Received: 16 April 2020 | Revised: 12 July 2020 | Accepted: 13 July 2020

DOI: 10.1111/ijcs.12605

REVIEW PAPER

International Journal of Consumer Studies WILEY

Financial literacy: A systematic review and bibliometric analysis

Kirti Goyal | Satish Kumar

Department of Management Studies, Malaviya National Institute of Technology Jaipur, Jaipur, India

Correspondence
Satish Kumar, Department of Management Studies, Malaviya National Institute of Technology Jaipur, Jaipur, Rajasthan, 302017, India.
Email: skumar.dms@mnit.ac.in

Abstract

Given the paucity of comprehensive summaries in the extant literature, this systematic review, coupled with bibliometric analysis, endeavours to take a meticulous approach intended at presenting quantitative and qualitative knowledge on the ever-emerging subject of financial literacy. The study comprises a review of 502 articles - published in peer-reviewed journals from 2000 to 2019. Citation network, page-rank analysis, co-citation analysis, content analysis and publication trends have been employed to identify influential work, delineate the intellectual structure of the field and identify gaps. The most prominent journals, authors, countries, articles and themes have been identified using bibliometric analysis, followed by a comprehensive analysis of the content of 107 papers in the identified clusters. The three major themes enumerated are—levels of financial literacy amongst distinct cohorts, the influence that financial literacy exerts on financial planning and behaviour, and the impact of financial education. Additionally, content analysis of 175 papers has been conducted for the last four years' articles that were not covered in the co-citation analysis. Emerging themes identified include financial capability, financial inclusion, gender gap, tax & insurance literacy, and digital financial education. A conceptual framework has been modelled portraying the complete picture, following which potential areas of research have been suggested. This study will help policy-makers, regulators and academic researchers know the nuts and bolts of financial literacy, and identify the relevant areas that need investigation.

KEYWORDS

bibliometric analysis, consumer economics, financial education, financial knowledge, financial literacy, systematic literature review

1 | INTRODUCTION

There is a surge in access to credit and digitalisation of financial markets. Transition in the superannuation landscape, rise in longevity and long-lasting footprints of financial crises necessitate the need for financial literacy as a best practice for consumers and society, in order to channelize their finances and protect them from financial abuse. Financial literacy empowers people to craft their finances in a way that they are able to manage their everyday expenses, maintain an emergency fund, plan for children's education and prepare for their swift post-retirement years. Its vitality throughout an individual's lifecycle and the failure of people in meeting even rudimentary standards have brought the subject to the top in policy agenda (OECD, 2014). The effects of financial literacy impel better financial inclusion, the benefits of which extend to the real economy (Grohmann, Klühs, & Menkhoff, 2018).

Financial literacy is defined as the *"knowledge and understanding of financial concepts and 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). There has been a disagreement amongst the scholars and experts on the definition of financial literacy in the absence of a consistent definition in the literature. Lusardi and

Mitchell (2011a) define financial literacy as "the knowledge of basic financial concepts and ability to do simple calculations". Huston (2010) conceptualized financial literacy as the knowledge of personal finance as well as the application of that knowledge. Financial literacy is the "ability to use knowledge and skills to manage financial resources effectively for lifetime financial security" (Jump$tart Coalition, 2007). In the literary context, financial knowledge and financial literacy are used synonymously to each other (Huang, Nam, & Sherraden, 2013). Financial literacy is also linked to other concepts such as financial capability, education, awareness, etc. Mere knowledge of basic concepts of finance is futile unless it is reflected in financial behaviour (Atkinson & Messy, 2012). Financial literacy and financial capability are used as synonyms (Kempson, Collard, & Moore, 2006). People can be financially literate when they have knowledge, understanding and skills to take care of their personal finances but they cannot be called financially capable unless it is reflected in their actual behaviour. Financial literacy and financial capability are two distinct concepts but related. The combined effect of financial literacy with financial inclusion brings about financial capability, which means "ability to act" as well as "opportunity to act" (Sherraden, 2013). Financial capability connect internal capability (financial knowledge and skills) and external circumstances (financial products and services) to provide "freedom" that provokes a "person's capabilities".

Financial literacy is a broad concept and the related research revolves around analysing outcomes of financial literacy, assessing the levels amongst various cohorts of population, factors affecting financial literacy and the impact of financial education on improving financial literacy. In 1787, John Adams, the founding father of financial literacy in the United States acknowledged for the first time the significance of financial literacy and insisted upon the dire need for basic knowledge about the nature of money. But the subject gained visibility in research only in the late 1990s. The earliest studies on the topic were conducted amongst school and college students (Bakken, 1967; Danes & Hira, 1987) who identified the need for education in specific areas of money management. When financial literacy was initially conceived, it was defined as financial capability (Kempson et al., 2006). In 1992, the National Foundation for Educational Research considered financial literacy as the decision-making ability regarding money management (Noctor, Stoney, & Stradling, 1992). This was the earliest used meaning of the term "financial literacy" to date. This definition was further expanded to financial capability according to which a financially capable person has an understanding of credit, debt, budget, insurance and all other financial dimensions. Positive financial behaviour is found to be a culmination of financial literacy (Santini, Ladeira, Mette, & Ponchio, 2019) and such behaviour is also influenced by a number of unexplored factors (Riitsalu & Põder, 2016). The lifecycle model developed by Lusardi and Mitchell (2014) suggests that people who receive financial education perform better than those who don't. To understand the factors driving financial behaviour, distinct behavioural theories have been used by the researchers. Theory of Planned Behaviour (TPB) (Ajzen, 1991), Theory of Consumer Socialisation (TCS) (Moschis, 1987) and Social Learning Theory (SLT) (Bandura, 1986) are the most widely used theories in the literature. According to TPB, the attitude towards behaviour, subjective norms and perceived behavioural control are likely to influence intentions and behaviour. TCS states that family members can act as socialisation agents within the purview of the family's culture and norms. There are a number of empirical studies on the impact of at-home financial socialisation on the financial literacy of youth (Danes, 1994). SLT proclaims that social interactions by young adults influence their financial attitudes and knowledge. Financial literacy is a subject of thought not confining itself to social welfare but also has consequences for the financial system and the real economy.

Prior to this review, a limited number of literature review publications had come out on distinct themes of financial literacy in the last two decades. Table 1 shows a list of these reviews. Mostly, the reviews pertain to a specific theme. None of them aims at encompassing the unabridged scope of financial literacy. Further, we failed to trace any work examining the conceptual and intellectual configuration latent in this emerging research area. Such gaps compelled us to combine both quantitative and qualitative methods to compile the extant literature and provide a roadmap for future research. This is the first systematic literature review-cum-bibliometric analysis on financial literacy to canvass the field holistically. This review encapsulates the state-of-the-art development in the field with an intent to eventually aid practitioners, policy-makers, educators and researchers.

1.1 | International evidence on financial literacy

Worldwide research on financial literacy substantiates the existence of the problem, just as it was ten centuries ago (De Beckker, De Witte, & Van Campenhout, 2019; Xiao & Porto, 2017). Poor financial behaviour has fatal consequences not only for individuals but also for the global economy, as was seen in the U.S. mortgage bubble. S&P's global financial literacy survey confirms the existence of financial illiteracy across developed and developing economies (Klapper & Lusardi, 2019). However, there are mostly single country pieces of evidence on financial literacy. Stolper and Walter (2017) examined financial literacy amongst adults across 22 single country studies, using the Big Three measure. Although higher levels of competence were found in upper-income countries with only 35% of total adults on average answering all three questions correctly, 13% for middle-income nations and just 4% for transition countries. According to a cross-country evidence provided by Klapper, Lusardi, and Van Oudheusden (2015), the financial literacy rates amongst adults are at least 65% in the countries such as Australia, Canada, Denmark, Finland, Germany, Israel, The Netherlands, Norway, Sweden and the United Kingdom whereas it is only 25% or less in South Asia. OECD (2016) examined cross-country financial literacy levels across 30

TABLE 1 Summary of extant reviews in the financial literacy domain (2000–2019)

Author(s)	Scope of the review	Type of study
Fox et al. (2005)	Impact of financial education programmes	Review
Collins and O' Rourke (2010)	Effectiveness of financial education and counselling programmes	Review
Remund (2010)	Definitions and measures of financial literacy	Review + Conceptual
Huston (2010)	Measures of financial literacy	Review + Conceptual
Vaihekoski (2011)	Research on Education in finance in Finland	Review
Hastings et al. (2013)	Measuring financial literacy, financial education impact and financial outcomes	Review
Fernandes et al. (2014)	Impact of financial literacy and financial education on financial behaviour	Meta -analysis
Drever et al. (2015)	Role of parental socialisation, executive education and experience based financial education in youth and children	Review
Van Campenhout (2015)	Parental role in youth financial socialisation	Review
Totenhagen et al. (2015)	Education programmes on youth financial literacy	Review
Miller, Reichelstein, Salas, and Zia (2014)	Impact of financial education on financial literacy and behaviour	Meta -analysis
Williams and Oumlil (2015)	Financial capabilities and debt issues of college students	Review + Conceptual
Kaiser and Menkhoff (2017)	Influence of education in finance on financial literacy and consequently behaviour	Meta -analysis
Peeters et al. (2018)	Evaluation of group based financial education and counselling programmes	Review + Conceptual
Walstad et al. (2017)	Evaluation of programmes in financial education	Review
Burrus et al. (2018)	Effectiveness of interventions in developing adolescents' skills for adulthood	Review
Steinert et al. (2018)	Impact of saving promotion interventions in consumption and investments	Review + Meta - analysis
Montalto, Phillips, McDaniel, and Baker (2019)	College students' financial wellness, literacy and behaviour	Review
Ståhl et al. (2019)	Social insurance literacy	Review
Santini et al. (2019)	Factors and outcomes of financial literacy	Meta -analysis
Compen, De Witte, and Schelfhout (2019)	Impact of Teacher professional development on financial literacy	Review

countries using financial knowledge, financial attitude and financial behaviour as a combined measure of financial literacy. It was found that overall financial literacy levels are low. France's population scored highest whereas European countries such as Poland, Belarus and Croatia scored lowest. International evidence exists not only on financial literacy amongst adults but also adolescents. OECD (2017) analysed levels of financial literacy amongst 15-year old students in the PISA survey. About 22% of all students on an average score below the threshold level across 15 OECD countries and 12% are on the top. China scores best with only 9% of students being financially illiterate, students in Brazil, moreover, score worst with 53% being financially illiterate.

1.2 | Objectives of the study

The fundamental purpose of this study is to present the prevailing state of research on financial literacy, with the following questions deciphering the scope of the study:

RQ1: What are the current publication trends in financial literacy in terms of time, journals, disciplines, authors, affiliated countries and institutions, type of study and economy?

RQ2: Which are the influential studies and themes of research in this domain?

RQ3: What is the intellectual structure of financial literacy research, how has it evolved over the years and what are the recent research trends in this domain?

RQ4: What are the gaps and areas for future research?

The rest of this paper is designed as follows: Section 2 delineates methods of analysis and data search, Section 3 covers findings on publication trends, Section 4 deals with citation network and Section 5 covers page-rank analysis. Section 6 presents keyword analysis, while Section 7 covers co-citation analysis. Section 8 details the content study of the last 4 years' literature, Section 9 delineates the conceptual framework of financial literacy and finally, Section 10 includes the discussion. Section 11 suggests future research avenues in reference to theory, methods and contexts. The study is concluded in Section 12.

2 | RESEARCH METHODOLOGY

2.1 | Database, keywords and inclusion criteria

In order to arrive at information pertinent to this study, data were retrieved in December 2019 from the Web of Science core collection platform by Clarivate analytics, which is the world's premier database for published articles and citations. It includes publications in top-tier journals and is most suited for bibliometrics (Korom, 2019). The search was conducted in December 2019 and data from the period 2000–2019 were analysed. In the year 2000, thrust for education was seeded into the system and the U.S. government included the term 'financial literacy' in naming the Financial Literacy and Education Commission (U.S. Government Accountability Office, 2006). The most interchangeably used terms in the literature are financial literacy, financial knowledge and financial education (Huston, 2010). The term financial capability is also used interchangeably with financial literacy (Kempson et al., 2006). The UK's Financial Services Authority (FSA) began using this term in 2003 at the time of planning and implementing the National Strategy for Financial Capability because financial capability encompasses behaviour (Mundy, 2011). According to Social and Enterprise Development Innovations (SEDI) (2004), the concept of financial literacy is used in North America, while financial capability is used in the British term. A string of appropriate search terms ("financ* literacy" OR "financ* knowledge" OR "financ* education" OR "financ* capability") was used to search the papers in title, abstract or keywords, yielding 1,368 initial results. Then the search was refined to include only English language articles which resulted in 1,330 articles. The articles were screened on the basis of reading abstracts and even full- length papers were accessed in case there was a doubt on the relevancy. To ensure the inclusion of relevant articles, those articles were shortlisted for final analyses which either focused on financial literacy or financial knowledge (concept, measurement, determinants and outcomes), articles related to financial education interventions to improve financial knowledge and articles dealing with a relatively wider and closely related concept "financial capability". Subsequently, duplicates were removed. The final database used for this review comprised 502 articles (Annexure-1). The co-citation analysis was performed on 502 articles which resulted in the clusters of articles ($n = 107$) articles for detailed content analysis. Additionally, out of 257 articles published between 2016 and 2019, only ABDC ranked journal articles ($n = 175$) were taken into consideration for further content analysis in order to focus on the quality papers (Hao, Paul, Trott, Guo, & Wu, 2019). Figure 1 shows the complete data retrieval process.

