

Financial Literacy and Its Role in Sustainable Development: Empirical Insights Through Structural Equation Modelling

BRUNO ESCOBAR DE OLIVEIRA LINO

UNIVERSIDADE PRESBITERIANA MACKENZIE (MACKENZIE)

DENIS FORTE

UNIVERSIDADE PRESBITERIANA MACKENZIE (MACKENZIE)

DANIEL LUIZ DE MATTOS NASCIMENTO

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Abstract

This study aims to determine a research agenda by consolidating the most relevant articles in the literature, investigating empirical insights through structural equation model documents, and presenting the relationship between financial literacy and sustainable development. The paper yielded a systematic literature review to consolidate the main articles in the academic databases Scopus and Web of Science. Based on the selection criteria, 73 documents were identified and categorized according to the subject and the most relevant journals in the ABS journals guide. The observed impacts on financial behaviours, attitudes, and knowledge generate an impulse to provide financial well-being. This document offers empirical insights through the financial literacy theory research using the structural equation model, understanding the state-of-the-art and the gaps for future research. Individual assessment tests are crucial to understanding which initiatives should be taken to reduce stress and anxiety, especially for the most vulnerable populations. The present work showed numerous implications scenarios developed in articles using current techniques and examples.

Keywords: Financial Literacy, Structural Equation Model, Systematic Literature Review, Research Agenda, Sustainable Development.

Paper type: Research paper

1. Introduction

The United Nations launched 2015 a program to develop sustainability for the actual and future generations, offering the best solutions for reducing poverty and increasing people's lives worldwide (United Nations, 2015). The main product generated is the Sustainable Development Agenda, which includes 17 goals for all member countries to address global changes based on interconnected economic, social and environmental spheres to achieve sustainable development (Joshipura et al., 2024). Connected with this question, the World Bank (2025) created a portfolio to support national authorities in improving financial inclusion, with the impact factor as a catalyst to reaching Sustainable Development Goals (SDG), reinforcing the capacity of economic growth and employment, promoting the women empowerment, and contributing to reducing poverty. Also aligned with the problem, the OECD (2024) described the importance of financial literacy (FL) for young people, explaining that they need basic skills to make important decisions about their future. The PISA 2022 results demonstrated that many students need to improve their FL, mainly when they are in a socio-economically disadvantaged group.

FL constitutes one of the areas of behavioural finance (Koskelainen et al., 2023). As mentioned before, it is recognised as a determinant for poverty reduction and economic growth (Goyal and Kumar, 2021), improving individual decision-making, saving money, supporting the best resource allocation and promoting both social and financial well-being (FWB) (Koskelainen et al., 2023). Lusardi and Michell (2014) presented the Financial Literacy Theory (FLT). The initial and traditional approach concerns the conventional microeconomic rules, where the rational and well-informed individual spends less than their income in high revenue periods, thus saving money

for their subsistence in periods of low income. These models forget that few people have financial knowledge or, even if they have, demonstrate difficulty comprehending it, and acquiring is likely to come with a cost. While the costs to increase FL are expressive, liquidity-constrained, overindebted, and poor costs are the same (Lusardi and Michell, 2014).

FL is the *"ability to process economic information and make informed decisions about financial planning, wealth accumulation, debt, and pensions"* (Lusardi and Michell, 2014). However, there is a disagreement if comparing the definition with what is described by OCDE as *"knowledge and understanding of financial concepts, risks, and the skills, motivation and confidence to apply such knowledge and understanding in order to make effective decisions across a range of financial contexts, to improve the financial well-being of individuals and society, and to enable participation in economic life"* (OECD, 2014), mainly if compare the knowledge that compounds FL, and demonstrating that the subject needs further exploration. It is aligned with Lusardi and Mitchell (2014) publication, explaining that because of the rapid spread and tailored financial products into the retail market, the gaps between modelling and reality started to be further explored (Lusardi and Mitchell, 2014). The rise in popularity is confirmed among academic and political groups (Huston, 2010), validated by a recent publication of the crescent quantity of published articles (Goyal and Kumar, 2021), and connected with sustainability presents an exponential rise recognising the importance of positive impact in the individuals. Many papers have been published since 2012, growing more than 15% until 2022. However, the lack of sustainability research needs significant improvement (Joshi et al., 2024).

The theoretical saving and financial decision-making models need enrichment to measure financial education better and incorporate financial knowledge as a form of human capital. Expanding the reflection to the methods, econometric and experimental models have done much to confirm FL's predecessor and causal impact on economic decision-making, separating and identifying the effects from other factors, including education and cognitive ability. For example, several works explain the importance of translating data into numbers. Lusardi and Mitchell (2007) developed research about the importance of retirement planning for the baby boomer generation. The results demonstrated that vulnerable groups are at risk because they are not prepared adequately for retirement, particularly those with low education, low income and Black and Hispanic households. Another example is the investigation of FL and capability exerting influence on the sustainable development of companies (Babajide et al., 2023). The framework recommendation incorporates sustainability models into the business operation, improving the worker and the company.

In parallel, one of the literature's most explored econometric and experimental methods is the structural equation model (SEM). Defined as a statistical procedure with latent variables, the SEM has been widely employed for test measurement and causal hypothesis (Bagozzi and Yi, 2012), understanding and implemented in diverse research fields, conducting basic and applied research in the social, educational, and behavioural sciences, creating different frameworks to explain questions due the ability to analyse variables and errors simultaneously (Goldberger, 1972). It is necessary to deepen academic work further to maintain the growing number of publications and continuously expand the theory. The current literature represents a small piece of reality and needs articles to delve into a more profound analysis (Lusardi and Mitchell, 2014).

