative financial education within cooperatives. Factor 5, Risk Preparedness, included three items (Items 27, 28, and 29) with loadings ranging from 1.000 to 1.152, reflecting a strong emphasis on readiness for financial risks. Factor 8, Future Financial Security, comprised four items (Items 13, 14, 15, and 16) with loadings between 0.831 and 1.065, capturing essential behaviors related to long-term financial planning. All factor loadings were statistically significant ($p < .001$), demonstrating convergent validity and confirming that the observed items align well with their intended constructs. Overall, these results support the factor structure and indicate that the developed scale effectively captures the complex dimensions of financial literacy among members of Savings and Credit Cooperatives in Region XI.

Table 14. Convergent/Discriminant Validity

			Estimate	S.E.	C.R.	P
F1	<-->	F2	0.244	0.024	10.109	***
F1	<-->	F3	0.262	0.026	10.011	***
F1	<-->	F5	0.209	0.023	9.213	***
F8	<-->	F1	0.237	0.024	9.669	***
F2	<-->	F3	0.305	0.028	10.896	***
F2	<-->	F5	0.236	0.024	9.805	***
F8	<-->	F2	0.282	0.027	10.612	***

F3	<-->	F5	0.262	0.026	9.871	***
F8	<-->	F3	0.275	0.027	9.999	***
F8	<-->	F5	0.244	0.025	9.694	***

Table 14 shows the evidence from convergent and discriminant validity assessments analysis for the five-factor model of financial literacy. Convergent validity evaluates how much the indicators of a construct share variance, while discriminant validity ensures that the constructs are distinct from each other (Hair et al., 2019). The results reveal that all factor correlations were positive and statistically significant ($p < .001$), ranging from 0.209 to

0.305.For instance, Financial Discipline (F1) showed significant positive correlations with Planned Borrowing (F2; $r = .244$, $p < .001$), Shared Learning (F3; $r = .262$, $p < .001$), and Risk Preparedness (F5; $r = .209$, $p < .001$), as well as with Future Financial Security (F8; $r = .237$, $p < .001$). Similarly, Planned Borrowing (F2) showed significant correlations with the other four constructs, with the strongest correlation observed with Shared Learning (F3; $r = 0.305$, $p < .001$). These moderate correlations, which are not excessively high, indicate that the factors are related yet distinct, supporting discriminant validity (Kline, 2016).

The results also demonstrate theoretical consistency. For example, individuals with strong financial discipline are more likely to practice planned borrowing and exhibit risk preparedness (Strömbäck et al., 2017). Additionally, collaborative learning among members is positively associated with both planned borrowing and future financial security. This indicates that while the constructs are related in explaining financial literacy behaviors, each represents a distinct dimension of the overall concept rather than overlapping redundantly.

Importantly, none of the correlations between factors reached or exceeded the critical value of 0.85, which would indicate potential multicollinearity or a lack of discriminant validity (Kline, 2016). Rather, the moderate correlations observed provide further support for both discriminant and convergent validity. These results confirm that each latent construct is empirically distinct while contributing meaningfully to the overall understanding of financial literacy.

Table 15. Reliability Coefficients

Sub-scale	**Number of Items**	**Cronbach's Alpha**
Financial Discipline	6	0.89
Planned Borrowing	9	0.92
Shared Learning	3	0.77
Risk Preparedness	3	0.84
Future Financial Security	4	0.8
Total Scale	25	0.96

Table 15 indicates that the Cronbach's alpha values for the subscales and the overall instrument all exceed the 0.70 threshold, demonstrating excellent internal consistency (DataTAB, 2024; Frost, 2022; Forero, 2014). Notably, the total instrument shows exceptionally high reliability ($\alpha = 0.96$), underscoring the strength of the scale in measuring the financial literacy of members of savings and credit cooperatives

Significance of the Model. The final model developed in this study, consisting of five latent constructs—Financial Discipline (F1), Planned Borrowing (F2), Shared Learning (F3), Risk Preparedness (F5), and Future Financial Security (F8)—demonstrated strong fit indices ($\chi^2/df = 2.13$, CFI = 0.962, TLI = 0.951, RMSEA = 0.052, PCLOSE = 0.313). These results underscore the model's robustness and theoretical validity.