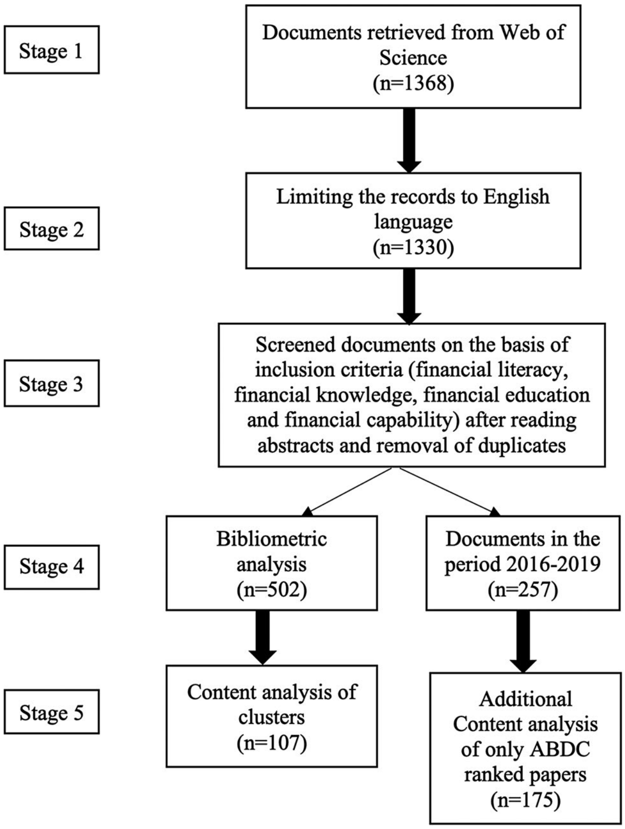

FIGURE 1 *1*Data retrieval process

2.2 | Analysis method

Systematic review papers can be of several types, namely—Structured review focusing on widely used methods, theories and constructs (Rosado-Serrano, Paul, & Dikova, 2018), Framework based (Paul & Benito, 2018), Hybrid- Narrative with a framework for setting future research agenda (Dabić et al., 2020), theory- based review (Gilal, Zhang, Paul, & Gilal, 2019) meta-analysis (Knoll & Matthes, 2017), bibliometric review (Randhawa, Wilden, & Hohberger, 2016) and review aiming for model/framework development (Paul & Mas, 2019). In this study, a combination of bibliometrics and systematic literature review is followed, which is similar to the procedure adopted by Caputo, Marzi, Pellegrini, and Rialti (2018). Bibliometrics is the most extensively practiced approach to trace the knowledge anatomy of a research field (Li, Wu, & Wu, 2017) and is used to analyse research topics (Blanco-Mesa, Merigó, & Gil-Lafuente, 2017). Systematic literature reviews are used to synthesize the contents of the literature, limit bias (Tranfield, Denyer, & Smart, 2003) and figure out possible research gaps (Kumar, Tomar, & Verma, 2019; Paul & Benito, 2018; Talan & Sharma, 2019). For the purpose of delving into the domain, bibliometric analysis is performed followed by content analysis of the major themes (Baker, Pandey, Kumar, & Haldar, 2020).

The most common bibliometric methods used to exhibit similarities amongst the citing and the cited documents are citation and co-citation analysis (Small, 1973). Tools such as publication trends and citation network analysis are applied in the present study (Paul & Benito, 2018; Paul & Rosado-Serrano, 2019). Additionally, co-citation for clustering, keyword analysis, page rank analysis and content analysis are also used (Xu et al., 2018). The software used for analysis is VOS Viewer and Gephi. VOS Viewer provides a map in which the relatedness of items can be explained by the distance between them. Shorter the distance between the items, the more related they are (Van Eck & Waltman, 2010). This is based on the "visualization of similarities" (VOS). Citation, co-citation and keyword analysis have been performed through the VOS viewer. Gephi, because of its editable features, has been used for network visualisation and centrality and page rank analysis. First, 502 articles were fed into the VOS Viewer for citation and co-citation analysis. Then, the network file was taken to Gephi for the purpose of modularity, centrality, page rank and visualisation. Figure 2 shows the methodology of analysis.

3 | FINDINGS

3.1 | Trend of publication in time

Figure 3 illustrates the progression of publications available in the WOS data on financial literacy in the period 2000–2019. There has been an upsurge in publications: from just one article published in 2000 to 90 articles in 2019. Research on financial literacy has seen a sudden spurt from 2009. The main reason for this surge is the global financial crisis that began in 2008, characterized by soaring losses, household debt and liquidity crunch. The macroeconomic shock expressed a "teachable moment" for the public at large and called for a policy focus on sound conventions in financial education and consumer protection (OECD, 2009). For the first time in 2009, national strategies for financial education were launched as a policy tool to counter the deep-rooted effects of the financial crisis. And in 2012, leaders of G20 recommended high-level principles related to the national strategies on financial education introduced by OECD/

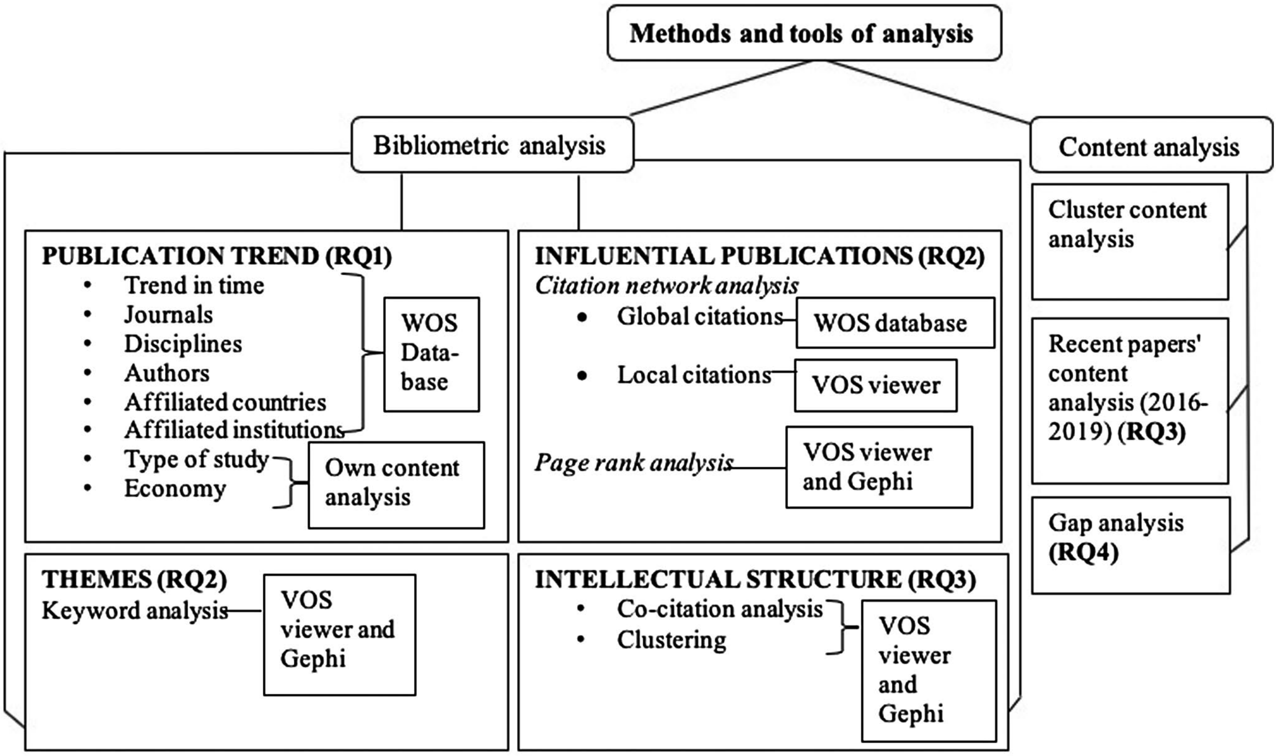

FIGURE 2 Scheme of analysis used in present study

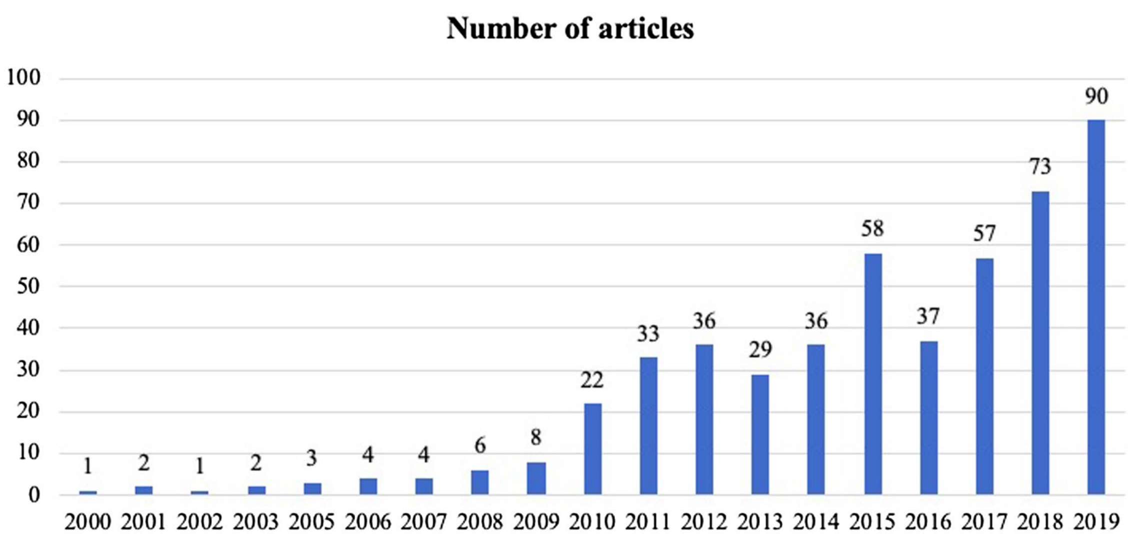

FIGURE 3 Annual publication trend of 502 papers between period 2000–2019 retrieved from WOS [Colour figure can be viewed at wileyonlinelibrary.com]

INFE. Since then, publications on the topic have increased more than twofold.

3.2 | Publication outlets

The 502 publications analysed are dispersed across 206 journals. Table 2 presents the list of most prominent journals publishing on financial literacy. The top 15 journals have published 229 of the total articles studied, representing 45.62% of the total. Journal of Consumer Affairs is the most productive platform, publishing 64 articles, followed by the International Journal of Consumer Studies. Financial literacy is a matter of consumers' interest in the marketplace and justifies its presence well within the scope of these journals. Furthermore, many of these journals have Australian Business Deans Council (ABDC) ranking of A* and A, and a Chartered Association of Business Schools (CABS) rating which shows that the field occupies a position in the quality journals of business and management research.

Figure 4 shows that the subject of financial literacy is connected well not only to business and economics but also to fields like education, social work, gerontology, psychology and family studies. This signifies that the topic is multidisciplinary in nature. What is interesting is the lack of research in other fields, notably sociology and development studies. There is a wide array of research around the economic importance of financial literacy and it is more related to money matters. The relevance of financial literacy in the effective functioning of the society, in general, is still uncovered which might be the plausible argument for a lack of studies in sociology. There are very few papers in the field of development studies. Research on financial literacy in developing countries is challenging because of wide socio-economic diversities and basic literacy levels.

3.3 | Prolific authors and their affiliated institutions and countries

Based on our data set, 1,036 authors, affiliated with 573 organisations spread across 61 countries, publish articles on financial literacy. Table 3 lists the top contributors based on their number of publications. Annamaria Lusardi leads the list with 26 publications, followed by Jing Jian Xiao with 14 articles and Olivia S. Mitchell with 12 articles. Annamaria Lusardi and Olivia S. Mitchell also receive the highest number of citations- 2,652 and 1,959, respectively. The two authors are considered experts in the field and have published widely on financial literacy, financial education and social security. Soyeon Shim ranks third with 381 citations and has published on young adults' financial behaviour and financial socialisation.

Table 3 also shows the top institutions affiliated with the authors of financial literacy. The most active institution working on financial literacy is George Washington University with 21 publications. The second in the list is the University of Rhode Island together with the University of Wisconsin, with 15 publications each. They are succeeded by the University of Pennsylvania with 13 publications. These institutions are located in the United States, which shows that the research on financial literacy is concentrated in the western part

TABLE 2 Leading journals publishing on financial literacy

Journal name	ABDC ranking	ABS rating	Publisher	TP
Journal of Consumer Affairs	A	2	Wiley - Blackwell Publishing	64
International Journal of Consumer Studies	A	2	Wiley - Blackwell Publishing	32
Journal of Pension Economics and Finance	B	2	Cambridge University Press	26
International Journal of Bank Marketing	A	1	Emerald Group Publishing	16
Journal of Family and Economic Issues	B	2	Springer International Publishing	13
Journal of Banking and Finance	A*	3	Elsevier	13
Journal of Economic Psychology	A	2	Elsevier	12
Journal of Economic Education	B	1	Taylor and Francis Online	11
American Economic Review	A*	4*	American Economic Association	6
Journal of Economic Behaviour and Organisation	A*	3	Elsevier	6
Social Indicators Research	A	NR	Springer International Publishing	7
Journal of Social Service Research	NR	NR	Taylor and Francis Online	6
Applied Economics Letters	B	1	Taylor and Francis Online	6
African Journal of Business Management	NR	NR	Academic Journals	6
Emerging Markets Finance and Trade	B	2	Taylor and Francis Online	5

Notes: Here TP = Total publications; ABDC = ABDC is ranking of journal quality (provided by Australian Business Deans Council), A* = highest quality showing top 5%–7% journals in the field, A = second highest quality showing the next 15%–25% journals in the field, B = third highest quality showing the next 35%–40% journals in the field, C = fourth highest quality showing the rest of the journals in the field, NR = Not ranked/rated. CABS = CABS rating is given by Chartered Association of business schools, 4* = journals having highest impact factor and publishing most original research, 4 = journals having second highest impact factor and publishing original research, 3 = journals publishing original research but not necessarily have high impact factor, 2 = journals publishing acceptable standard research, 1 = journals publishing satisfactory standard research.