The real problem statement has two points. The first concerns the research requirements, and time is essential for more publications. Understanding the theory and consolidating gaps in the literature is necessary, consuming efforts and hours to compile it to create an article. Thus, a supporting document where scholars can initially consult the most important documents in the field

and have opportunities to compose further research reduces time and increases efficiency. One way to identify trends and gaps is through a systematic literature review (SLR), understanding the best academic practices and analysing the leading publications, variables, and avenues to the future (Arjun and Subramanian, 2024), deriving conceptual frameworks with SLR through bibliometrics software and extending it to multiple databases (Ingale and Paluri, 2022). The second is regarding the social impacts. Studies related to FL (Goyal and Kumar, 2021) and sustainable development (Joshi et al., 2024) demonstrate their direct relationship to the individual's well-being. Thus, when more articles are published demonstrating findings in vulnerable populations, more material will be available to the public and private sectors to send resources to solve societal problems.

The motivation for this study is to provide substantial material to guide future scholars to develop empirical studies, reducing the time to analyse, consolidate and identify the current state-of-the-art and opportunities for future works, answering thus the central question: How could financial literacy and its role in sustainable development generate empirical insights through structural equation modelling? The principal findings are (i) the connections between endogenous and exogenous variables, (ii) the trend articles of theory, framework, and background to FL and sustainable development, and (iii) the gaps and opportunities for novel research. This study aims to determine a research agenda by consolidating the most relevant articles in the literature, investigating empirical insights through SEM documents, and presenting the relationship between FL and sustainable development. Addressed a research question to guide the objective between different perspectives:

RQ: What is the current state-of-the-art, and what gaps existing for future research in the structural equation model for financial literacy to promote sustainable development?

The subsequent chapters are organized as follows: Section 2 explains the Materials and Methods applied in the analysis. Section 3 provides the results extracted from the literature review and the results discussions and presents a research agenda for future research using the SEM. Section 4 concludes the paper by describing the implications and research limitations.

2. Materials and Methods

2.1. Research Design

We conducted an SLR, an important tool to create procedures and protocols to summarise the literature in determined academic fields (Arjun and Subramanian, 2024), to describe the paper's characteristics regarding FL and SEM. There are several instruments to develop the SLR, such as Prisma and Prisma-P, where it is possible to provide the data in an orderly, rigorous, and transparent manner in all scenarios. However, a gap exists in scholars demonstrating the rationality to justify their review decisions in these protocols. Thinking on this issue, avoiding replicative research, planning new research, and supporting claims of novelties, Paul et al. (2021) created the *Scientific Procedures and Rationales for Systematic Literature Reviews* protocol (SPAR-4-SLR).

Thus, considering the Prisma model and using this new approach, the three stages and six sub-stages in the model are presented in Table 01, divided into assembling – which involves the identification and acquisition of literature – arranging – which involves organization and purification of literature – and assessing – which involves evaluating and reporting of literature (Paul et al., 2021). The expected outcomes provide significative insights, stimulate nuanced

agendas for knowledge advances in the literature, justify the logical and pragmatic reasons and report each stage with transparency (Yeo et al., 2024).

Table 01: SPAR-4-SLR review process

Assembling	Identification
	<p>Domain: Financial literacy with specific focus in structural equation model. Research questions: How could financial literacy and its role in sustainable development generate empirical insights through structural equation modelling? Source type: Academic articles. Source quality: Scopus and Web of Science.</p>
Arranging	Acquisition
	<p>Search mechanism and material acquisition: Scholar Google, Scopus and Web of science. Search period: 2014 to 2024. Search keywords: "Financial literacy" and "Structural equation". Total number of articles returned from the search: 414.</p>
Assessing	Organization
	<p>Organizing codes: Theories, outcomes, citations, countries, concepts, methods and variables. Organizing framework: TCM and ADO.</p>
Assessing	Purification
	<p>Article type excluded: 341 (duplicated, unavailable, out of ABS ranking, out of context and not indexed in Scopus and Web of Science). Article type included: 73 (relevant, in English, classified in ABS ranking, indexed in Scopus and Web of Science and in business, economics and finance categories).</p>
Assessing	Evaluation
	<p>Analysis methods: Content and descriptive analysis. Agenda proposal methods: Gap and opportunity analysis.</p>
Assessing	Reporting
	<p>Reporting conventions: Figures, tables and words. Limitation: Focus in structural equation model. Sources of support: Coordenação de Aperfeiçoamento de Pessoal de Nível Superior - Brasil (CAPES) - Finance Code 001; Spanish Ministry of Science, Innovation and Universities, Grant/Award Number: RYC2021-033365-I.</p>

In the "assembling" stage, the initial criterion is the "identification". The research domain is "FL with a specific focus on SEM", and the research question is "How could financial literacy and its role in sustainable development generate empirical insights through structural equation modelling?". Thus, the academic articles selected focus on FL – the focus of this research – and structural equation – one of the most used quantitative methods to evaluate statistically proposed frameworks. The database indexed in Scopus and Web of Science established the source of quality. The next stage is the "acquisition". The search mechanism and material acquisition are Scholar Google, a free system to search for available articles, Scopus, and Web of Science. They are relevant and familiar among scholars to find the journals with the most current awards (Korom, 2019). There was no defined period to filter, the first article was published in 2014 and continued

until 2024, demonstrating the subject novelty. The research was conducted with the keywords "*financial literacy*" and "*structural equation*" due to the representativeness of this methodology in answering questions of social sciences.

Moving to the "*arranging*" session, in the "*organisation*" stage, the codes analysed are theories, outcomes, citations, countries, concepts, methods and variables. To organise the framework, TCM (theories, concepts and methods) and ADO (antecedents, decisions, and outcomes) were used (Paul et al., 2021). Furthermore, the future research gaps were classified into constructs/variables (about the variables and constructs indicated in the articles), data collection or sample (regarding the indications of population and scale to collect data for future research), Methods (about other methodologies to analyse the same problem in future research), regions (concerning opportunities to reply the same article but in different location), control or mediator or moderator (regarding citations to include control, mediator or moderator variables in future research), and new article or theory (concerning rewrite the document due lower results or applying different theories in future research). The "*purification*" stage is the filters selected for refining and deciding which articles are included or excluded from the original basis. The exclusion criteria are double documents, unavailable, out of ABS ranking, out of context and not indexed in Scopus and Web of Science, removing 341 documents. The inclusion criteria are relevant in English, classified in ABS ranking, and business, economics and finance categories, reaching 73 documents.