Theoretically, this model reinforces the view that financial literacy is a multifaceted construct. It aligns with contemporary perspectives, which suggest that financial literacy encompasses not only knowledge of financial principles but also attitudes, behaviors, and decision-making skills (Atkinson & Messy, 2012; Huston, 2010). The integration of shared learning and risk preparedness strengthens this framework, offering an improvement over earlier financial literacy model. It highlights the role of cooperative settings where members exchange knowledge, support one another, and collectively address financial challenges. The findings illustrate how collaboration strengthens decision-making, supports better risk management, and contributes to improved financial well-being. This model advances existing literature by validating these key components and by establishing a culturally grounded, context-sensitive scale that reflects the lived experiences of cooperative members in Region XI.

The validated model serves as a practical tool for savings and credit cooperatives to evaluate and monitor the financial literacy of their members. Through the identified constructs, cooperatives can effectively tailor and enhance their financial education programs. For example, if members score low in Financial Discipline, this may signal the need for targeted sessions on budgeting and expense monitoring. Likewise, low scores in Risk Preparedness could point to the necessity of training on insurance, emergency funds, and other protective financial practices. Furthermore, recognizing shared learning underscores the unique role of cooperatives as spaces for social learning and member education, beyond their function as financial institutions. This supports their mission of empowering members both individually and as a collective.

The implications of this final model also extend to policy and development work. Local government units and development organizations aiming to improve financial inclusion can adopt the validated scale as a diagnostic tool to pinpoint specific literacy gaps among cooperative members. The insights gained from this assessment can guide the creation of capacity-building initiatives that enhance financial stability, resilience, and overall security within communities.

Ultimately, by putting forward a valid and reliable measurement framework, this study creates a strong starting point for future research. The scale allows scholars to investigate how financial literacy connects with crucial outcomes, including cooperative performance, members' quality of life, and broader poverty-reduction efforts. Thus, this final model advances scholarly discussion while also providing practical benefits for cooperatives, policymakers, and the wider financial sector.

CONCLUSION AND RECOMMENDATION

The objective of this research was to create and test an alternative scale for measuring the financial literacy of savings and credit cooperative members in Region XI. A sequential exploratory mixed-methods approach was used, incorporating both exploratory and confirmatory factor analyses.

The results indicate that financial discipline, planned borrowing, shared learning, risk preparedness, and future financial security are the five core aspects of financial literacy. Collectively, these dimensions offer a clear and complete picture of the financial literacy of cooperative members. The scale proved to be both valid and reliable, indicating its soundness and relevance to the cooperative sector in the region.

The results show that financial literacy encompasses not only individual knowledge and personal financial management but also financial discipline, planned borrowing, shared learning, risk preparedness, and future financial security. Notably, the cooperative culture prevalent in Region XI is reflected in the identification of shared learning as a key distinguishing feature.

Based on these findings, savings and credit cooperatives in Region XI are encouraged to use the validated financial literacy scale regularly to track member development and implement relevant interventions.

Along with promoting responsible borrowing, cooperatives should focus on strengthening training programs that build financial discipline in credit management, savings, and budgeting. To support the cooperative principle of collective growth, shared learning programs should be established, allowing members to exchange experiences and best practices. The validated scale should also be used by policymakers and local government units as part of their financial inclusion strategies. They should also collaborate with cooperatives to create community-based education programs that focus on risk preparedness, emergency savings, insurance, and long-term financial planning for retirement and education. Offering incentives and resources for continuous capacity building will help ensure the long-term sustainability of these initiatives.

Academic institutions in Region XI are advised to include the validated financial literacy framework in courses on entrepreneurship, business, and community development, helping students gain the competencies and expertise needed to manage finances responsibly and promote such practices.

It is recommended that the three factors—Discretionary Spending, Investment Decisions, and Prioritizing Needs—be reconsidered, as they were not included in the confirmatory factor analysis. Including these dimensions in future financial literacy evaluations would provide a more complete and accurate understanding of members' financial behaviors. Future research could compare small cooperatives with other types of cooperatives to explore differences in members' perceptions and behaviors regarding financial literacy.

Future studies could also include non-members in good standing (Non-MIGS) to validate an alternative financial literacy scale, thereby increasing the scale's applicability and strengthening its ability to assess financial security.

Incorporating a gender perspective is also recommended, as differences in viewpoints and financial practices can significantly influence financial literacy outcomes.

In summary, conducting longitudinal research to examine the long-term effects of financial literacy interventions on poverty reduction, cooperative sustainability, and household resilience would be valuable. For comparative purposes, the validated scale should also be applied in other regions of the Philippines. By following these recommendations, the financial literacy scale developed in this study can serve as an important tool for strengthening the cooperative movement in Region XI and beyond, while enhancing the socioeconomic wellbeing of cooperative members.