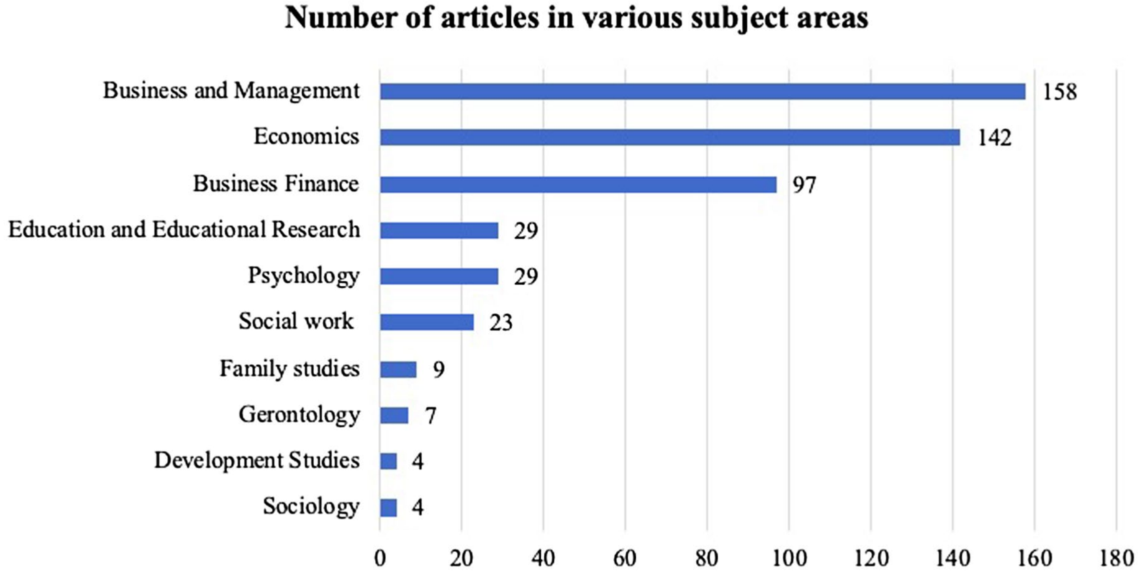

FIGURE 4 Top disciplines of financial literacy research in 502 papers [Colour figure can be viewed at wileyonlinelibrary.com]

TABLE 3 Top authors, affiliated institutions and countries publishing on financial literacy

Top authors			Top institutions			Top countries		
Author	TP	TC	Institution	TP	TC	Country	TP	TC
Annamaria Lusardi	26	2,652	George Washington University	21	1,430	United States	256	6,979
Jing Jian Xiao	14	369	University of Rhode Island	15	481	England	43	706
Olivia S. Mitchell	12	1,959	University of Wisconsin	15	242	Australia	31	491
Soyeon Shim	9	381	University of Pennsylvania	13	1,960	Germany	26	369
Joyce Serido	8	269	University of Arizona	11	380	Italy	26	310
John Gathergood	7	199	University of Groningen	11	444	Netherlands	25	834
William B. Walstad	6	124	Ohio State University	10	182	China	23	153
Bilal Zia	6	161	University of Georgia	9	96	Canada	15	202
Michael J. Collins	6	100	World Bank	9	236	South Korea	13	51
Paul Gerrans	5	50	University of Alabama	7	10	Turkey	11	44
Rob Alessie	4	147	Dartmouth College	7	1,223	Malaysia	9	39
Swarn Chatterjee	4	46	Texas Tech University	7	344	India	9	43
Brenda J. Cude	4	22	University of Illinois	7	252	South Africa	9	40
Leila Falahati	4	6	University of Nottingham	7	199	Sweden	9	109
Jin Huang	4	46	Universiti Putra Malaysia	7	14	Spain	8	13

Abbreviations: TC, total citations; TP, total publications.

of the world—showing a further gap between the research in the United States and in other parts of the world.

Table 3 also lists the top countries affiliated with authors of financial literacy, with the leading three being the United States (256 articles), England (43 articles) and Australia (31 articles). Since 2003, when the U.S. Government established its Financial Literacy and Education Commission and the United Kingdom launched its national strategy on financial capability (Financial Literacy and Education Commission, 2006), personal finance has been a focus of these countries. The U.S. mortgage crisis further supports the evidence of increasing interest in financial literacy research in the United States.

3.4 | Sample statistics

Financial literacy research has been carried out through various study methods. In order to examine the distinct modalities of research used in the domain (Brozovic, 2018), we have manually classified the 502 documents into four distinct study approaches: empirical, conceptual/theoretical, review and meta-analysis. Conceptual studies focus on developing a conceptual framework based on a theory or a concept. Empirical studies, in our context, are the ones that test financial literacy levels amongst the populace through surveys, examine the factors and measure the influence of financial education through experimentation. Review studies take a retrospective view of past research, while meta-analysis combines the results of previous studies and analyses them using a new statistical framework.

Figure 5 shows the proportion of different study methods used in financial literacy research. Out of 502 papers, 86% are empirical, only 10% are conceptual and just 4% are reviews and meta-analysis. It can be inferred that few studies provide a proper

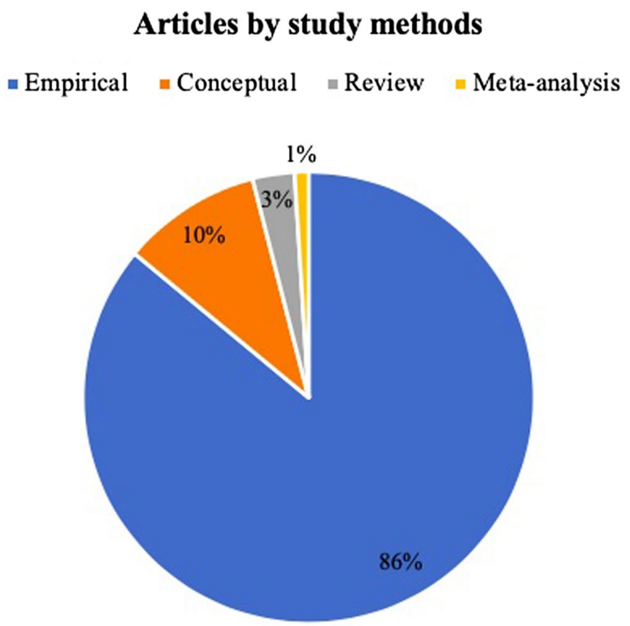

FIGURE 5 Sample statistics of 502 papers based on study methods [Colour figure can be viewed at wileyonlinelibrary.com]

conceptualisation of financial literacy supported by grounded theories. The answer to "What?" has been addressed fairly well, but there is a gap in answering "Why?" on the basis of concepts and reinterpretation of existing theories. Also evident is the dearth of review studies providing up-to-date knowledge in financial literacy.

The present study segregated the literature into four categories based on the economy of the country in which the study was conducted: Developed, Developing, Cross-country and Not applicable. "Not applicable" was assigned to those studies which were not country-specific. Cross-country studies compared data amongst countries. Figure 6 shows that out of 502 studies, 62% were conducted in developed countries, 23% in developing countries and 2% at a cross-country level. About 13% of the studies were not country-specific. Financial literacy, as a field of study, is more popular in developed countries because illiteracy of basic finance is prevalent not only in middle-income societies but in mature financial markets, too (Lusardi & Mitchell, 2011b). In developing countries, the topic is still in its infancy. Much needs to be performed on the subject matter to enhance policy initiatives on financial education in developing countries.

4 | CITATION NETWORK ANALYSIS

Citation count determines the number of citations a given document has received over a period of time. A more frequently cited document is considered as more influential and productive than those

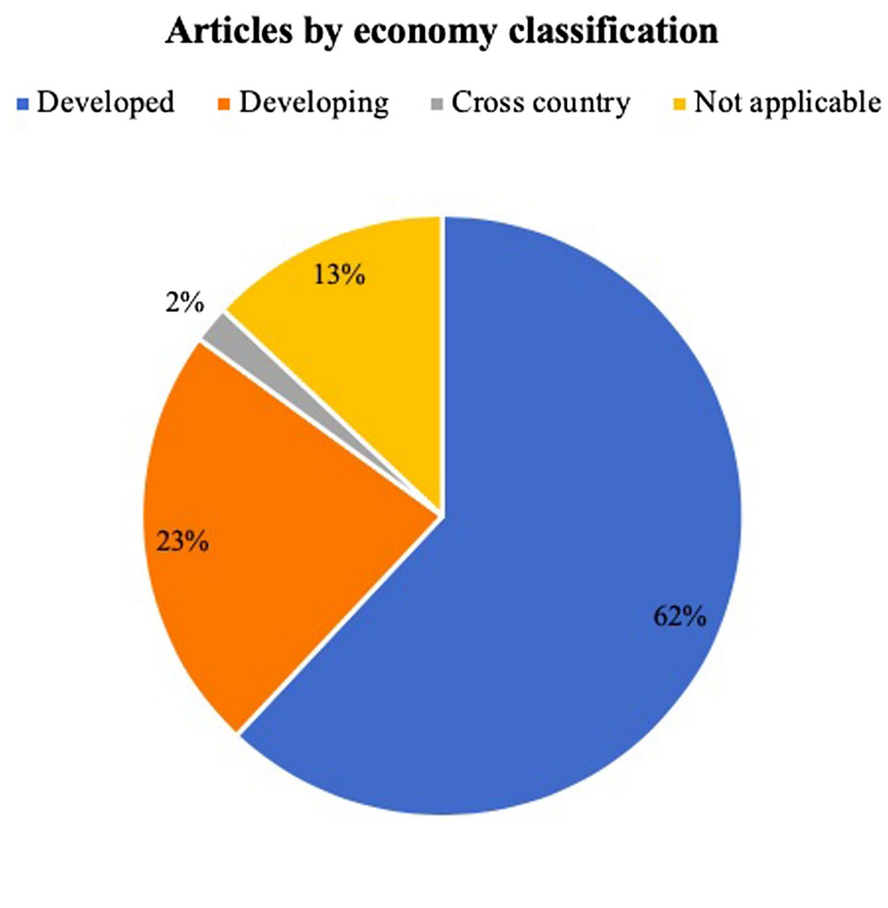

FIGURE 6 Sample statistics of 502 papers based on economy of the country [Colour figure can be viewed at wileyonlinelibrary.com]

which are less frequently cited. Citation analysis is the best method to map the influence of a research publication (Tsay, 2009). To figure out the most influential articles on financial literacy, the citation network of 502 articles was analysed using VOS Viewer and Gephi. Citation analysis of these articles shows that 457 articles have cited other studies in the 502-node network.

Table 4 presents the 15 articles on financial literacy most frequently cited locally and globally between 2000 and 2019. Global citations imply the number of times an article is cited by other works across all databases, inclusive of other areas and research fields. Local citations indicate the number of times a paper is cited by other papers within this 502-node network. According to the global citations, Lusardi and Mitchell (2007a) top the list with 514 citations, followed by Lusardi and Mitchell (2014) with 418 citations and Lusardi, Mitchell, and Curto (2010) with 265 citations. Concerning local citations, Lusardi and Mitchell (2014) rank first with 169 citations. Lusardi and Mitchell (2007a) come second, with 136 citations. Lusardi and Mitchell (2007a, 2014) are the most prominent articles paving the way for further research on financial literacy. They provide a theoretical model to support the notion that knowledge in finance is a kind of human capital investment. Also, they provide a snapshot of a number of empirical evidence on financial literacy and economic behaviour. Figure 7 shows the most prominent well-connected nodes within the network having a large number of local citations. An article with a large number of local citations is considered as an influential work within the whole body of literature on financial literacy. It is again evident that Lusardi and Mitchell are significant contributors to this area. It can further be inferred that apart from financial knowledge and financial education, financial behaviour and financial socialisation are the most influential topics leading the way to financial literacy research. The observable gap between global and local citations signifies that the financial literacy domain has received interest from other disciplines, too.

5 | PAGE RANK ANALYSIS

The number of citations measures the popularity of an article but its prestige is measured by page rank analysis, which indicates the number of times an article is cited by highly cited articles. It cannot be assumed that a highly referred paper is also a prestigious paper. PageRank introduced by Brin and Page (1998) is a composite measure of both eminence and prestige. PageRank was used for the first time in order to prioritize web pages when a search is performed on Google. Now, it can be used to measure linkage in citation networks. Suppose, Paper A has been referred by other papers T_1 ...., T_n, and paper T_i has references $C(T_i)$. Paper A's page rank represented by PR(A) in a network of N number of papers is estimated as follows

$$\mathrm{PR}(A)=\frac{(1-d)}{N}+\mathrm{d}\left(\frac{PR(T_1)}{C(T_1)}+\cdots+\frac{PR(T_n)}{C(T_n)}\right).$$

where “d” denotes the damping factor, fixed between 0 and 1. It denotes the ratio of arbitrary walks that disseminate alongside the citations. Originally, the value of “d” in the Google algorithm was established on the view that a web surfer pursues six hyperlinks before beginning a new search. The sum of the page ranks of all the papers is equal to 1, representing their total probability distribution. Table 4 lists the top papers based on PageRank. Contrasting results are found on the comparison between papers based on citation count and PageRank.

TABLE 4 Top publications based on local and global citation count and page rank

Article	Global citations	Local citations	Article	Page rank
Lusardi and Mitchell (2007a)	514	136	Lusardi and Mitchell (2014)	0.042296
Lusardi and Mitchell (2014)	418	169	Fonseca et al. (2012)	0.020043
Lusardi et al. (2010)	265	117	Lusardi and Mitchell (2008)	0.019765
Lusardi and Mitchell (2008)	260	89	Carlin and Robinson (2012)	0.017576
Huston (2010)	249	104	Bernheim and Garrett (2003)	0.015585
Fernandes et al. (2014)	248	87	Khan, Rothwell, Cherney, and Sussman (2017)	0.014286
Lusardi and Mitchell (2011b)	238	82	Shen, Lin, Tang, and Hsiao (2016)	0.013879
Bernheim and Garrett (2003)	164	62	Lusardi et al. (2017)	0.013673
Van rooij et al. (2012)	163	63	Norvilitis and Maclean (2010)	0.0123
Shim et al. (2010)	143	44	Huston (2010)	0.012226
Norvilitis et al. (2006)	141	19	Collins (2013)	0.012107
Lusardi and Mitchell (2011)	129	53	Moreno-Herrero, Salas-Velasco, and Sánchez-Campillo (2018)	0.011078
Willis (2008)	128	37	Allgood and Walstad (2016)	0.010784
Remund (2010)	121	43	Kiliyanni and Sivaraman (2016)	0.010208
Hastings et al. (2013)	115	55	Van rooij et al. (2011a)	0.009832