The third and last sections are assessing and divided into the "*evaluating stage*", which involves the analysis and agenda proposal methods, and the "*reporting stage*", which includes the reporting conventions, limitations, and sources of support. This article uses descriptive analysis, a bibliometric approach, scientific mapping with R and Biblioshiny software, content analysis, and gaps and opportunities to compose a research agenda. This stage was cross-validated for the authors to increase the transparency and accuracy of results. Developed with critical examination of the objectives, the proposed framework, the variables, the methods to estimate the model, and the outcomes, including limitations and opportunities. This study includes figures, tables and words and presents a limitation due to the filtered keywords. This work receives support from Coordenação de Aperfeiçoamento de Pessoal de Nível Superior - Brasil (CAPES) - Finance Code 001; Spanish Ministry of Science, Innovation and Universities, Grant/Award Number: RYC2021-033365-I. The selection of the articles was referenced by A1 to A73, focusing on the transparency of the analysed results and presented in Table 02.

Table 02: References by Articles

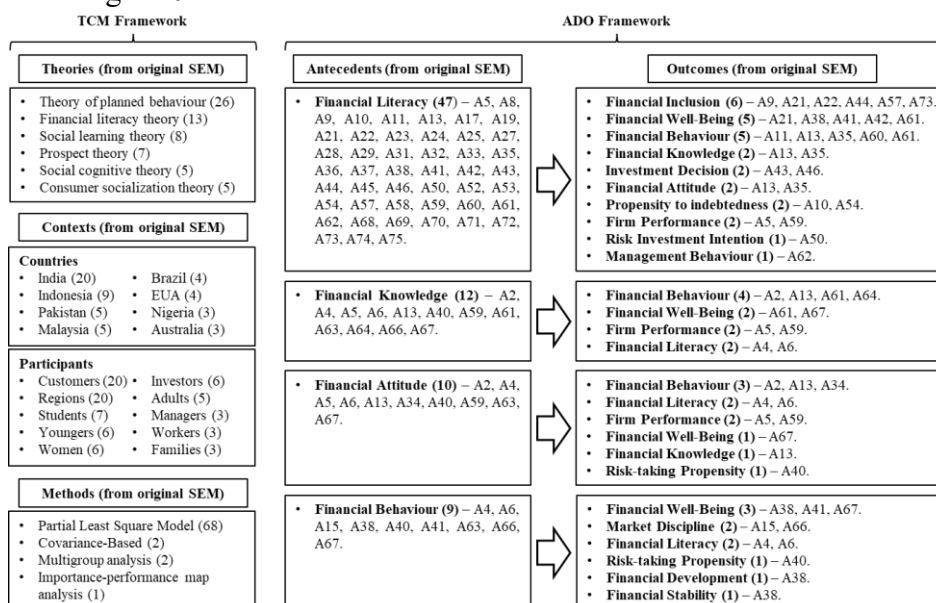
Ref	Author	Ref	Author	Ref	Author
A1	<i>Nandru et al. (2023).</i>	A26	<i>Bojuwon et al. (2023).</i>	A50	<i>Santos et al. (2022).</i>
A2	<i>Aydin and Selcuk (2019).</i>	A27	<i>Kathpal et al. (2023).</i>	A51	<i>Raut (2020).</i>
A3	<i>Pala et al. (2023).</i>	A28	<i>Maji and Laha (2023).</i>	A52	<i>Hoffmann and Otteby (2018).</i>
A4	<i>Dogra et al. (2023).</i>	A29	<i>Dewi et al. (2020).</i>	A53	<i>Azma et al. (2019).</i>
A5	<i>Tuffour et al. (2022).</i>	A30	<i>Dorkas et al. (2023).</i>	A54	<i>Pereira and Coelho (2020).</i>
A6	<i>Rai et al. (2019).</i>	A31	<i>Noviarini et al. (2021).</i>	A55	<i>Sari et al. (2024).</i>
A7	<i>Sivaramakrishnan et al. (2017).</i>	A32	<i>Babajide et al. (2023).</i>	A56	<i>Javed et al. (2023).</i>
A8	<i>Graziano et al. (2024).</i>	A33	<i>Ramalho and Forte (2019).</i>	A57	<i>Lopez et al. (2023).</i>
A9	<i>Bongomin et al. (2024).</i>	A34	<i>Potrich et al. (2015).</i>	A58	<i>Eniola and Entebang (2017).</i>

- A10 Potrich and Vieira (2018). A35 Oppong et al. (2023). A59 Meneau and Moorthy (2022).
- A11 Kumar et al. (2023). A36 Rohatgi et al. (2024). A60 Zhao and Zhang (2020).
- A12 Potrich et al. (2016). A37 Sun et al. (2022). A61 Goyal et al. (2023).
- A13 Setiawan et al. (2022). A38 Dewi (2022). A62 Garcia (2021).
- A14 Dewi et al. (2023). A39 Molina-Garcia et al. (2023). A63 Abdallah et al. (2024).
- A15 Zahid et al. (2023). A40 Sabri et al. (2023). A64 Dewi and Wardhana (2022).
- A16 Ahmad et al. (2023). A41 Lone and Bhat (2024). A65 Gerrans et al. (2014).
- A17 Ganesan et al. (2020). A42 Prasad et al. (2021). A66 Tahir et al. (2023).
- A18 Amari et al. (2020). A43 Bongomin et al. (2017). A67 Sualeh et al. (2024).
- A19 Yusfiarto et al. (2023). A44 Jain et al. (2023). A68 Chan et al. (2022).
- A20 Nandru et al. (2021). A45 Iram et al. (2021). A69 Kar and Patro (2024).
- A21 Singh (2021). A46 Sun and Chen (2022). A70 Chaturvedi (2024).
- A22 Alsmadi (2024). A47 Yeni et al. (2023). A71 Shen et al. (2020).
- A23 Khurshid et al. (2024). A48 Maziriri and Chivandi (2020). A72 Nguyen et al. (2022).
- A24 Pahlevan Sharif and Naghavi (2020). A49 Mohta and Shunmugasundaram (2024). A73 Thomas et al. (2023).
- A25 Parvathy and Kumar (2022).