REFERENCES

1. Alshebami, A. S., & Aldhyani, T. H. H. (2022). The interplay of social influence, financial literacy, and saving behaviour among Saudi youth and the moderating effect of self-control. Sustainability, 14(14), 8780. https://doi.org/10.3390/su14148780
2. Amagir, A., de Wit, F., Woldringh, C. L., & van de Ven, J. (2018). Promoting financial literacy: A systematic review of interventions. Journal of Economic Psychology, 66, 45–62.
3. Anshika, A., & Singla, A. (2022). Financial literacy: A systematic literature review and future research agenda. International Journal of Consumer Studies, 46(3), 1093–1113.
4. Antenorio, D. F. S., Lintogonan, C. D., & Mendez, M. L. S. P. (2025). Assessing financial literacy among members of agricultural cooperatives in Cateel, Davao Oriental: A quantitative approach. Applied Business and Education Research, 6(7).
5. Aristei, D., Gallo, M., & Minetti, R. (2024). Financial literacy and borrower discouragement. Economics Letters, 243, 111898.
6. Aryal, N., & Panta, S. (2015). Financial literacy and co-operatives sustainability: A study among the executive members of cooperatives. ResearchGate, 3(3), 17–29.
7. Association of Asian Confederation of Credit Unions (ACCU). (n.d.). 360 Degrees Financial Literacy for Credit Union Members. CU Business Solutions.

8. Atkinson, A., & Messy, F. (2012). Measuring financial literacy: Results of the OECD/INFE pilot study (OECD Working Papers on Finance, Insurance and Private Pensions, No. 15). OECD Publishing.
9. Australian Securities and Investments Commission (ASIC). (2003). Financial literacy in schools.
10. Bandura, A. (1997). Self-efficacy: Toward a unifying theory of behavioral change. Stanford University.
11. Bayar, Y., Gavriletea, M. D., & Ozturk, H. (2020). Financial literacy and financial education: A bibliometric analysis. Economic Research–Ekonomska Istraživanja, 33(1), 521–538.
12. Bertola, G., & Lo Prete, A. (2024). Financial literacy and risk protection during the COVID-19 pandemic. Italian Economic Journal.
13. Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. Qualitative Research in Psychology, 3(2), 77–101.
14. Brochado, A., & Mendes, V. (2021). Savings and financial literacy: A review of selected literature. European Review of Business Economics, 1(1), 61–72.
15. Buguis, J. M., & Castro, R. (2025). Construct development and validation of service quality in private hospitals. International Journal of Research and Innovation in Social Science, 9(7), 6053–6077.
16. Carpena, F., & Zia, B. (2020). The causal mechanism of financial education: Evidence from mediation analysis. Journal of Economic Behavior & Organization, 177, 143–184.
17. Chhatoi, B. P., Sahoo, S. P., & Nayak, D. P. (2020). Knowledge mapping in financial literacy and future directions. COLLNET Journal of Scientometrics and Information Management, 14(2), 311–330.
18. Costello, A. B., & Osborne, J. W. (2005). Best practices in exploratory factor analysis. Practical Assessment, Research & Evaluation, 10(7).
19. Creswell, J. W., & Creswell, J. D. (2018). Research design: Qualitative, quantitative, and mixed methods approaches (5th ed.). SAGE.
20. DataTAB. (2024). Cronbach's alpha tutorial. Datatab.net.
21. DeVellis, R. F. (2017). Scale development: Theory and applications (4th ed.). SAGE.
22. Dewi, V. I., Febrian, E., Effendi, N., Anwar, M., & Nidar, S. R. (2020). Financial literacy and its variables: Evidence from Indonesia. Economics & Sociology, 13(3), 133–154.
23. Enete, S., Heckman, S., & Lawson, D. (2021). Financial attitudes and charitable giving. Journal of Financial Counseling and Planning, 32(1), 104–116.
24. Forero, C. G. (2014). Cronbach's alpha. In Encyclopedia of Quality of Life and Well-Being Research (pp. 1357–1359).
25. Frost, J. (2022). Cronbach's alpha: Definition, calculations & example. Statistics by Jim.
26. Fuentes, J., & Gono, A. (2023). Exploratory factor analysis of students' attitudes toward social studies. Journal of Educational Research, 15(2), 45–60.
27. Garg, N., & Singh, S. (2018). Financial literacy among youth. International Journal of Social Economics, 45(1), 173–186.
28. Goyal, K., & Kumar, S. (2021). Financial literacy: A systematic review and bibliometric analysis. International Journal of Consumer Studies, 45(6), 1218–1242.
29. Grohmann, A., Klühs, T., & Menkhoff, L. (2018). Does financial literacy improve financial inclusion? World Development, 111, 84–96.
30. Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). Multivariate data analysis (8th ed.). Cengage.
31. Hasan, M., Le, T., & Hoque, A. (2021). How financial literacy impacts inclusive finance. Murdoch University.
32. Home Credit Philippines. (2022). 2022 ESG Country Card.
33. Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis. Structural Equation Modeling, 6(1), 1–55.
34. Inquiro. (2025). Financial literacy in the Philippines 2024: Key statistics.
35. John, P., Bagsic, E. G., Caezzer, J., Lauresta, C. J., & Vetuz, M. M. (2024). Financial literacy among senior high school students. International Journal of Advanced Engineering, Management and Science, 10(3), 1–12.
36. Kaiser, H. F., & Rice, J. (1975). An index of factorial simplicity. Psychometrika, 31, 1–15.
37. Khan, M. R. (2024). Impact of risk tolerance and financial literacy on investment intentions in Pakistan: A TBP approach. SSRN.