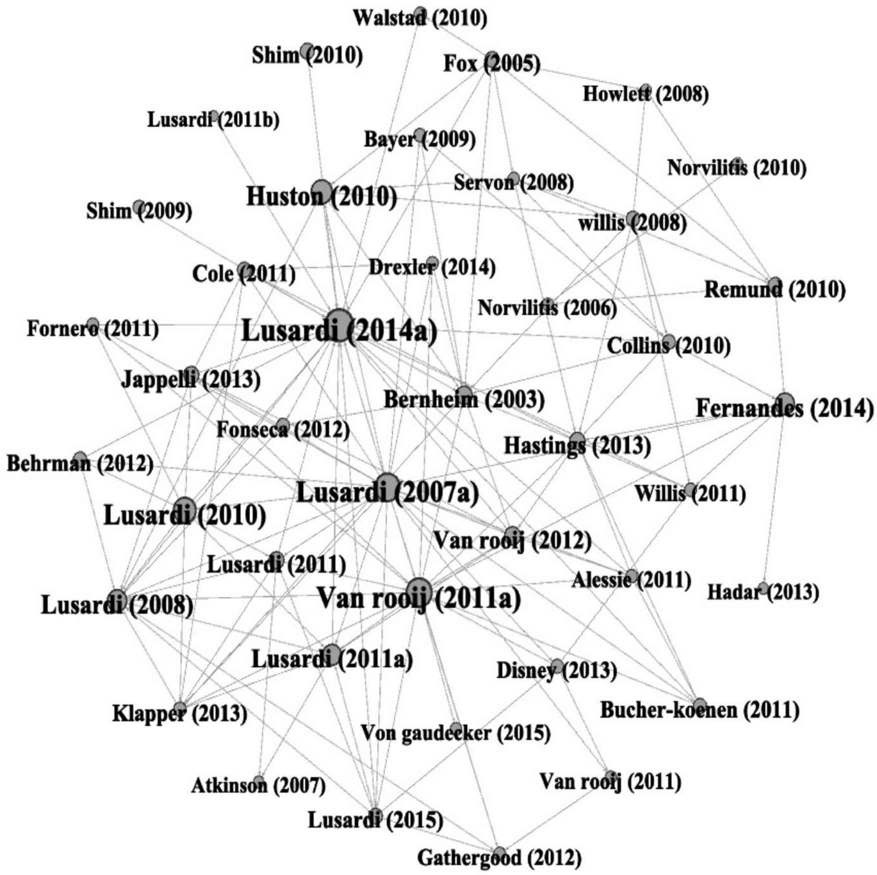

FIGURE 7 Citation network on financial literacy. *Note:* This figure represents financial literacy citation network with the help of Gephi on the basis of citations with a threshold of minimum 50 citations

When the top 10 papers were compared based on citation count and PageRank measure, it was found that only 1 (Lusardi & Mitchell, 2014) out of 5 highly cited papers is amongst the top five papers based on PageRank. Other top four papers based on PageRank are Fonseca, Mullen, Zamarro, and Zissimopoulos (2012), Lusardi and Mitchell (2008), Carlin and Robinson (2012), and Bernheim and Garrett (2003). As the field matured over time, these papers were amongst the most influential primary studies either discussing the impact of financial education on school students through role-play as adults (Carlin & Robinson, 2012) or seminars at the workplace (Bernheim & Garrett, 2003) or gender-centric issues in financial literacy (Fonseca et al., 2012), thus contributing to the rest of the quality papers.

6 | KEYWORD ANALYSIS

The author keywords represent the themes of research articles (Comerio & Strozzi, 2019). Using the VOS Viewer, keyword analysis was performed to explore the most prevalent themes in financial literacy. A total of 919 keywords were identified in 502 papers. Table 5 shows the top keywords used in financial literacy research from 2000 to 2019. "Financial literacy" is the most frequently used keyword, with 231 occurrences, which indicates that this word alone is used as a termed concept in the literature. The other three most frequently used keywords are "financial education" (55 occurrences), "financial capability" (30 occurrences) and "financial knowledge" (26 occurrences). A significant finding from the analysis is that there is no unanimity on the conceptualisation of financial literacy and that a lack of standardized meaning compels authors to use the terms

TABLE 5 Top keywords of financial literacy based on the occurrence

Keyword	Occurrences
Financial literacy	231
Financial education	55
Financial capability	30
Financial knowledge	26
Financial behaviour	24
Household finance	23
Retirement planning	17
Financial socialisation	15
Gender	14
Financial inclusion	13
Personal finance	13
Financial well-being	11
Savings	10
Education	8
Behavioural finance	6

FIGURE 8 Network of keyword co-occurrence on financial literacy. *Note:* This figure shows the most often used keywords on financial literacy using Gephi with a threshold of minimum 15 keywords. Larger the bubble size indicates, more often the word has been used

financial literacy, financial education, financial capability and financial knowledge interchangeably. Figure 8 shows that literacy is more widely connected with the term education, knowledge and behaviour. Financial literacy is also linked to retirement planning (Lusardi & Mitchell, 2011a; Van Rooij, Lusardi, & Alessie, 2011b) as is seen in Figure 8. Increasingly, as individuals are taking charge of their financial well-being after retirement with the shift from Defined Benefit (DB) to Defined Contribution (DC) plans, financial literacy has become equally important. Financial literacy is also a core element of household finance that makes it viable for households to plan their finances (Bernheim, 1995; Lusardi & Mitchell, 2007a). Financial socialisation, financial inclusion, gender and financial well-being are other emerging themes in the domain.

7 | CO-CITATION ANALYSIS

Co-citation is defined as the frequency of citing two papers together by another paper (Small, 1973). This method is widely used in a bibliometric analysis to explore the intellectual structure of the most influential documents in a field of research. The more frequently two articles are co-cited, the more similar they are in terms of the broad research area (Culnan, 1987). Too-old documents with only a few citations or too-current documents fail to have a reasonable impact on the research domain (Pilkington & Fitzgerald, 2006). Therefore, to concentrate on the most impactful publications in the field, a co-citation threshold of 15 documents was used for our analysis. Pilkington and Fitzgerald (2006) prefer a threshold of 15 articles for co-citation for 10 years period. Similarly, Uysal (2010) used a threshold of 10 co-citations for 20 years period. The analysis shows that 107 documents out of 502 are co-cited at least 15 times by other documents in the network.

7.1 | Thematic categorisation: Clustering

In a network, nodes can be segregated into clusters in which the weight of edges is higher between the nodes in a cluster than those of other clusters (Leydesdorff, Bornmann, & Wagner, 2017). The articles in the same cluster share a common theme and differ from articles in other clusters. Clustering enables a thematic analysis of the co-citation network (Xu et al., 2018). The modularity mechanism has been widely applied in social network analysis to measure the density of links within the clusters versus those outside the clusters and a clustering tool in Gephi, which is based on the Louvain algorithm, is used to optimize the count of partitions and magnify the modularity index (Blondel, Guillaume, Lambiotte, & Lefebvre, 2008). The modularity index is calculated as

$$Q = \sum [A_{ij} - \frac{k_i k_j}{2m}] \delta (a_i, a_j) .$$

where A_{ij} denotes edge's weight between i and j; k_i represents the sum of the weights of the edges connected to i; c_i is the community of vertex i; $\delta(a_i,a_j)$ is equal to 1 if $a_i = a_j$ and 0 otherwise; and last, m is the total of all edge's weight.

TABLE 6 Top articles in each cluster based on page rank in the co-citation network

Cluster 1 (Relationship between financial literacy and financial planning)	Cluster 2 (Impact of financial literacy and education on financial behaviour, notably of young people)	Cluster 3 (Levels, causes and consequences of financial literacy)
Hilgert et al. (2003)	Huston (2010)	Lusardi and Mitchell (2011b)
Lusardi and Mitchell (2007a)	Lusardi et al. (2010)	Lusardi and Mitchell (2014)
Bernheim, Garrett, and Maki (2001)	Chen and Volpe (1998)	Van rooij et al. (2012)
Van rooij et al. (2011a)	Fernandes et al. (2014)	Hastings et al. (2013)
Lusardi and Mitchell (2007b)	Fox et al. (2005)	Willis (2011)
Lusardi and Mitchell (2008)	Fonseca et al. (2012)	Jappelli and Padula (2013)
Bernheim and Garrett (2003)	Shim et al. (2010)	Bucher-Koenen and Lusardi (2011)
Agarwal et al. (2009)	Mandell and Klein (2009)	Jappelli (2010)
Campbell (2006)	Walstad et al. (2010)	Cole et al. (2011)
OECD (2005)	Collins and O'rourke (2010)	Meier and Sprenger (2013)
Lusardi and Tufano (2015)	Chen and Volpe (2002)	Behrman et al. (2012)
Christelis et al. (2010)	Mandell (2008)	Disney and Gathergood (2013)
Stango and Zinman (2009)	Remund (2010)	Klapper and Panos (2011)
Bayer, Bernheim, and Scholz (2009)	Shim et al. (2009)	Van rooij et al. (2011b)
Agnew and Szykman (2005)	Tennyson and Nguyen (2001)	Gathergood (2012)

When this algorithm is applied on a 107 node network, it results in three distinct clusters, with 33 documents in Cluster 1, 47 documents in Cluster 2 and 27 documents in Cluster 3. Table 6 portrays the top 15 papers based on the PageRank measure in co-citation in each cluster.

7.2 | Content analysis

Co-citation analysis was followed by a thorough content analysis of 107 papers included in three clusters. After careful examination of each cluster, a common theme was identified within it.

7.2.1 | Cluster 1: Relationship between financial literacy and financial planning

Cluster 1 comprises 33 documents. The focal point of this cluster is the association of financial literacy with more effective financial planning, particularly concerning old people. The researchers identified the reasons most of the households retire with inadequate wealth (Lusardi & Mitchell, 2007a). Lusardi and Mitchell (2007b) show that planning is strongly correlated with financial literacy, which, in turn, brings about an increase in wealth holdings. Hilgert, Hogarth, and Beverly (2003) indicate a positive correlation between financial knowledge and financial management practices. Debt literacy is an important enabler in making every-day financial decisions regarding debt and low debt literacy can result in over-indebtedness (Lusardi & Tufano, 2015). Those who cannot calculate the interest rate correctly tend to borrow more (Stango & Zinman, 2009). The evidence of financial illiteracy is extensive worldwide, amongst the old as well as the young (Lusardi & Mitchell, 2007b; OECD, 2005). It is especially low amongst older women (Lusardi & Mitchell, 2008), with serious implications on retirement planning (Lusardi & Mitchell, 2017), wealth accumulation (Hastings, Madrian, & Skimmyhorn, 2013), mortgage decisions and stock market participation (Van Rooij, Lusardi, & Alessie, 2011a). Bernheim (1995) was amongst the earliest to show a low level of financial literacy amongst consumers in the United States, with Agnew and Szykman (2005) providing clear evidence of lack of basic knowledge about bonds, interest rate, stocks and mutual funds. The cluster also centres around the theme of household financial decision making and the major role of financial literacy. Less-educated households are more likely to make investment mistakes and prefer to withdraw from risky markets (Campbell, 2006). Cognitive ability, which relates to planning and problem solving, is another component of financial literacy which makes households capable of investing in stock markets, mutual funds and retirement (Christelis, Jappelli, & Padula, 2010). A decline in such ability with age impacts the investment decisions over the lifecycle (Agarwal, Driscoll, Gabaix, & Laibson, 2009). Apart from proficiency in the basic financial concepts, the role of information and social interactions on future financial decision making is evident (Duflo & Saez, 2003; Hong, Kubik, & Stein, 2004). Education is an effective tool for stimulating planning behaviour (Bayer, Bernheim, & Scholz, 2009; Bernheim & Garrett, 2003; Bernheim, Garrett, & Maki, 2001). Thus, the nucleus of the cluster highlights the fact that financial illiteracy hampers financial planning and highlights the need for financial education.

7.2.2 | Cluster 2: Impact of financial literacy and education on financial behaviour, notably of young people

Cluster 2, with 47 documents, is the largest of the three clusters. The documents in this cluster examine how skilled young people are to make financial decisions, what the factors affecting their financial literacy are and how interventions aimed at young people can ameliorate their financial literacy. Financial literacy is critically deficient amongst the young; only a few know about inflation, interest rate and risk diversification (Beal & Delpachitra, 2003; Lusardi et al., 2010). Women's financial knowledge is even lower (Chen & Volpe, 2002) due to differences in education levels (Fonseca et al., 2012). Previously published literature highlights the lack of personal finance knowledge amongst college students, with educational background heavily impacting the level. And their financial knowledge exerts the highest influence on financial decisions (Chen & Volpe, 1998). A major reason why college students fall into credit card-related debt is their lack of financial knowledge (Norvilitis et al., 2006; Xiao, Tang, Serido, & Shim, 2011). Fifteen-years-old students also lack basic financial knowledge and their financial literacy rests on socio-economic factors, demographics and reading and mathematical skills (OECD, 2014). Young adults need financial education to make responsible financial decisions. Studies coming into the arena of this cluster reveal two facets of financial education amongst the young, through parental socialisation during adolescence and current financial learning at school, college, or workplace (Shim, Barber, Card, Xiao, & Serido, 2010; Shim, Xiao, Barber, & Lyons, 2009). Parental coaching on financial skills is strongly related to the credit card debt of university students (Norvilitis & Maclean, 2010). While most of the studies in this cluster measure the impact of youth financial education programmes (Collins & O'Rourke, 2010; Danes & Haberman, 2007; Mandell & Klein, 2009; Walstad, Rebeck, & MacDonald, 2010; Xiao & O'Neill, 2016), some of the academic work concludes that financial education interventions have an insignificant effect in improving financial behaviour, with even weaker effects on low-income groups (Fernandes, Lynch, & Netemeyer, 2014; Lyons, Chang, & Scherpf, 2006a; Willis, 2008). Research shows that providers of financial education are faced with the challenge of evaluating such programmes effectively (Fox, Bartholomae, & Lee, 2005; Lyons, Palmer, Jayaratne, & Scherpf, 2006). Thus, a major theme coming out of this cluster focuses on financial education interventions in improving the financial well-being of financially at-risk populations.

In addition to this, the cluster puts forth the conceptualisation and measurement of financial literacy. The milestone study by Huston (2010) offers a rundown of how financial literacy is defined and measured. According to the author, financial literacy is both the knowledge and the competence to apply such knowledge in taking financial decisions. Thus, a clear line of distinction is drawn between financial literacy and financial education. This argument is in line with the previous discussion in the cluster on the ineffectiveness of financial education initiatives. In conjunction with the aforementioned review, Remund (2010) also stresses the need for proper conceptualisation and measurement of financial literacy.