3. Results and Discussion

The present systematic review analysis covered 73 articles focusing on FL and utilising SEM to measure causality. As demonstrated in Figure 01, the components selected for the discussions in the “*antecedents*” (exogenous variables) are “*financial literacy, financial behaviour, financial knowledge, and financial attitude*”. This concept aligns with the proposed FLT (Lusardi and Michell, 2014) with the same three components. Further exploration of dependent variables is necessary for the “*outcomes*” stage (endogenous variables), as explained in the proposed frameworks.

Figure 01: TCM and ADO Framework



The review was conducted in 24 different countries, with the majority being in India (20 studies), Indonesia (9 studies), Pakistan and Malaysia (5 studies), Brazil and the United States (4 studies). As observed, the five countries with the most publications are emerging nations, except for the United States (USA). It demonstrates the alignment with the FLT, describing the necessity to conduct and explore ways to reduce inequality, alleviate poverty through better financial decision-making, and provide FWB for the populations (Lusardi and Michell, 2014). These countries have issues disseminating financial knowledge, typically retained within higher-income families, particularly among men.

Four main groups, when analysing the variables employed to measure FL, represented the same aspects using different sources of variables. The first, called the same way “*financial literacy*” and the most representative, was included in 47 documents as an endogenous variable. The second is “*financial knowledge*”, which is present in 12 articles as an endogenous variable. Third, Financial Attitude is present in 10 studies as an endogenous variable. Fourth, “*Financial Behaviour*” was included in 9 articles as an endogenous variable. The FLT explains that FL comprises financial knowledge, behaviour, and attitude (Lusardi and Michell, 2014), which aligns with the literature.

Although the research studies use several samples from different contexts and countries, the variable FL is employed to explain the outcome of financial inclusion 6 times, analysing persons with disability and owned of micro, small, and medium enterprises (Okello et al., 2024), marginalised street vendors (Nandru et al., 2021), people in lower socioeconomic class in rural areas (Singh, 2021), poor households (Bongomin et al., 2017), financial services consumer (Javel et al., 2023), and consumers (Shen et al., 2020). The variables financial knowledge and financial attitude were most employed to explain the outcome of financial behaviour, 4 and 3 times, respectively, analysing university students (Aydin and Selcuk, 2019; Potrich et al., 2016), populations (Ramalho and Forte, 2019; Zhao and Zhang, 2020), and customers (Abdallah et al., 2024). The variable financial behaviour was most employed to explain the outcomes of financial well-being 3 times, analysing population (Sun et al., 2022), young people (Sabri et al., 2023), and gender (Gerrans et al., 2014).

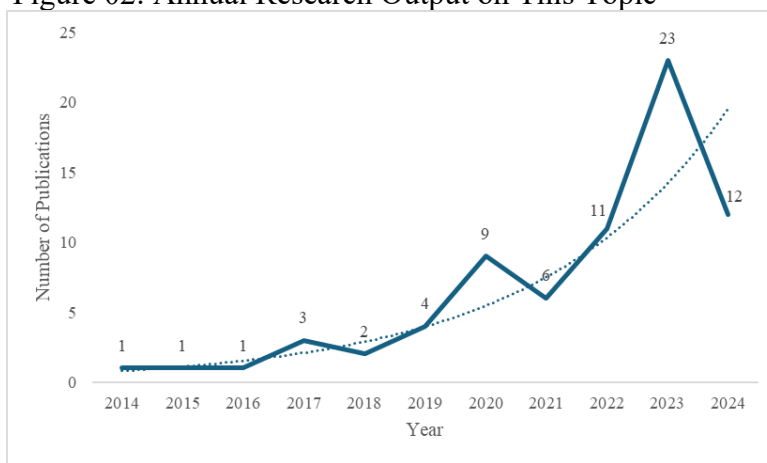
3.1. Contextualizing Financial Literacy Theory with Structural Equation Model

This study examines 73 articles from 41 journals by 210 authors. Although the research did not restrict the publication years of the documents, the results showed from January 2014 to May 2024. As demonstrated in Figure 02, the publications in journals ranked in ABS do not present significant growth and remained stable between 2014 and 2019, making it a relatively new topic in academia. The interest in the research field increased in 2020, achieving nine documents, six documents in 2021, 11 documents in 2022, reached its peak in 2023 with 23 documents, and 12 documents until May 2024, indicating an exponential growth in FL using SEM as the quantitative method in the last 5 years. It aligns the substantial increase among academics with the rise in popularity of the crescent articles published (Goyal and Kumar, 2021), a growth of more than 15% from 2012 to 2022 and the rising trend line (Joshipura et al., 2024).

The author with the most publications is Dewi V, with five articles, followed by Effendi N, Hoffmann A, Potrich A, Rahman M, and Vieira K, with three documents each. However, it is interesting to analyse the quality of the publications. Considering the number of citations each document received, the author with the most publications does not have any of their articles among them, indicating that the quantity of work is unrelated to the representativeness. The articles with the most citations are: “*Attitudinal factors, financial literacy, and stock market participation*”

(Sivaramakrishnan et al., 2017). With 134 citations, and findings explain that investment intention predicts actual investments in the stock market; second is *"The relationship between personal financial wellness and financial wellbeing: A structural equation modelling approach"* (Gerrans et al., 2014), with 103 citations, which findings that males ranked higher in financial satisfaction and financial knowledge whereas females ranked higher in personal wellbeing; and third *"Association of financial attitude, financial behaviour and financial knowledge towards financial literacy: A structural equation modelling approach"* (Rai et al., 2019), with 98 citations, witch findings revealed that financial attitude and financial behaviour have strong association with FL of working women than financial knowledge.