38. Kim, H. H., Maurer, R., & Mitchell, O. S. (2021). How financial literacy shapes demand for financial advice. Journal of the Economics of Ageing, 20, 100329.
39. Klapper, L., & Lusardi, A. (2020). Financial literacy and financial resilience worldwide. Financial Management, 49(3), 589–614.
40. Kline, R. B. (2016). Principles and practice of structural equation modeling (4th ed.). Guilford Press.
41. Lyons, A. C., & Kass-Hanna, J. (2021). Defining and measuring digital financial literacy. Financial Planning Review, 4(2).
42. Lusardi, A. (2019). Financial literacy and the need for financial education. Swiss Journal of Economics and Statistics, 155(1), 1–8.
43. Mabula, R., & Han, S. (2018). Financial literacy among university students. Journal of Economic Studies, 45(5), 1034–1051.
44. Maîtrot, M. (2019). Financial literacy and personal finance management: A review. International Journal of Financial Studies, 7(3), 45.
45. Méndez Prado, S. M., et al. (2022). A systematic review of financial literacy research in Latin America. Sustainability, 14(7), 3814.
46. Mendoza, A. E., Bunda, N. C., & Pulohanan, K. A. V. (2022). Financial literacy and retirement planning. SMN Digest, 8(2), 42–61.
47. Mistrean, L. (2024). Financial education level of banking consumers in Moldova. In Contemporary Challenges in Social Science Management (Vol. 112, 23–45).
48. Mitchell, O. S., & Hastings, J. S. (2019). How financial literacy and impatience shape retirement wealth. Journal of Pension Economics & Finance, 18(1), 1–22.
49. NATCCO Network. (2025). 360 Degrees Financial Literacy Trainers' Manual.
50. Navarro, F. C., & Murcia, J. V. B. (2022). Dimensions of financial wellbeing. European Journal of Economic and Financial Research, 6(1).
51. Nguyen, T. M., & Nguyen, T. D. (2020). Impact of financial education on financial literacy: Evidence from Vietnam. Journal of Asian Finance, Economics and Business, 7(6), 269–277.
52. OECD. (2022). OECD/INFE toolkit for measuring financial literacy and financial inclusion.
53. OECD. (2013). Financial literacy: A global perspective.
54. Pandurugan, V., & Shammakhi, A. (2024). TPB modelling of Gen-Z investment intention. Arab Gulf Journal of Scientific Research, 42(4).
55. Pangestu, S., & Karnadi, E. B. (2020). Financial literacy, materialism, and savings decisions. Cogent Business & Management, 7(1), 1743618.
56. Rabbani, A. G., Heo, W., & Grable, J. E. (2021). Financial literacy, advisers, and satisfaction. Journal of Financial Services Marketing, 26(3), 226–238.
57. Rahmiyati, N., & Somodiharjo, K. (2024). Impact of financial literacy and behavioral biases on investment performance.
58. Rehman, M. Z., & Mia, M. A. (2024). Determinants of financial literacy: A systematic review. Future Business Journal, 10(1), 12.
59. Saldaña, J. (2021). The coding manual for qualitative researchers (4th ed.). SAGE.
60. Salleh, S. M., Kassim, N. L. A., & Kassim, N. M. (2019). Financial literacy and personal financial management among young adults. Asian Journal of Business and Accounting, 12(2), 1–28.
61. Sangwan, S., Samanta, S., & Nayak, P. (2020). Financial literacy among Indian households. Indian Journal of Economics and Business, 19(1), 55–74.
62. Sangwan, S., & Nayak, P. (2020). Assessing financial literacy among working adults. Journal of Consumer Affairs, 54(2), 412–436.
63. Santini, F. O., Ladeira, W. J., Mette, F. M. B., & Ponchio, M. C. (2019). Antecedents and consequences of financial literacy: A meta-analysis. International Journal of Bank Marketing, 37(4), 1084–1099.
64. Saripada, N.-A. S., et al. (2024). Financial literacy and spending habits among senior high school students. IRJMETS, 6(5), 8403–8407.
65. Sarpong-Kumankoma, E. (2023). Perception of financial literacy based on retirement planning and savings in Ghana.
66. Seraj, A. H. A., Alzain, E., & Alshebami, A. S. (2022). Financial literacy, overconfidence, and investment decisions. Frontiers in Psychology, 13, 1005075.
67. Shaviro, C., Gangal, A., & Frees, D. (2024). Causal effect of financial literacy courses on financial health.