7.2.3 | Cluster 3: Levels, causes and consequences of financial literacy

Cluster 3, with 27 documents, is the smallest of the three. Most of the studies in this cluster empirically spot the least financially skilled cohorts of the population around the world, followed by an evaluation of the implications of such illiteracy on economic decisions and the identification of the possible remedial efforts to fill up the literacy gap. It finds that low levels of financial literacy are rampant, financial knowledge is crucial in financial decision making and that causality moves from knowledge to behaviour (Lusardi & Mitchell, 2014). Various studies confirm the causality between financial literacy and planning for post-retirement years (Bucher-Koenen & Lusardi, 2011; Klapper & Panos, 2011; Van Rooij et al., 2011b). Another influential finding is that financial illiteracy prevails in countries with developed financial economies too and that the most susceptible sections are older populations, women and those having ethnic and regional differences (Lusardi & Mitchell, 2011b). This cluster mainly brings into focus the relationship between financial literacy and the numerous types of household decisions—including household net worth, retirement and saving. A positive association is found between financial literacy and wealth management, including portfolio choice, over the lifecycle (Behrman, Mitchell, Soo, & Bravo, 2012; Jappelli & Padula, 2013; Van Rooij, Lusardi, & Alessie, 2012). Research provides evidence that financial literacy equips people to cope with economic distress (Klapper, Lusardi, & Panos, 2013). The role of professional financial advisors in deflating losses from inferior investment decisions is also substantiated in the research (Gaudecker, 2015), but financial advice can only serve as a complement to financial literacy (Collins, 2012). Another important aspect of this cluster is the role of time preferences in the acquisition of financial knowledge. Individuals with a higher degree of patience tend to participate in counselling programmes more (Meier & Sprenger, 2013). Such factors guide policymakers to implement effective financial education programmes. The continuous documentation of a parallel relation between financial illiteracy and sub-optimal economic outcomes has driven policy interest in financial education interventions, but the cost and inefficacy of financial education compel the interested groups to think about alternative policies to improve economic outcomes (Hastings et al., 2013). Cost-effective technological solutions like mobile banking can help in the achievement of financial deepening (Cole, Sampson, & Zia, 2011). Thus, the intellectual sketch of this cluster represents the financial illiteracy of the world and its repercussions on economic vitality.

7.3 | Evolution of clusters

To understand the evolution of financial literacy research over a period of time, we analyse the dynamic progression of clusters in a co-citation network. Table 7 demonstrates the number of publications in each cluster since 1991. Before 2010, research was more focused on theoretical elucidation and empirical evidence to delve into the primitive relationship between financial literacy and financial planning (Cluster 1). It is only from 2010 that the research on the topic saw a sudden spurt and the focus shifted

International Journal of Consumer Studies —WILEY

TABLE 7 Number of publications in each cluster (1991–2017)

Number of publications			
Year	Cluster 1	Cluster2	Cluster3
1991		1	
1994		1	
1995	2		
1998	1	1	
2001	2	1	
2002		2	
2003	5	1	
2004	1	1	
2005	3	2	
2006	2	4	
2007	4	5	
2008	3	4	
2009	4	4	
2010	1	9	1
2011	3	3	10
2012		3	5
2013			6
2014		3	2
2015	1		2
2016		2	
2017	1		1
Total	33	47	27

to conceptual studies aimed at better defining and measuring the term “financial literacy”. It is after the global financial crises that the dire need for financial education came into the spotlight and the locus of research shifted to gathering more published evidence of the effectiveness of financial literacy education (Cluster 2). It is also evident from Table 7 that research in the domain has modelled itself for more practical implications of financial illiteracy through experimental research (Cluster 3). Figure 9 shows the dynamic evolution of financial literacy research from 1991 to 2017. It can be observed that Clusters 1 and 2 have become crowded and that the number of papers has risen from 2005. Cluster 3 came into existence only after 2008 when the bursting of the U.S. mortgage bubble made researchers and policymakers scrutinize the financial literacy levels and causes, thereby shifting the focus to financial education strategies (OECD, 2009). Since 2011, the advancement of financial technology (Fintech) has been reforming the medium of financial investments and has been calling for the need for financial advice. To this end, it became imperative for the researchers to unravel the consumers’ level of financial knowledge and their financial decision-making (Lusardi, 2019). Therefore, after 2011, the number of publications in all the three clusters have been accumulating, making the cluster denser.

8 | MAPPING THE TRENDS IN FINANCIAL LITERACY RESEARCH IN THE LAST FOUR YEARS (2016–2019)

In this section, we present the most original and recent influential works from the papers published in the last four years similar to the one followed by Paul, Parthasarathy, and Gupta (2017). Only ABDC category journal articles are included in further content analysis (Spasojevic, Lohmann, & Scott, 2018) which resulted in a total count of 175 papers. Those articles would have been cited less often and therefore, are not covered in previously discussed co-citation analysis. As there is an outgrowth in financial literacy research in recent years, many emerging themes are observable, in addition to those mapped in cluster analysis. Figure 10 shows that one of the most prominent themes is the empirical research on financial literacy's impact on financial education. Emerging themes are tax literacy, debt literacy, insurance literacy, development of the measurement scale of financial literacy, financial inclusion, financial capability, the impact of financial literacy on being self -employed and life insurance participation, family financial sophistication, debt behaviour and the role of personal factors in financial literacy.

8.1 | Emerging themes in financial literacy

8.1.1 | Antecedents of financial literacy

The theme primarily falls into Cluster 3 and there are only a small number of studies in the last decade. OECD (2016) results show that further exploration of factors affecting financial knowledge is needed so that knowledge can reinforce positive behaviour. Some empirical papers examine the demographic, socio-economic, personal, structural and cultural factors affecting financial literacy. Major factors determining financial literacy are gender, education, income, household investments, financial knowledge, financial attitude and financial behaviour (Santini et al., 2019). Regional differences in the environment one lives in impact financial literacy index, along with demographic and socio-economic factors (Cucinelli, Trivellato, & Zenga, 2019). OECD (2018) also recognizes the need for using digital technologies to improve financial literacy. A recent study shows that structural factors like using the internet for such information boost literacy (Bavafa, Liu, & Mukherjee, 2019). Ageing and husband's cognitive decline are important factors that incentivize an older woman to acquire financial literacy as she approaches widowhood (Hsu, 2016). Another study shows evidence that the distribution of responsibility and decision making between couples affects their financial literacy (Ward & Lynch, 2019). Personal factors such as cognitive style, attitude towards money and present bias also impact financial behaviour (Aydin & Akben Selcuk, 2019; O’Connor, 2019; Ponchio, Cordeiro, & Gonçalves, 2019). Apart from the provision of financial education, there are unexplored cultural and societal factors like language-related cultural differences and the number of books at home that do explain the variance in the PISA

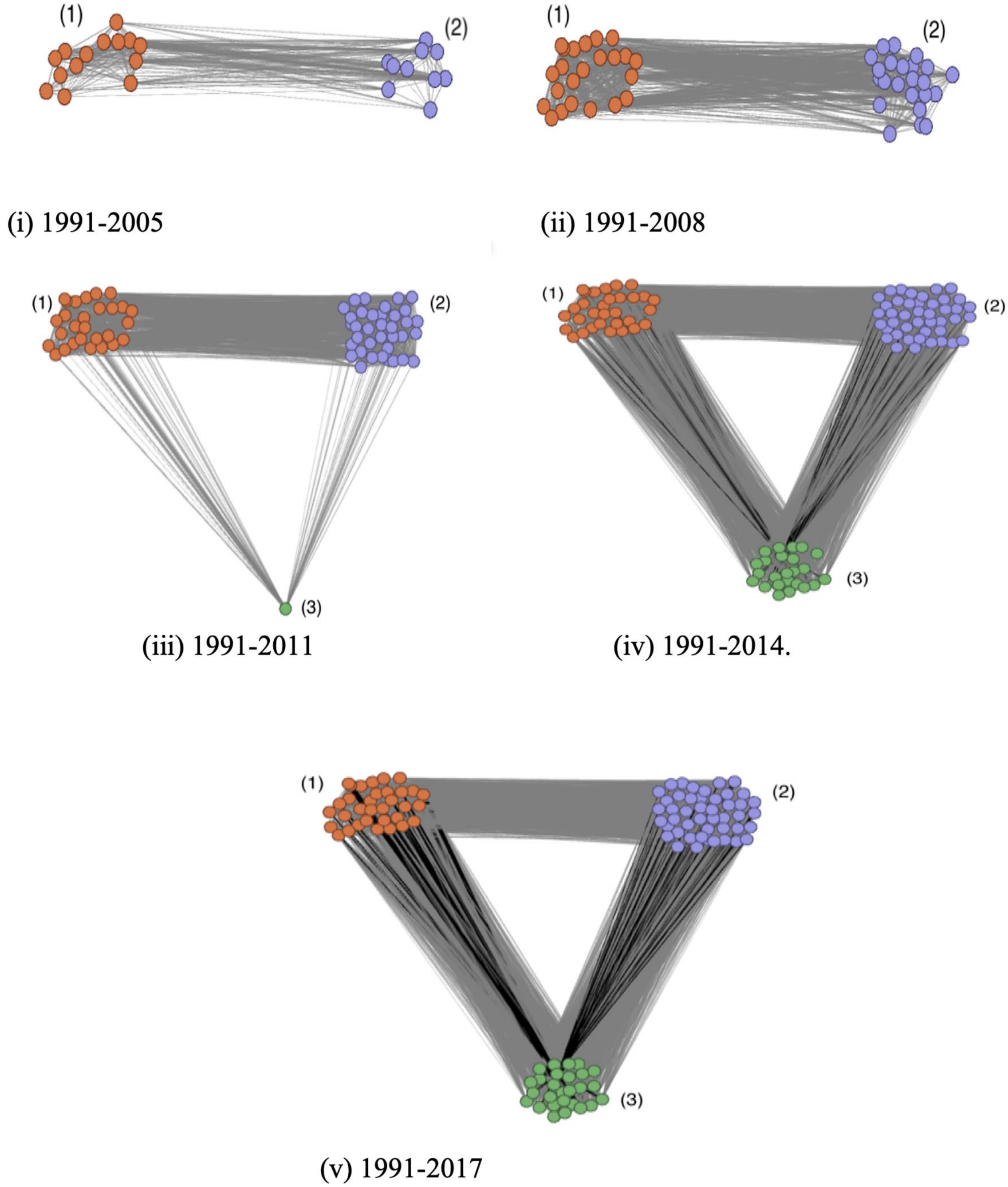

FIGURE 9 Evolvement of clusters during 1991–2017 [Colour figure can be viewed at wileyonlinelibrary.com]

2012 financial literacy test results (Brown, Henchoz, & Spycher, 2018; Riitsalu & Põder, 2016). Family financial socialisation is another important factor, while direct financial teaching by parents has a positive impact on financial behaviour (Zhu, 2018).

8.1.2 | Outcomes of financial literacy

Although preliminary studies in Cluster 3 also form part of this subject matter, recent research demonstrates the effect of financial literacy on overall financial behaviour (Kim, Anderson, & Seay, 2019) and specific behaviours like debt behaviour (Gutiérrez-Nieto, Serrano-Cinca, & de la Cuesta González, 2017), wealth accumulation, savings and investment behaviour (Deuflhard, Georgarakos, & Inderst, 2019; Murendo & Mutsonziwa, 2017), stock market participation (Sivaramakrishnan, Srivastava, & Rastogi, 2017) and retirement planning (Clark, Lusardi, & Mitchell, 2017). The newest trends in research bend towards assessing the impact of financial literacy on insurance participation (Lin, Hsiao, & Yeh, 2017), mortgage decisions, financial inclusion and financial well-being. Financial literacy has a positive influence on financial well-being (Lee, Lee, & Kim, 2019). Grohmann et al. (2018) show that a higher degree of financial literacy strengthens financial inclusion, while poor decisions regarding mortgage refinancing are the result of financial illiteracy

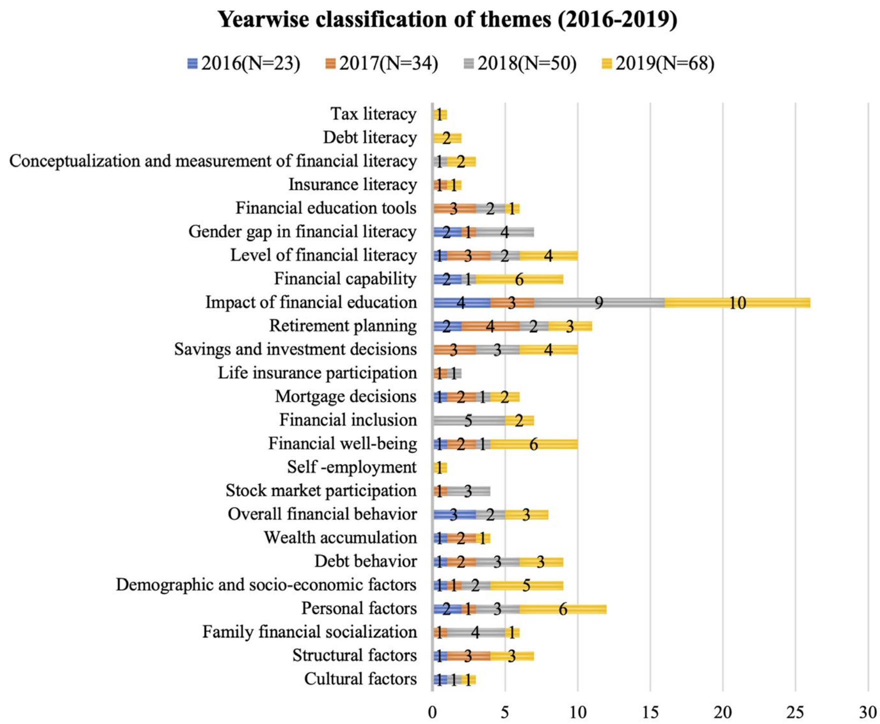

FIGURE 10 Progression of themes during the period 2016–2019 [Colour figure can be viewed at wileyonlinelibrary.com]

(Bajo & Barbi, 2018). A new and positive relationship is found between being financially literate and self-employed (Ćumurović & Hyll, 2019).

8.1.3 | Impact of financial education programs and new educational tools

Despite the existence of a huge body of research on the association between financial education, moreover and financial knowledge, attitudes and behaviours in Cluster 2 on the other, previous studies have concluded that financial education results in financial knowledge. But little is known about how to translate that knowledge into behaviour. That "just in time" financial education is needed instead of "one-size-fits-all" financial education has been recognized in earlier studies. The effectiveness of traditional financial education like high school courses, seminars, etc. has been challenged, calling for alternative education tools. Research in the past two years emphasizes specific financial situation-based counselling and teaching in groups to motivate the participants (Peeters, Rijk, Soetens, Storms, & Hermans, 2018). Personal finance blogs help many who need financial education (Hoffmann & Otteby, 2018), while media tools like television prove to be cost-effective alternatives for disadvantaged people (Crawford, Lajbcygier, & Maitra, 2018). Carpena, Cole, Shapiro, and Zia (2019) show that goal setting and financial counselling complement financial education, by filling the gap between knowledge and behaviour. Another new area of research is the impact of financial education on financial capability; there is a positive relationship between the two (Xiao & O'Neill, 2016). Receiving financial education in an academic or professional environment impacts student loan behaviour (Fan & Chatterjee, 2019) and such education has the strongest effect when provided in cross-curriculum, that is, as part of other subjects (Cordero & Pedraja, 2019).