Figure 02: Annual Research Output on This Topic



3.2.Future Research to Financial Literacy Theory

To understand the references and begin a novel study, we analysed the articles with the highest citation count. We classified them into four dimensions: *"Theory, Financial Literacy Concepts, Financial Literacy Measures, and Structural Equation Model."* The theory is employed in an article to define a system of ideas or a supposition regarding explaining something or phenomena based on general principles that are not reliant on specific facts. Research conducted to check the theories employed in articles explains that almost all documents (93%) quote at least one theory (Pettigrew and McKechnie, 2001). Along the same line, research demonstrated that (88%) of the articles define a theory in the title or the abstract (Roy and Mukhopadhyay, 2023). In the present SLR, the theories most expanded are the theory of planned behaviour (Ajzen, 1991), FLT (Lusardi and Mitchell, 2014), social learning theory (Bandura. and Walters, 1963), and prospect theory (Kahneman and Tversky, 1979).

Regarding FL concepts, several authors referenced the quantitative analysis (Remund, 2010; Goyal and Kumar, 2021; Fernandes et al., 2014; Mitchell and Lusardi, 2011). Since the previous questions, the database is important for creating SEM constructs (Cheung and Lau, 2008) and questionnaires. To create forms to measure, the authors utilised documents to support the constructs (Lusardi and Mitchell, 2008, 2014; Van Rooij et al., 2011; Huston, S. J., 2010; Lusardi et al., 2010; Hilgert et al., 2003). Finally, the research uses statistics techniques to evaluate the proposal framework. These principles follow relevant methods to answer the hypothesis or propositions, being the primary references regarding these issues (Hair et al., 2010; Fornell, 1981; Henseler et al., 2015). Table 03 demonstrates the relevance of studies and how they fit in future research.

Table 03: References to create structural equation model in financial literacy

Subject	References	Title	Findings	Citation Counts
Theory	Ajzen, I. (1991).	<i>The theory of planned behaviour</i>	Behaviours of different kinds can be predicted with high accuracy from attitudes toward the behaviour, subjective norms, and perceived behavioural control.	59,252
	Lusardi, A. and Mitchell, O.S. (2014).	<i>The economic importance of financial literacy: Theory and evidence</i>	Effects and consequences of financial illiteracy and what works to remedy these gaps.	2,145
	Bandura, A. and Walters, R.H. (1963).	<i>Social Learning and Personality Development</i>	A social learning view of personality development, based on an extensive program of research on the socialization of children.	1,069
	Kahneman, D., and Tversky, A. (1979).	<i>Prospect theory: An analysis of decision under risk</i>	Value is assigned to gains and losses rather than to final assets and in which probabilities are replaced by decision weights.	30,894
	Bandura, A. (1982)	<i>Self-efficacy mechanism in human agency</i>	Perceived self-efficacy helps to account for such diverse phenomena as changes in coping behaviour.	8,582
	Ward, S. (1974).	<i>Consumer socialization</i>	Major policy and conceptual issues are posed in consumer socialization, and research in several areas of study is reviewed.	639
Financial Literacy Concept	Remund (2010).	<i>Financial literacy explicated: The case for a clearer definition in an increasingly complex economy</i>	FL has varying conceptual definitions in existing research, as well as diverse operational definitions and values.	378
	Goyal and Kumar (2021).	<i>Financial literacy: A systematic review and bibliometric analysis</i>	Levels of FL amongst distinct cohorts, the influence that FL exerts on financial planning and behaviour, and the impact of financial education.	429
	Fernandes et al. (2014).	<i>Financial literacy, financial education, and downstream financial behaviours</i>	Interventions to improve FL explain only 0.1% of the variance in financial behaviours studied, with weaker effects in low-income samples.	909
	Mitchell and Lusardi (2011).	<i>Financial literacy: Implications for retirement security and the financial marketplace</i>	Workers change jobs and employers many times before retiring, and the increase in individual responsibility regarding financial security after retirement.	32

Table 03: Continued
Continued

Subject	References	Title	Findings	Citation Counts
Financial Literacy Measure	Van Rooij et al. (2011).	<i>Financial literacy and stock market participation</i>	Most respondents display basic financial knowledge and have some grasp of concepts such as interest compounding, inflation, and the time value of money.	1,569
	Huston, S. J. (2010).	<i>Measuring financial literacy</i>	Summarizes the broad range of FL measures used in research over the last decade.	1,039
	Lusardi et al. (2010).	<i>Financial literacy among the young</i>	FL is low; fewer than one-third of young adults possess basic knowledge of interest rates, inflation and risk diversification.	816
	Lusardi and Mitchell (2008).	<i>Planning and financial literacy: How do women fare?</i>	Women display much lower levels of FL than the older population.	804
	Chen and Volpe (1998).	<i>An analysis of personal financial literacy among college students</i>	Non-business majors, women, students in the lower class ranks, under age 30, and with little work experience have lower levels of knowledge.	-
	Lusardi and Mitchell (2007).	<i>Financial literacy and retirement preparedness: Evidence and implications for financial education</i>	Many households are unfamiliar with even the most basic economic concepts needed to make saving and investment decisions.	800
	Shim et al. (2009).	<i>Pathways to life success: A conceptual model of financial well-being for young adults</i>	Self-actualizing personal values, financial education at home, and formal financial education at school may play important role about financial matters.	431
Van Rooij et al. (2012).	<i>Financial literacy, retirement planning and household wealth</i>	Financial knowledge increases the likelihood of investing in the stock market, and FL is positively related to retirement planning and the development of a savings plan.	535	
Structural Equation Model	Hair et al. (2010).	<i>Multivariate data analysis</i>	Review of multivariate data analysis to quantitative research.	155,578
	Fornell (1981).	<i>A comparative analysis of two structural equation models: LISREL and PLS applied to market data</i>	Analyze and explain the difference between LISREL and PLS.	555
	Henseler et al. (2015).	<i>A new criterion for assessing discriminant validity in variance-based structural equation modeling</i>	New approach to discriminant validity proposed as alternative, based on the multitrait-multimethod matrix, to assess discriminant validity: the heterotrait-monotrait ratio of correlations.	20,218
	Hu and Bentler (1999).	<i>Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives</i>	The maximum likelihood-based, Tucker-Lewis Index, McDonald's Centrality Index, and root mean squared error of approximation, tend to over reject true-population models at small sample size and thus are less preferable when sample size is small.	78,493