68. She, L., Rasiah, R., Weissmann, M. A., & Kaur, H. (2023). TPB predictors of financial behaviour in Malaysia. FIIB Business Review, 13(1).
69. Singh, T. (2020). Preparing for the future: Financial literacy and planning for young professionals. (Senior thesis). University of South Carolina.
70. Strömbäck, C., Lind, T., Skagerlund, K., Västfjäll, D., & Tinghög, G. (2017). Does self-control predict financial behavior? Journal of Behavioral and Experimental Finance, 14, 30–38.
71. Van der Cruijsen, C., de Haan, J., & Roerink, R. (2021). Financial knowledge and trust in financial institutions. Journal of Consumer Affairs, 55(2), 680–714.
72. Verma, A., & Baveja, G. S. (2024). Impact of financial literacy on stock market participation using ELM.
73. Wagner, J., & Walstad, W. B. (2019). Effects of financial education on short- and long-term behaviour. Journal of Consumer Affairs, 53(1), 234–259.
74. Warmath, D., & Zimmerman, D. (2019). Financial literacy as more than knowledge. Journal of Consumer Affairs, 53(4).
75. White, M. (2022). Sample size in instrument validation studies: A systematic review. Heliyon, 8(12), e12223.
76. Widjaja, I., Arifin, A., & Setini, M. (2020). Financial literacy and subjective norms on saving behaviour. Management Science Letters, 10(15), 3635–3642.
77. Wolf, E. J., Harrington, K. M., Clark, S. L., & Miller, M. W. (2013). Sample size requirements for SEM. Educational and Psychological Measurement, 73(6), 913–934.
78. World Bank. (2022). World development report 2022: Finance for an equitable recovery.
79. Xiao, J. J., & O'Neill, B. (2016). Consumer financial education and capability. International Journal of Consumer Studies, 40(6), 712–721.
80. Xiao, J. J., Tang, C., & Shim, S. (2009). Financial behaviour and life satisfaction among college students. Social Indicators Research, 92(1), 53–68.
81. Xu, S., Yang, Z., Ali, S. T., Li, Y., & Cui, J. (2022). Does financial literacy affect household financial behaviour? Frontiers in Psychology, 13.
82. Ye, Q., & Kulathunga, K. (2019). Digital platforms for financial education. International Journal of Bank Marketing, 37(6), 1351–1373.
83. Yeh, T.-M., & Ling, Y. (2021). Confidence in financial literacy and retirement planning. Journal of Family and Economic Issues, 43(1), 169–186.
84. Zhang, Y., Thomas, M., & Garbarino, E. (2022). Budgets and emotions: Understanding consumers' spending plans. Journal of the Academy of Marketing Science, 50(6), 1154–1172.
85. Australian Securities and Investments Commission (ASIC). (2003). Financial literacy in schools. Available at: https://download.asic.gov.au/media/1924489/what-do-you-want-to-do-with-fin-litschools-dp.pdf (Accessed: 28 September 2024).
86. Bangko Sentral ng Pilipinas. (2022). Philippines ranked in bottom 30 of global financial literacy study. BusinessWorld Online. Available at: https://www.bworldonline.com/economy/2024/05/16/595655/improved-financial-literacy-still-needed-among-filipinos/ (Accessed: 28 September 2024).
87. Organisation for Economic Co-operation and Development (OECD). (2013). Financial literacy: A global perspective. Available at: https://www.oecd.org/finance/financial-education/ (Accessed: 28 September 2024).
88. Philippine Statistics Authority. (2024). Davao Region's economy grows by 6.7 percent in 2023; surpasses one trillion mark. Available at: https://rsso11.psa.gov.ph/content/2023-economic-performance-davaoregion (Accessed: 28 September 2024).