8.1.4 | Financial capability

The research on the financial capability of consumers is developing in the literature. Financial capability is closely related but a wider concept than financial literacy. Financial capability includes other considerations apart from financial literacy. Johnson and Sherraden (2007) considered financial capability as "Participation in economic life should maximize life chances and enable people to lead fulfiling lives; this requires knowledge and competences, ability to act on that knowledge and opportunity to act". Financial capability is the manifestation of a specified level of financial literacy and the execution of a desired financial behaviour (Xia, Chen, & Chen, 2014). Financial capability is the blend of financial literacy and access to financial services and instruments (financial inclusion), which brings about financial well-being (Huang et al., 2013). The National Financial Capability Study considers four components of financial capability: Making Ends Meet, Planning Ahead, Managing Financial Products and Financial knowledge and Decision-Making (Mottola & Kieffer, 2017). The movement to promote financial capability started in developed economies (Lusardi & Mitchell, 2011a; OECD, 2016). If policymakers aim to raise the level of financial capabilities, it is important not only to provide learning opportunities but also to improve access to financial institutions (Johnson & Sherraden, 2007). A study on factors affecting financial capability reveals that government employees and those living in urban areas have better financial capability (Cui, Xiao, & Yi, 2019). Financial inclusion is empirically found to be a crucial component of financial capability index (Potocki & Cierpiał-Wolan, 2019). Financial capability variables (objective financial literacy, subjective financial literacy, desirable financial behaviour, perceived financial capability and financial capability index) mediate financial education and financial satisfaction (Xiao & Porto, 2017).

8.1.5 | Financial literacy levels

Cluster 3 also explores financial literacy levels and a few results are noteworthy. Research in eight European countries analysed the financial literacy levels amongst university students and found medium results (Ergün, 2018). The basic financial literacy level is similar across developed and developing nations, but the understanding of advanced concepts is lower in Asian middle-class economies (Grohmann et al., 2018). Also, only half the adults in developing countries who use a credit card are financially savvy (Klapper & Lusardi, 2019). Younger women are the least literate and the quality of education impacts financial literacy (Karakurum-Ozdemir, Kokkizil, & Uysal, 2019).

8.1.6 | Gender gap

A burgeoning body of empirical research has explored the role of the gender gap in causing differences in financial behaviour. Differences in risk attitudes or division of labour can only partly justify this gap (Lusardi & Mitchell, 2014). Recently, OECD (2016) data were used to find out the gender gap in 12 countries. It was found that women lack financial literacy more than men, that this gap is prominent in developed countries and that the major cause of this gap is social norms associated with the participation of women in economic decisions (Cupák, Fessler, Schneebaum, & Silgoner, 2018). The presence of stereotypical beliefs is also put forward as a cause of underinvestment in financial knowledge by women (Driva, Lührmann, & Winter, 2016). Gender-biased parental financial socialisation at home is an additional factor establishing such a gap in financial literacy (Agnew, Maras, & Moon, 2018). As women are well aware of their poor financial knowledge (as inferred by their “do not know” answers to asking “big three” questions), there is a grave need for their financial education. Figure 8 shows the room for exploration of this issue due to a lack of research in the past year.

8.1.7 | Conceptualisation and measurement of financial literacy

There is an expanding literature on the use of a combined measure of financial literacy which incorporates actual or objective financial literacy and perceived or subjective financial literacy. It is found that perceived financial literacy is as valuable as actual financial literacy in determining financial behaviour (Allgood & Walstad, 2016). Very few studies specifically focus on the conceptualisation of financial literacy which is noticeable in Cluster 2. The construct of financial knowledge seems to be a shortsighted way of defining financial literacy. Warmath and Zimmerman (2019) define financial literacy as a “combination of three domains of knowledge: financial skill, self-efficacy, and explicit knowledge”. There is a pressing need for a more country-specific measurement index for financial literacy in the absence of a standard measure.

8.1.8 | “Debt literacy”, “tax literacy” and “insurance literacy”

“Debt literacy” has been hardly studied in the domain of financial literacy, though emerging literature focusses on the factors predicting it. There is heterogeneity in objective and self-assessed debt literacy. Education level positively correlates with debt literacy (Cwynar, Cwynar, & Wais, 2019). Insurance literacy (O'Connor & Kabadayi, 2020) is another emerging theme in this area of research.

9 | CONCEPTUAL FRAMEWORK

An extensive content analysis of clusters and of the last four years' papers is recapitulated as a conceptual framework in Figure 11. The model illustrates the antecedents of financial literacy and its outcomes on financial behaviour and decision making. In the expanse of antecedents, demographics such as age (Lusardi et al., 2010; OECD, 2005), gender (Chen & Volpe, 2002), income (Lusardi & Tufano, 2015), years of work and socio-economic factors (Herd, Holden, & Su, 2012) impact the financial literacy of individuals. Other factors like personal/psychological (Aydin & Akben Selcuk, 2019), structural (Bavafa et al., 2019), cultural (Brown et al., 2018) and regional (Cucinelli et al., 2019) are the critical antecedents analysed in the research so far. In the context of outcomes, literature clarifies that financial literacy has positive economic returns attributed to better planning, investment, borrowing, financial well-being, financial capability and financial inclusion, as discussed above in content analysis. The conceptual framework also portrays logical relationships between three constructs of financial literacy. Financial attitude, financial knowledge and financial behavior are interrelated not only with financial literacy but also amongst themselves (Agarwalla, Barua, Jacob, & Varma, 2015). OECD (2005) determined financial knowledge, financial attitude and financial behaviour as three peripherals intertwined with financial literacy. A more financially literate individual tends to exhibit the right knowledge, attitude and behaviour when it comes to guiding self-finance (Atkinson & Messy, 2012; Lusardi & Mitchell, 2011a). Individuals with good financial knowledge are likely to report a better understanding of basic as well as advanced financial concepts (Atkinson & Messy, 2012; Remund, 2010). Financial attitude is also a stimulus for financial literacy and a person with an affirmative financial attitude is likely to plan better (Lusardi & Mitchell, 2008, 2011a). Financial behaviour is another determinant of financial literacy and those with ideal financial behaviour are likely to be active participants in the

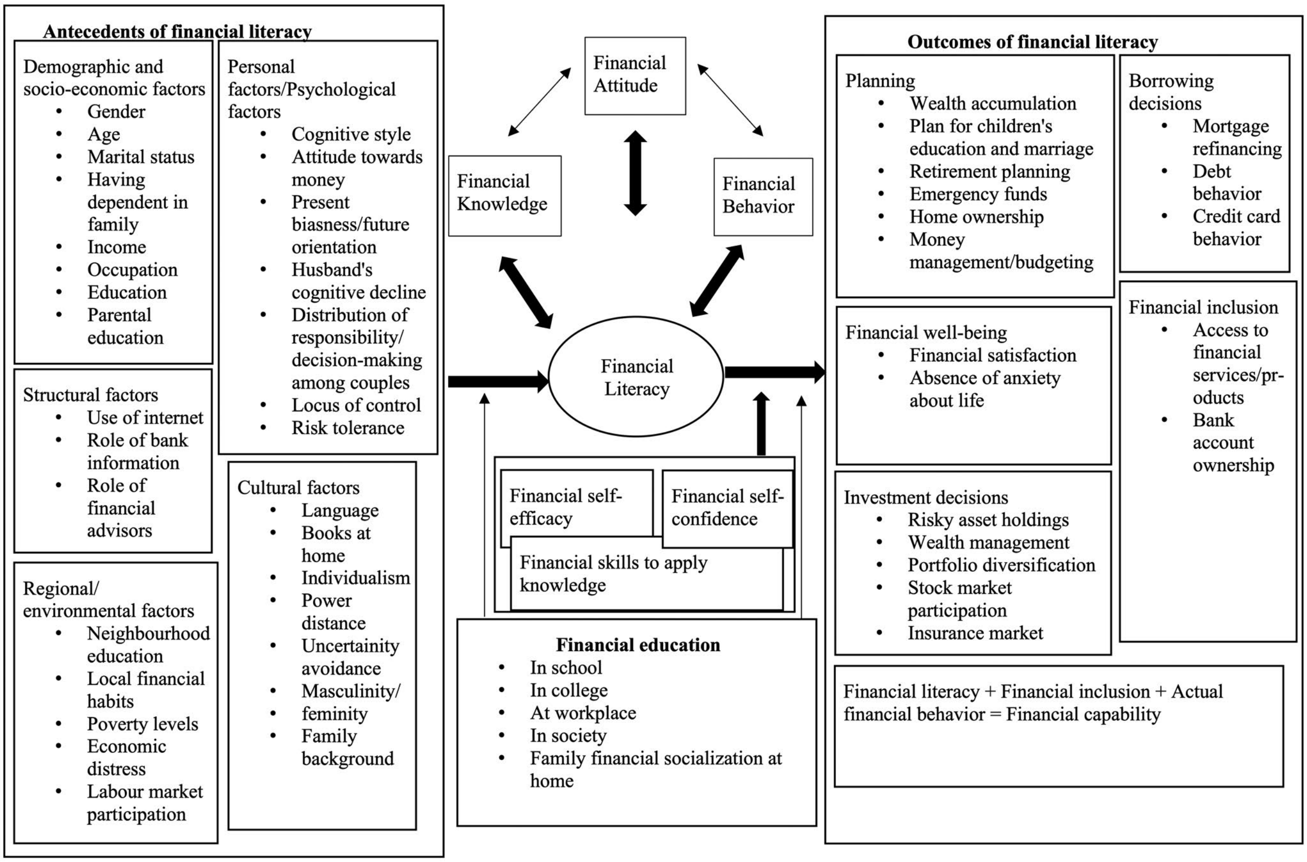

FIGURE 11 Conceptual model of financial literacy research

financial market (Agarwalla et al., 2015; Atkinson & Messy, 2012). Based on TPB (Ajzen, 1991), financial attitude also mediates between financial knowledge and financial behaviour (Serido, Shim, & Tang, 2013). Financial self-efficacy, construed based on Bandura (1986) social cognitive theory, is defined as a person's belief in the ability to guide their own finances. Extant literature supports an argument that financial self-efficacy is vital in translating financial literacy into financial behaviour (Dans & Haberman, 2007). Financial confidence and the skills to apply financial knowledge are the wagons that carry knowledge to behaviour. It is only through financial education that financial literacy can be richly imbibed and a financially educated individual can reap the potential benefits of financial knowledge in financial actions Fernandes et al., 2014). In the extant literature, financial capability, which is a concept that goes beyond financial literacy and takes into consideration access to financial products (Johnson & Sherraden, 2007), is given due importance and is an emerging theme. Xia, Chen, and Chen (2014) is the first article to explicitly propose the definition of financial capability that refers to financial knowledge and behaviour.

10 | DISCUSSION

Financial illiteracy is onerous and jeopardizes the financial health of people (Huston, 2012). Given that financial literacy is a multi-dimensional construct and revolves around a plethora of intellection on financial behaviour (Lusardi & Mitchell, 2014), this systematic review complemented with bibliometric analysis is an objective attempt to deliver the most comprehensive retrospective on the dynamic nuances of financial literacy. This study aids policy-makers, regulators and academic researchers in knowing the nuts and bolts of financial literacy and in identifying the relevant areas compelling investigation. A quantum jump in the number of studies is visible from a decade ago and the field is rapidly emerging. This review is an initial effort to trace back the converging trends in financial literacy and map the intellectual relationships amongst the prominent works of the past 20 years. Findings suggest that since the field has not yet matured, authors have come up with numerous diversified issues such as complex factors that underpin financial literacy, ways by which people can accumulate and deploy this human capital, identifying the target groups for government regimes on financial education and the possible economic outcomes of such literacy. A wide range of studies locate the most vulnerable population across the globe (Atkinson & Messy, 2012; Lusardi & Mitchell, 2011b) and substantiate that financial illiteracy is plagued not only in developing economies but also in advanced economies. Even more bothersome is that the levels of perceived financial literacy are much higher than the levels of actual financial literacy (Allgood & Walstad, 2016). Bibliometric review enabled us to estimate the worth of the seminal work on the area, prolific authors, affiliating countries, productive journals, keywords used and interrelationships in the work. Financial literacy research is mainly found in the United States and is still budding in developing nations. The recent work on the topic has not received citations. But through detailed content analysis, it is quite evident that innovative research on financial inclusion, the role of professional financial advisors, literacy in the context of insurance, tax and digital financial literacy can further set the stage for future development. Finally, we have identified a few limitations in this study. First, although we have tried to ensure that the terms used in the search represent the broad scope of the area, there might be a few studies missing because of the absence of any related term in the search criteria. Second, the period of this study is restricted to 2000–2019, resulting in the exclusion of a few previous studies. Although the search has taken cognisance of maximal studies on the subject, searching other databases can fetch added results. Also, the study analyses the broad picture instead of a precise aspect.

11 | FUTURE RESEARCH DIRECTIONS

Financial literacy is rather an emerging topic that has marked the attention of researchers in the late years. It is also becoming popular amongst consumers and financial educators. Financial literacy can prove to be one of the most fertile and contributing areas in the realm of behavioural finance research. The existing research has probed into the manifestation of the concept of financial literacy, its levels across the world, the factors and outcomes of such literacy and the educational interventions to improve financial knowledge. This review further contributes towards financial literacy research in terms of unfolding the evolving literature according to various themes and trends hence putting forth the status of scholarly work since its inception to date. However, we identify some lapse in the research on financial literacy based on which future research questions are suggested. Following the rules of thumb outlined by Paul and Criado (2020), we present a dedicated section offering future research directions to extend work in this domain on the three aspects-theory, methods and contexts.