3.3.Outcomes (from original SEM) and Gaps in the Literature

This section and Table 04 categorize the six most used outcomes (from original SEM): financial behaviour, financial well-being, financial inclusion, FL, intention to invest, and sustainable development. This review presents, on one side, the outcomes (from original SEM) of works yielded in FLT and, on the other, the gaps in the literature (to novel SEM) demonstrating opportunities for expanding the theory and supporting future researchers with ideas to develop new projects. Table 05 describes all articles and gaps divided by the author's suggestions groups: constructs, control, data collection, mediator, methods moderating, new articles, region, samples, theory and variables.

3.3.1.Financial Behaviour

Financial behaviour is a part of FL. Defined as any human behaviour related to money management. Several authors demonstrated the correlation between financial decision-making and financial behaviour. Typical behaviours include money management, saving and borrowing (Abdallah et al., 2024). This review found eight articles that considered financial behaviour as an outcome and presented gaps in the literature. Published articles analysed demonstrated the financial behaviour among customers in the USA (Meneau and Moorthy, 2022), Kuwait (Abdallah et al., 2024), and India (Sivaramakrishnan et al., 2017). It is also deepening in different regions, such as Brazil (Potrich et al., 2015), India (Kumar et al., 2023), and Indonesia (Dewi, 2022). Furthermore, financial behaviour explains families in the USA (Zhao and Zhang, 2020) and students in Brazil (Potrich et al., 2016). The limitations indicated that future works could explore novel constructs and variables, expand samples, redesign the methods, include different regions in the analysis, and consider novel mediating variables, theories, and control variables.

3.3.2.Financial Well-being

Financial well-being is a function of financial factors represented by personal characteristics, objective attributes, perceived attributes and evaluated attributes. It is a study to identify how FL impacts psychological factors (Kumar et al., 2023). In this review, we find eight articles that consider financial well-being as an outcome, presenting gaps in the literature for future research. Published articles in this SLR demonstrated the financial well-being among regions in the USA (Sun et al., 2022), India (Kumar et al., 2023), and Australia (Gerrans et al., 2014). Also, in different samples, such as students (Lone and Bhat, 2024) and women in India (Parvathy and Kumar, 2022), families in the USA (Zhao and Zhang, 2020), and younger people in Malaysia (Sabri et al., 2023), USA, Brazil and France (Santos et al., 2022). The limitations indicated that future works could explore novel constructs and variables, expand samples and use actualized data to compare and redesign the methods with qualitative formats and cause and effect. Include different regions as novel countries and states, and consider novel control variables, novel mediating variables, and novel moderating variables.

Table 04: Identifying Research Gaps in Advanced Structural Equation Modelling for Sustainable Development

Outcomes (from original SEM)	Gaps in Literature (to novel SEM)
<p>Financial Behaviour (8) A7: Focus on customers in India. A11: Focus on regions in India. A12: Focus on students in Brazil. A34: Focus on regions in Brazil. A38: Focus on regions in Indonesia. A59: Focus on customers in USA. A60: Focus on families in USA. A63: Focus on customers in Kuwait.</p>	<p>Construct or Variable: Financial Attitude (A11), Financial Skills (A11), General Variables (A34, A59), Cultivate Savings Behaviour (A60), Family Socialization (A60), Money Management Skills (A60), Parental Oversight (A60), Receiving Allowances (A60), Culture (A63), Socio-economic (A63). Data collection or sample: Different Profiles (A7, A12, A59), General Population (A34), Heterogenous Groups (A38), Different Scales (A59), Students (A60), Vulnerable Groups (A60). Methods: Panel (A7), Delphi (A7), Focus Group (A7), Interview (A7), Longitudinal (A7), Cause and effect (A59), Efficacy of Educational Techniques (A63). Regions: Novel Countries (A11, A63), Emerging Countries (A38). Control or Mediator or Moderator: Novel Controls Variables (A11), Novel Moderating Variables (A11). New Article or Theory: Novel Theories (A12).</p>
<p>Financial Well-Being (8) A11: Focus on regions in India. A25: Focus on women in India. A37: Focus on region in USA. A40: Focus on youngsters in Malaysia. A41: Focus on students in India. A50: Focus on youngsters in USA, France and Brazil. A60 : Focus on families in USA. A65 : Focus on regions in Australia.</p>	<p>Construct/Variable: Financial Attitude (A11), Financial Skills (A11), Culture (A25, A50), Economic (A25), Financial Access (A37), Financial Education (A37), Interactions (A37), Perceptions Of Financial Products (A37), Psychological Dimensions (A37), Services (A37), Social (A37), Childhood Experience (A40), Digital Financial Literacy (A40), Education (A40), Wheatly Families (A40), General Variables (A41), Credit Use (A50), Cultivate Savings Behaviour (A60), Family Socialization (A60), Money Management Skills (A60), Parental Oversight (A60), Receiving Allowances (A60). Data collection/sample: Workers (A25), Actual Data (A37), General Population (A40, A41, A50, A65), Students (A60), Vulnerable group (A60). Methods: Delphi (A11), Focus Group (A11), Interview (A11), Longitudinal (A11, A37), Interrelationship (A25, A37), Cause and Effect (A37), Subjective Measures (A40). Regions: Novel Countries (A11, A50), Novel States (A25, A40). Control or Mediator or Moderator: Novel Controls Variables (A11, A65), Novel Moderating Variables (A11), Novel Mediating Variables (A25).</p>
<p>Financial Inclusion (7) A9: Focus on customers in Uganda. A15: Focus on women in Pakistan. A20: Focus on marginalized street vendor in India. A21: Focus on region in India. A43: Focus on families in Uganda. A56: Focus on region in Oman. A71: Focus on region in China.</p>	<p>Construct/Variable: Culture (A15), Religious Norms (A15), Societal Capabilities (A15), Socio-Economic (A15), Tailored Programs (A15), General Variables (A15, A20, A56), Credit (A21), Financial Advisory (A21), Insurance (A21). Data collection/sample: Vulnerable Groups (A9, A43), Workers (A20), Different Profiles (A21), Heterogenous Groups (A71). Methods: Focus Group (A9), Interview (A9), Interrelationship (A20), Cause and Effect (A21), Longitudinal (A43), Mixed Method (A43), Panel (A71). Regions: Novel Countries (A9, A56), Emerging Countries (A15), Novel Cities (A56). Control or Mediator or Moderator: Novel Mediating Variables (A11).</p>