11.1 | Theory

The conventional microeconomic approach to financial decision-making postulates that a perfectly rational and fully aware individual will spend less than his income during the times of high earnings thereby saving to back up consumption in case of fall in income such as the post-retirement years (Friedman, 1957; Modigliani & Brumberg, 1954). Financial literacy is also considered as an investment in human capital (Lusardi & Mitchell, 2014). The TPB (Ajzen, 1991) explains the factors that impede or facilitate an individual's behaviour. The Social Cognitive Theory (Bandura, 1986) and The Consumer Socialisation Theory (Moschis, 1987) have been used by the researchers to explain financial education interventions beginning from early childhood (Serido et al., 2013; Shim et al., 2010). In the past few years, a few studies have examined the relationship between financial literacy and financial behaviour (Jappelli & Padula, 2013; Lusardi & Mitchell, 2011b, 2014; Lusardi & Tufano, 2015). Yet, far less attention has been paid to the theoretical groundwork explaining the anomalies in the behaviour of individuals when it comes to financial decisions. There are several psychological biases such as risk tolerance, attitude towards money, present bias, future orientation, overconfidence, etc., that can affect the relationship between financial knowledge and financial behaviour. Such an understanding could suggest how financial education should be structured to achieve positive financial behaviour by individuals. Specific attention should be given to a combination of behaviour theories that can best inform specific financial behaviours. Hence, a research question is proposed:

RQ 1 What are the theories that can explain the relationship between financial literacy and financial behaviour?

Heterogeneity in the levels of financial literacy (Bucher-Koenen & Lusardi, 2011; Klapper et al., 2015) demands multiple mechanisms to track the associated factors. As per OECD (2016), additional probing into the factors affecting financial literacy is critical to attaining desirable outcomes. Contextual variables like cultural, personal, psychological and social situations demand deeper inquiry (Agarwalla et al., 2015; Riitsalu & Põder, 2016). Therefore, another research question is proposed as:

RQ 2 How financial literacy correlates with personal, psychological and cultural factors across different cohorts of the population?

Further, on account of an inconsistency in the association between three dimensions of financial literacy (financial knowledge, financial attitude and financial behaviour) (Agarwalla et al., 2015; Atkinson & Messy, 2012; Lusardi & Mitchell, 2011a), additional groundwork is needed to establish such a relationship. Such an inquiry is essential to design financial education in such a way that could enhance all the dimensions of financial literacy. An additional research question can be:

RQ 3 What is the relationship between financial knowledge, financial attitude and financial behaviour?

11.2 | Methods

The extant literature on financial literacy has been dominated by quantitative methods. Qualitative studies could provide an in-depth understanding of how people behave and manage their day-to-day finances in different settings. Researchers could also employ meta-analysis approach of review to unravel literature and identify possible gaps. A few studies focus on the development of a standardized measure of financial literacy. The usage of different scales for measuring financial literacy yields different results. This hinders the application of universally accepted regulations (Huston, 2010), validating the need for a more consistent measure. In the absence of a valid construct, researchers are likely to face difficulties in conducting comparison studies and meta-analysis. Literature is scarce on the cause and effect relationship between financial education and financial literacy. In the absence of a reliable measure, financial educators will not be able to know if they have succeeded in their efforts to improve financial literacy (Huston, 2010). Rather than a one-size-fits-all approach, financial education must be tailored according to various characteristics. More qualitative methods of study can be used to develop a uniform measure. Future researchers can attempt to answer this question:

RQ 4 How can financial literacy be measured universally?

Scholars can apply methods such as factor analysis for the development of a valid financial literacy scale. Qualitative methods of research such as personal interviews and focus groups can reveal hidden dimensions associated with financial literacy such as people with a higher level of IQ can perform better in financial aspects, an individual's experience can also be a factor assessing financial literacy, an individual's interest in money related aspects, etc. Primary research supported with structured questionnaires can help the researchers delve into the determinants of the financial literacy of an individual. Conceptual studies based on the grounding theories can also answer unsolved questions.

Many studies divulge that financial literacy leads the way to positive behaviour, but the challenge is in the establishment of the direction of causality and the issue of endogeneity (Lusardi & Mitchell, 2014). As per the finding of Hilgert et al. (2003), reverse causality is also present. A number of econometric models and experimental studies have made efforts to confirm the causality of financial literacy to financial behaviour and also identified the separate effects from other factors. Still, additional experiments are critical to control for endogeneity and explain causality. Future studies should focus on disentangling the causality from the effects with a proposed research question:

RQ 5 How can a potential concern for endogeneity, or reverse causality amongst financial literacy and financial outcomes are overcome?

Extant literature is scarce to conclude that financial education interventions are always effective in achieving ideal financial behaviour (Fernandes et al., 2014; Hastings et al., 2013; Lusardi, 2019). In the absence of an analysis of benefits to cost ratio, it is difficult to assess the appropriateness of financial education interventions and identify the least costly programmes. Thus, there is a need to voice additional explanations to the cost-benefit aspect of financial education. An additional research question is suggested:

RQ 6 How can the success of financial education be measured and what is the relative effectiveness of financial education compared to the costs involved in taking it?

11.3 | Contexts

It is observable in the nascent literature that the financial literacy construct has been explicated in the context of knowledge, skills, capability, confidence, motivation, behaviour, efficacy, etc. Researchers interpret the term in different ways thereby lacking a common ground. Until the community of research reaches a consensus on the definition of financial literacy, empirical studies and educational interventions will hold limited importance (Remund, 2010). Budding researchers can distinguish the related concepts from financial literacy. There is limited research on the relationship between financial literacy and financial capability (Cui et al., 2019; Johnson & Sherraden, 2007). Scholars can further expand the research presenting the varied scope of both the constructs in a specific context. The future research calls for a discussion amongst the researchers on the universally acceptable definition with research questions in mind:

RQ 7 How can financial literacy be defined or understood in a universal context?

RQ 8 How do financial literacy and financial capability differ and in what context?

There is a dominance of financial literacy research across Western nations. Although new worldwide research indicates that financial illiteracy is prevalent even in countries with developed financial markets such as the Netherlands, Sweden, Japan, Italy, New Zealand and the United States (Lusardi & Mitchell, 2011b) but evidence of consumer financial literacy levels in recently liberalized economies seems insufficient. The coverage of non-western countries and cross-country analysis needs to be broadened to imbue multiple viewpoints and examining the efficacy of interventions (Lusardi & Mitchell, 2014; Xu & Zia, 2012). The effect of financial literacy interventions might differ across different economies due to the difference in the context. The contextual variability might be due to heterogeneity in levels of financial literacy across different countries, the attitude and personality factors of the people, cultural factors and the access to financial services or other financial resources. Future studies in a single country, cross-country and multi-national contexts are essential to developing programmes that may cater to country-specific needs. As per discussed above, we propose a research question:

RQ 9 What is the status of financial literacy in developing countries?

Heterogeneity prevails in the financial literacy levels across sub-groups particularly young, old and women (Lusardi et al., 2010; Lusardi & Mitchell, 2011a). Customized education could be a possible way out (Lusardi, 2019). More population-specific studies are required to gauge such literacy globally. Another important research question could be:

RQ 10 What are the financial literacy levels across various groups of population and which groups are more vulnerable?

Financial education programmes worldwide have been implemented in different settings such as schools, colleges, workplaces and amongst various subgroups of the population (Lusardi & Mitchell, 2014). Financial education needs and concerns vary across demographic characteristics (Xu & Zia, 2012). Only a few scholars have attempted to evaluate programmes' effectiveness in the context of individual characteristics and the specific financial behaviour it is expected to change (saving, investment, retirement, or borrowing). Hence, we propose a research question:

RQ 11 What are the effective financial education interventions across various demographic groups?

Another context that paves a way for promising research in this domain is digital financial literacy which is a combination of financial literacy and the skills to use digital devices/technology to handle money transactions. Fintech and digitalisation have made consumers prone to misinformed financial decisions and susceptible to financial fraud. This highlights the need for digital financial literacy (OECD, 2018). Therefore, defining digital financial literacy, tools to measure it, designing programmes, especially for vulnerable groups such as older, less educated, women, startups and the impact of digital financial education, need further inquiry (OECD, 2018). Another context-based research proposition is:

RQ 12 What is digital financial literacy, how can it be measured and how digital financial education can be provided?

12 | CONCLUSION

Intending to review the existing literature thoroughly, this piece of work derives valuable insights on financial literacy. Such literacy has ever-increasing importance in our day-to-day economic decisions. The scholarly work reveals a consistent deficiency of financial literacy across all populations of the population, from developed to developing countries. This is a wake-up call for the policymakers and other stakeholders who should emphasize steps to be taken to improve financial literacy and, ultimately, the financial well-being of individuals and society. In general, there are substantial efforts of the researchers to investigate the subject. There is a lot of scope of contribution to theoretical development, contextual coverage and methodologies. Financial literacy is an issue with vast implications for economic health and its development can guide the way to competitive and stable economies.

ORCID

Satish Kumar https://orcid.org/0000-0001-5200-1476

REFERENCES

Agarwal, S., Driscoll, J. C., Gabaix, X., & Laibson, D. (2009). The age of reason: Financial decisions over the life cycle and implications for regulation. *Brookings Papers on Economic Activity*, *2009*(2), 51–117. https://doi.org/10.2139/ssrn.973790

Agarwalla, S. K., Barua, S. K., Jacob, J., & Varma, J. R. (2015). Financial literacy among working young in urban India. *World Development*, *67*, 101–109. https://doi.org/10.1016/j.worlddev.2014.10.004

Agnew, J. R., & Szykman, L. R. (2005). Asset allocation and information overload: The influence of information display, asset choice, and investor experience. *Journal of Behavioral Finance*, *6*(2), 57–70. https://doi.org/10.1207/s15427579jpfm0602_2

Agnew, S., Maras, P., & Moon, A. (2018). Gender differences in financial socialization in the home—An exploratory study. *International Journal of Consumer Studies*, *42*(3), 275–282. https://doi.org/10.1111/ijcs.12415

Ajzen, I. (1991). The theory of planned behaviour. *Organizational Behavior and Human Decision Processes*, *50*(2), 179–211. https://doi.org/10.1016/0749-5978(91)90020-T

Allgood, S., & Walstad, W. B. (2016). The effects of perceived and actual financial literacy on financial behaviors. *Economic Inquiry*, *54*(1), 675–697. https://doi.org/10.1111/ecin.12255

Atkinson, A., & Messy, F. (2012). *Measuring financial literacy: Results of the OECD/International Network on Financial Education (INFE) Pilot Study* (OECD Working Papers on Finance, Insurance and Private Pensions, No. 15). Paris: OECD Publishing. https://doi.org/10.1787/20797117

Aydin, A. E., & Akben Selcuk, E. (2019). An investigation of financial literacy, money ethics and time preferences among college students: A structural equation model. *International Journal of Bank Marketing*, *37*(3), 880–900. https://doi.org/10.1108/IJBM-05-2018-0120

Bajo, E., & Barbi, M. (2018). Financial illiteracy and mortgage refinancing decisions. *Journal of Banking & Finance*, *94*, 279–296. https://doi.org/10.1016/j.jbankfin.2018.08.001

Baker, H. K., Pandey, N., Kumar, S., & Haldar, A. (2020). A bibliometric analysis of board diversity: Current status, development, and future research directions. *Journal of Business Research*, *108*, 232–246. https://doi.org/10.1016/j.jbusres.2019.11.025

Bakken, R. (1967). Money management understandings of tenth grade students. *National Business Education Quarterly*, *36*, 6.

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice Hall.

Bavafa, H., Liu, J., & Mukherjee, A. (2019). Building financial and health literacy at older ages: The role of online information. *Journal of Consumer Affairs*, *53*(3), 877–916. https://doi.org/10.1111/joca.12238

Bayer, P. J., Bernheim, B. D., & Scholz, J. K. (2009). The effects of financial education in the workplace: Evidence from a survey of employers. *Economic Inquiry*, *47*(4), 605–624. https://doi.org/10.1111/j.1465-7295.2008.00156.x

Beal, D. J., & Delpachitra, S. B. (2003). Financial literacy among Australian university students. *Economic Papers: A Journal of Applied Economics and Policy*, *22*(1), 65–78. https://doi.org/10.1111/j.1759-3441.2003.tb00337.x

Behrman, J. R., Mitchell, O. S., Soo, C. K., & Bravo, D. (2012). How financial literacy affects household wealth accumulation. *American Economic Review*, *102*(3), 300–304. https://doi.org/10.1257/aer.102.3.300

Bernheim, B. D., & Garrett, D. M. (2003). The effects of financial education in the workplace: Evidence from a survey of households. *Journal of Public Economics*, *87*(7–8), 1487–1519. https://doi.org/10.1016/S0047-2727(01)00184-0

Bernheim, B. D., Garrett, D. M., & Maki, D. M. (2001). Education and saving: The long-term effects of high school financial curriculum mandates. *Journal of Public Economics*, *80*(3), 435–465. https://doi.org/10.1016/S0047-2727(00)00120-1

Bernheim, D. (1995). Do households appreciate their financial vulnerabilities? An analysis of actions, perceptions, and public policy. *Tax Policy and Economic Growth*, *3*, 11–13.

Blanco-Mesa, F., Merigó, J. M., & Gil-Lafuente, A. M. (2017). Fuzzy decision making: A bibliometric-based review. *Journal of Intelligent & Fuzzy Systems*, *32*(3), 2033–2050. https://doi.org/10.3233/JIFS-161640

Blondel, V. D., Guillaume, J.-L., Lambiotte, R., & Lefebvre, E. (2008). Fast unfolding of communities in large networks. *Journal of Statistical Mechanics: Theory and Experiment*, *2008*(10), P10008. https://doi.org/10.1088/1742-5468/2008/10/P10008

Brin, S., & Page, L. (1998). The anatomy of a large-scale hypertextual web search engine. *Computer Networks and ISDN Systems*, *30*(1–7), 107–117. https://doi.org/10.1016/S0169-7552(98)00110-X

Brown, M., Henchoz, C., & Spycher, T. (2018). Culture and financial literacy: Evidence from a within-country language border. *Journal of Economic Behavior & Organization*, *150*, 62–85. https://doi.org/10.1016/j.jebo.2018.03.011

Brozovic, D. (2018). Strategic flexibility: A review of the literature. *International Journal of Management Reviews*, *20*(1), 3–31. https://doi.org/10.1111/ijmr.12111

Bucher-Koenen, T., & Lusardi, A. (2011). Financial literacy and retirement planning in Germany. *Journal of Pension Economics and Finance*, *10*(4), 565–584. https://doi.org/10.1017/S1474747211000485

Burrus, B. B., Krieger, K., Rutledge, R., Rabre, A., Axelson, S., Miller, A., … Jackson, C. (2018). Building bridges to a brighter tomorrow: A systematic evidence review of interventions that prepare adolescents for adulthood. *American Journal of Public Health*, *108*(S1), S25–S31. https://doi.org/10.2105/AJPH.2017.304175

Campbell, J. Y. (2006). Household finance. *The Journal of Finance*, *61*(4), 1553–1604. https://doi.org/10.1111/j.1540-6261.2006.00883.x

Caputo, A., Marzi, G., Pellegrini, M. M., & Rialti, R. (2018). Conflict management in family businesses: A bibliometric analysis and systematic literature review. *International Journal of Conflict Management*, *29*(4), 519–542. https://doi.org/10.1108/IJCMA-02-2018-0027

Carlin, B. I., & Robinson, D. T. (2012). What does financial literacy training teach us? *The Journal of Economic Education*, *43*(3), 235–247. https://doi.org/10.1080/00220485.2012.686385

Carpena, F., Cole, S., Shapiro, J., & Zia, B. (2019). The ABCs of financial education: Experimental evidence on attitudes, behavior, and cognitive biases. *Management Science*, *65*(1), 346–369. https://doi.org/10.1287/mnsc.2017.2819

Chen, H., & Volpe, R. P. (1998). An analysis of personal financial literacy among college students. *Financial Services Review*, *7*(2), 107–128. https://doi.org/10.1016/S1057-0810(99)80006-7

Chen, H., & Volpe, R. P. (2002). Gender differences in personal financial literacy among college students. *Financial Services Review*, *11*(3), 289–307.