<p>Financial Literacy (5) A4: Focus on youngers in India. A6: Focus on workers in India. A12: Focus on students in Brazil. A24: Focus on families in Malaysia. A54: Focus on youngers in Portugal.</p>	<p>Construct/Variable: Innovation (A4), Stressed (A4), Culture (A6, A54), Environment (A6), Family (A6), Socialization (A6), Financial Socialization (A24). Data collection/sample: Different Profiles (A4, A12), Men (A6), Students (A6), Vulnerable Groups (A6), Heterogenous Groups (A24), Workers (A54). Methods: Multiplicative (A6), Non-linear (A6), Longitudinal (A24), Qualitative (A24), Common Method Variance (A54). Regions: Developed and Emerging Countries (A4), Novel Cities (A24), , Novel States (A24), Novel Countries (A54). New Article or Theory: Theories (A12).</p>
<p>Intention to Invest (4) A19: Focus on region in Indonesia. A44: Focus on investors in India. A45: Focus on women in Pakistan. A69: Focus on investors in India.</p>	<p>Construct/Variable: Technology Adoption (A19), General Variables (A44, A69). Data collection/sample: Vulnerable Groups (A19), Heterogenous Groups (A69). Methods: Multigroup (A19), Longitudinal (A44), Panel (A44), Interview (A45), Stochastic Sampling Techniques (A69). Regions: Developed and Emerging Countries (A44), Developed Countries (A45).</p>
<p>Sustainable Development (3) A30: Focus on women in Indonesia. A45: Focus on managers in Pakistan. A48: Focus on workers in South Africa.</p>	<p>Construct/Variable: General Variables (A48). Data collection/sample: General Population (A30), Workers (A48). Methods: Interview (A45), Mixed Methods (A48). Regions: Developed Countries (A45), Novel States (A48), Novel Countries (A48). Control or Mediator or Moderator: Novel Controls Variables (A30), New Article or Theory: Reply the Article (A48).</p>

3.3.3. Financial Inclusion

Financial inclusion is the access to available financial products and services by participating in financial systems, mainly with banks. It plays an important role in helping to decrease poverty and financial crisis (Zahid et al., 2023). In this review, we found seven articles considering financial inclusion as an outcome and presented gaps in the literature for future research. Published articles analysed demonstrated the financial inclusion among young customers (Bongomin et al., 2024) and families (Bongomin et al., 2017) in Uganda, women in Pakistan (Zahid et al., 2023), financial inclusions in regions of China (Shen et al., 2020), Oman (Javed et al., 2023) and India (Singh, 2021), and in marginalised street vendor in India (Nandru et al., 2021). The limitations indicated that future works could explore novel constructs and variables, expand samples, redesign the methods, include different regions in the analysis, and consider novel mediating variables.

3.3.4. Financial Literacy

FL is the use of knowledge and skills to manage financial resources effectively, promoting a sustainable financial life. It represents a combination of financial knowledge, financial behaviour, and financial attitude, as well as an assessment of the FL levels among several cohorts in the population (Goyal and Kumar, 2021). In this review, we found five articles considering FL as an outcome and presented gaps in the literature for future research. Published articles analysed demonstrated the level of FL among young Indians (Dogra et al., 2023) and Indian workers (Rai et al., 2019), Brazilian students (Potrich et al., 2016), families in Malaysia (Pahlevan Sharif and Naghavi, 2020), and young Portuguese (Pereira and Coelho, 2020). The limitations indicated that future works could explore novel constructs and variables, expand samples, redesign the methods, include different regions in the analysis, and expand other theories.

3.3.5. Intention to Invest

Intention to invest is a new subject and few discussed in academia. It can be classified as the individual's planned or deliberate willingness to allocate financial resources to an asset, project, or business, influenced by previous results, being positive or negative (Kar and Patro, 2024). This review found four articles that considered the intention to invest as an outcome and presented gaps in the literature for future research. Published articles analysed demonstrated the level of intention to invest among Indian investors (Jain et al., 2023; Kar and Patro, 2024), different regions in Indonesia (Yusfiarto et al., 2023) and among women in Pakistan (Iram et al., 2021). The limitations indicated that future works could explore novel constructs and variables with general variables or novel technologies, expand samples to vulnerable and heterogenous groups, redesign the methods using techniques as multigroup, longitudinal, panel, interviews, and stochastic samples analysis, and includes different regions as comparison between developed and emerging countries.

3.3.6. Sustainable Development

Although sustainable development could represent a wide range of solutions for reducing poverty and increasing people's lives worldwide (United Nations, 2015), it aligns with the FL problem and the basic skills to make important decisions about their future (OECD, 2024). In this section of the article were classified documents with a focus on powerful women to improve the decision-making in Pakistan (Iram et al., 2021), sustainability of rural microfinance between women in Indonesia (Dorkas et al., 2023), and the incentive the poverty reduction of workers in

South Africa (Mohta and Shunmugasundaram, 2024). The limitations indicated that future works could explore novel constructs and variables with general inputs, expand samples to other workers or populations, redesign the methods with interviews or mixed, include different regions as developed countries, novel states and countries, include novel control variables and reply to the articles in different perspectives.

Table 05: Systematic Classification of Articles to Identify Future Research Directions

	Construct or Variable (45)	Data collection or Sample (40)	Methods (34)	Regions (33)	Control or Mediator Moderator (12)	New Article or Theory (10)
Articles	A1, A3, A4, A6, A7, A8, A11, A13, A15, A17, A19, A20, A21, A22, A24, A25, A26, A34, A36, A37, A39, A40, A41, A44, A46, A48, A49, A50, A52, A53, A54, A56, A57, A59, A60, A61, A63, A64, A66, A67, A68, A69, A70, A72, A73.	A1, A4, A6, A7, A9, A12, A14, A16, A19, A20, A21, A24, A25, A26, A27, A30, A34, A35, A37, A38, A40, A41, A43, A48, A49, A50, A52, A53, A54, A57, A59, A60, A61, A64, A65, A67, A69, A71, A72, A73.	A1, A5, A6, A7, A8, A9, A11, A13, A14, A19, A20, A21, A24, A25, A36, A37, A40, A43, A44, A45, A46, A48, A52, A54, A59, A61, A62, A63, A66, A67, A68, A69, A70, A71.	A3, A4, A5, A8, A9, A11, A15, A18, A22, A24, A25, A26, A35, A36, A38, A39, A40, A44, A45, A48, A49, A50, A52, A53, A54, A56, A58, A63, A67, A68, A70, A72, A73.	A3, A11, A13, A16, A22, A25, A30, A43, A46, A57, A65, A67.	A1, A3, A12, A26, A35, A36, A46, A48, A55, A66.

4. Conclusions

This study proposes a research agenda by consolidating key contributions on financial literacy (FL), integrating empirical insights from studies using structural equation modelling (SEM), and exploring its relationship with sustainable development (SD). A systematic review of high-quality publications from ABS-ranked journals was conducted to map the state-of-the-art and identify conceptual and methodological gaps in the field.

The research offers two main academic contributions. First, it provides a comprehensive overview of the theoretical foundations and methodological approaches for conducting SEM-based studies in FL, guiding researchers on the use of relevant theories, constructs, and step-by-step analysis techniques. Second, it demonstrates the connection between FL and the Sustainable Development Goals (SDGs), highlighting critical gaps in the literature in terms of variables, research methods, population focus, and regional contexts. These insights aim to support new research and policy initiatives that can strengthen financial education and promote broader socioeconomic benefits.

From a theoretical perspective, 414 papers were initially identified, with 73 ultimately selected based on relevance and alignment with the study's objectives. The analysis reveals the prominence of the Theory of Planned Behaviour and the emerging Financial Literacy Theory (FLT), which focuses on financial knowledge, attitudes, and behaviour (Lusardi and Mitchell,

2014). Key references include works defining FL (Remund, 2010), measuring financial literacy (Van Rooij et al., 2011), and applying SEM techniques (Hair et al., 2010). The study identifies six major areas for future exploration: (i) constructs and variables related to financial, economic, and social behaviours; (ii) diversity in samples and data collection strategies; (iii) methodological advancements, including mixed methods and robustness checks; (iv) underrepresented geographical regions; (v) moderating, mediating, and control variables to capture complex relationships; and (vi) the development or refinement of theoretical models.

Financial literacy is increasingly recognised as a key enabler of sustainable development, particularly in reducing poverty, promoting financial inclusion, and supporting economic growth. Since the launch of the SDGs, global initiatives have underscored the importance of basic financial skills, especially for vulnerable groups. Organisations such as the OECD and World Bank have called for targeted interventions to improve financial decision-making and inclusion. Recent assessments, including PISA 2022, show persistent gaps in financial capabilities among disadvantaged populations.

Empirical studies using SEM have demonstrated that improved financial literacy is associated with enhanced financial well-being (Gerrans et al., 2014), greater inclusion (Shen et al., 2020), reduced indebtedness (Potrich and Vieira, 2018), and poverty alleviation (Maziriri and Chivandi, 2020). These outcomes align closely with SDG 1 (No Poverty), SDG 5 (Gender Equality), and SDG 8 (Decent Work and Economic Growth). Moreover, recent research highlights the influence of psychological factors such as anxiety and stress (Nandru et al., 2023; Dogra et al., 2023), social and cultural determinants like religion and local customs (Zahid et al., 2023; Graziano et al., 2024), and the potential of digital technologies and customised programmes to expand FL (Yusfiarto et al., 2023).

By articulating the link between FL and sustainable development, this study reinforces the need for interdisciplinary research and practical initiatives that address financial vulnerability and promote inclusive economic participation. The growing volume of academic literature and policy attention in recent years reflects the increasing visibility and urgency of this topic in scholarly, governmental, and business domains.

4.1. Limitations and Future Works

This research has several limitations. The first is the consideration of only articles extracted from Web of Science and Scopus databases, so including other sources is an opportunity to improve the results. The second is the restriction of keywords in the filter, which could be a limiting factor. Replicating this paper with different methods, such as regression or qualitative approach, would extend the findings in this paper. Third, the restriction of articles published in ABS ranking journals could exclude relevant documents, limiting our findings.

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