Christelis, D., Jappelli, T., & Padula, M. (2010). Cognitive abilities and portfolio choice. *European Economic Review*, *54*(1), 18–38. https://doi.org/10.1016/j.euroecorev.2009.04.001

Clark, R., Lusardi, A., & Mitchell, O. S. (2017). Employee financial literacy and retirement plan behavior: A case study. *Economic Inquiry*, *55*(1), 248–259. https://doi.org/10.1111/ecin.12389

Cole, S., Sampson, T., & Zia, B. (2011). Prices or knowledge? What drives demand for financial services in emerging markets? *The Journal of Finance*, *66*(6), 1933–1967. https://doi.org/10.1111/j.1540-6261.2011.01696.x

Collins, J. M. (2012). Financial advice: A substitute for financial literacy? *Financial Services Review*, *21*(4), 307–322. https://doi.org/10.2139/ssrn.2046227

Collins, J. M. (2013). The impacts of mandatory financial education: Evidence from a randomized field study. *Journal of Economic Behavior & Organization*, *95*, 146–158. https://doi.org/10.1016/j.jebo.2012.08.011

Collins, J. M., & O'Rourke, C. M. (2010). Financial education and counselling -still holding promise. *Journal of Consumer Affairs*, *44*(3), 483–498. https://doi.org/10.1111/j.1745-6606.2010.01179.x

Comerio, N., & Strozzi, F. (2019). Tourism and its economic impact: A literature review using bibliometric tools. *Tourism Economics*, *25*(1), 109–131. https://doi.org/10.1177/1354816618793762

Compen, B., De Witte, K., & Schelfhout, W. (2019). The role of teacher professional development in financial literacy education: A systematic literature review. *Educational Research Review*, *26*, 16–31. https://doi.org/10.1016/j.edurev.2018.12.001

Cordero, J. M., & Pedraja, F. (2019). The effect of financial education training on the financial literacy of Spanish students in PISA. *Applied Economics*, *51*(16), 1679–1693. https://doi.org/10.1080/00036846.2018.1528336

Crawford, A., Lajbcygier, P., & Maitra, P. (2018). Financial education via television comedy. *Applied Economics Letters*, *25*(20), 1407–1410. https://doi.org/10.1080/13504851.2017.1422595

Cucinelli, D., Trivellato, P., & Zenga, M. (2019). Financial literacy: The role of the local context. *Journal of Consumer Affairs*, *53*(4), 1874–1919. https://doi.org/10.1111/joca.12270

Cui, X., Xiao, J. J., & Yi, J. (2019). Employment type, residential status and consumer financial capability: Evidence from china household finance survey. *The Singapore Economic Review*, *64*(01), 57–81. https://doi.org/10.1142/S0217590817430032

Culnan, M. J. (1987). Mapping the intellectual structure of MIS, 1980–1985: A co-citation analysis. *MIS Quarterly*, *11*(3), 341. https://doi.org/10.2307/248680

Ćumurović, A., & Hyll, W. (2019). Financial literacy and self-employment. *Journal of Consumer Affairs*, *53*(2), 455–487. https://doi.org/10.1111/joca.12198

Cupák, A., Fessler, P., Schneebaum, A., & Silgoner, M. (2018). Decomposing gender gaps in financial literacy: New international evidence. *Economics Letters*, *168*, 102–106. https://doi.org/10.1016/j.econlet.2018.04.004

Cwynar, A., Cwynar, W., & Wais, K. (2019). Debt literacy and debt literacy self-assessment: The case of Poland. *Journal of Consumer Affairs*, *53*(1), 24–57. https://doi.org/10.1111/joca.12190

Dabić, M., Vlačić, B., Paul, J., Dana, L. P., Sahasranamam, S., & Glinka, B. (2020). Immigrant entrepreneurship: A review and research agenda. *Journal of Business Research*, *113*, 25–38. https://doi.org/10.1016/j.jbusres.2020.03.013

Danes, S. M. (1994). Parental perceptions of children's financial socialization. *Financial Counseling and Planning*, *5*(1), 27–146.

Danes, S. M., & Hira, T. K. (1987). Money management knowledge of college students. *The Journal of Student Financial Aid*, *17*(1), 4–16.

Dans, S. M., & Haberman, H. R. (2007). Teen financial knowledge, self-efficacy, and behavior: A gendered view. *Journal of Financial Counseling and Planning*, *18*(2), 13. Retrieved from https://ssrn.com/abstract=2228406

De Beckker, K., De Witte, K., & Van Campenhout, G. (2019). Identifying financially illiterate groups: An international comparison. *International Journal of Consumer Studies*, *43*(5), 490–501. https://doi.org/10.1111/ijcs.12534

Deuflhard, F., Georgarakos, D., & Inderst, R. (2019). Financial literacy and savings account returns. *Journal of the European Economic Association*, *17*(1), 131–164. https://doi.org/10.1093/jeea/jvy003

Disney, R., & Gathergood, J. (2013). Financial literacy and consumer credit portfolios. *Journal of Banking & Finance*, *37*(7), 2246–2254. https://doi.org/10.1016/j.jbankfin.2013.01.013

Drever, A. I., Odders-White, E., Kalish, C. W., Else-Quest, N. M., Hoagland, E. M., & Nelms, E. N. (2015). Foundations of financial well-being: Insights into the role of executive function, financial socialization, and experience-based learning in childhood and youth. *Journal of Consumer Affairs*, *49*(1), 13–38. https://doi.org/10.1111/joca.12068

Driva, A., Lührmann, M., & Winter, J. (2016). Gender differences and stereotypes in financial literacy: Off to an early start. *Economics Letters*, *146*, 143–146. https://doi.org/10.1016/j.econlet.2016.07.029

Duflo, E., & Saez, E. (2003). The role of information and social interactions in retirement plan decisions: Evidence from a randomized experiment. *The Quarterly Journal of Economics*, *118*(3), 815–842. https://doi.org/10.1162/00335530360698432

Ergün, K. (2018). Financial literacy among university students: A study in eight European countries. *International Journal of Consumer Studies*, *42*(1), 2–15. https://doi.org/10.1111/ijcs.12408

Fan, L., & Chatterjee, S. (2019). Financial socialization, financial education, and student loan debt. *Journal of Family and Economic Issues*, *40*(1), 74–85. https://doi.org/10.1007/s10834-018-9589-0

Fernandes, D., Lynch, J. G., & Netemeyer, R. G. (2014). Financial literacy, financial education, and downstream financial behaviors. *Management Science*, *60*(8), 1861–1883. https://doi.org/10.1287/mnsc.2013.1849

Financial Literacy and Education Commission. (2006). *Taking ownership of the future: The national strategy for financial literacy*. Washington, DC: Financial Literacy and Education Commission.

Fonseca, R., Mullen, K. J., Zamarro, G., & Zissimopoulos, J. (2012). What explains the gender gap in financial literacy? The role of household decision making. *Journal of Consumer Affairs*, *46*(1), 90–106. https://doi.org/10.1111/j.1745-6606.2011.01221.x

Fox, J., Bartholomae, S., & Lee, J. (2005). Building the case for financial education. *Journal of Consumer Affairs*, *39*(1), 195–214. https://doi.org/10.1111/j.1745-6606.2005.00009.x

Friedman, M. (1957). *A theory of the consumption function*. Princeton: Princeton University Press.

Gathergood, J. (2012). Self-control, financial literacy and consumer over-indebtedness. *Journal of Economic Psychology*, *33*(3), 590–602. https://doi.org/10.1016/j.joep.2011.11.006

Gaudecker, H.-M.-V. (2015). How does household portfolio diversification vary with financial literacy and financial advice? *The Journal of Finance*, *70*(2), 489–507. https://doi.org/10.1111/jofi.12231

Gilal, F. G., Zhang, J., Paul, J., & Gilal, N. G. (2019). The role of self-determination theory in marketing science: An integrative review and agenda for research. *European Management Journal*, *37*(1), 29–44. https://doi.org/10.1016/j.emj.2018.10.004

Grohmann, A., Klühs, T., & Menkhoff, L. (2018). Does financial literacy improve financial inclusion? Cross country evidence. *World Development*, *111*, 84–96. https://doi.org/10.1016/j.worlddev.2018.06.020

Gutiérrez-Nieto, B., Serrano-Cinca, C., & de la Cuesta González, M. (2017). A multivariate study of over-indebtedness' causes and consequences: A multivariate study of over-indebtedness. *International Journal of Consumer Studies*, *41*(2), 188–198. https://doi.org/10.1111/ijcs.12324

Hao, A. W., Paul, J., Trott, S., Guo, C., & Wu, H. H. (2019). Two decades of research on nation branding: A review and future research agenda. *International Marketing Review*. ahead-of-print. https://doi.org/10.1108/IMR-01-2019-0028

Hastings, J. S., Madrian, B. C., & Skimmyhorn, W. L. (2013). Financial literacy, financial education, and economic outcomes. *Annual Review of Economics*, *5*(1), 347–373. https://doi.org/10.1146/annurev-economics-082312-125807

Herd, P., Holden, K., & Su, Y. T. (2012). The links between early-life cognition and schooling and late-life financial knowledge. *Journal of Consumer Affairs*, *46*(3), 411–435. https://doi.org/10.1111/j.1745-6606.2012.01235.x

Hilgert, M. A., Hogarth, J. M., & Beverly, S. G. (2003). Household financial management: The connection between knowledge and behaviour. *Federal Reserve Bulletin*, *89*, 309.

Hoffmann, A., & Otteby, K. (2018). Personal finance blogs: Helpful tool for consumers with low financial literacy or preaching to the choir? *International Journal of Consumer Studies*, *42*(2), 241–254. https://doi.org/10.1111/ijcs.12412

Hong, H., Kubik, J. D., & Stein, J. C. (2004). Social interaction and stock-market participation. *The Journal of Finance*, *59*(1), 137–163. https://doi.org/10.1111/j.1540-6261.2004.00629.x

Hsu, J. W. (2016). Aging and strategic learning: The impact of spousal incentives on financial literacy. *Journal of Human Resources*, *51*(4), 1036–1067. https://doi.org/10.3368/jhr.51.4.1014-6712R

Huang, J., Nam, Y., & Sherraden, M. S. (2013). Financial knowledge and child development account policy: A test of financial capability. *Journal of Consumer Affairs*, *47*(1), 1–26. https://doi.org/10.1111/joca.12000

Huston, S. J. (2010). Measuring financial literacy. *Journal of Consumer Affairs*, *44*(2), 296–316. https://doi.org/10.1111/j.1745-6606.2010.01170.x

Huston, S. J. (2012). Financial literacy and the cost of borrowing. *International Journal of Consumer Studies*, *36*(5), 566–572. https://doi.org/10.1111/j.1470-6431.2012.01122.x

Jappelli, T. (2010). Economic literacy: An international comparison. *The Economic Journal*, *120*(548), F429–F451. https://doi.org/10.1111/j.1468-0297.2010.02397.x

Jappelli, T., & Padula, M. (2013). Investment in financial literacy and saving decisions. *Journal of Banking & Finance*, *37*(8), 2779–2792. https://doi.org/10.1016/j.jbankfin.2013.03.019

Johnson, E., & Sherraden, M. S. (2007). From financial literacy to financial capability among youth. *The Journal of Sociology & Social Welfare*, *34*(3), 119.

Jump$tart Coalition. (2007). *National Standards in K-12 Personal Finance Education*. Retrieved from http://www.jumpstart.org/guide.html

Kaiser, T., & Menkhoff, L. (2017). Does financial education impact financial literacy and financial behavior, and if so, when? Policy Research working paper, no. WPS 8161. Washington, DC: World Bank Group.

Karakurum-Ozdemir, K., Kokkizil, M., & Uysal, G. (2019). Financial literacy in developing countries. *Social Indicators Research*, *143*(1), 325–353. https://doi.org/10.1007/s11205-018-1952-x

Kempson, E., Collard, S., & Moore, N. (2006). Measuring financial capability: An exploratory study. In European Credit Research Institute (Ed.), *Consumer financial capability: Empowering European consumers* (p. 39). Brussels: European Credit Research Institute.

Khan, M. N., Rothwell, D. W., Cherney, K., & Sussman, T. (2017). Understanding the financial knowledge gap: A new dimension of inequality in later life. *Journal of Gerontological Social Work*, *60*(6–7), 487–503. https://doi.org/10.1080/01634372.2017.1317311

Kiliyanni, A. L., & Sivaraman, S. (2016). The perception-reality gap in financial literacy: Evidence from the most literate state in India. *International Review of Economics Education*, *23*, 47–64. https://doi.org/10.1016/j.iree.2016.07.001

Kim, K. T., Anderson, S. G., & Seay, M. C. (2019). Financial knowledge and short-term and long-term financial behaviors of millennials in the United States. *Journal of Family and Economic Issues*, *40*(2), 194–208. https://doi.org/10.1007/s10834-018-9595-2

Klapper, L., & Lusardi, A. (2019). Financial literacy and financial resilience: Evidence from around the world. *Financial Management*, 1–26. https://doi.org/10.1111/fima.12283

Klapper, L., Lusardi, A., & Panos, G. A. (2013). Financial literacy and its consequences: Evidence from Russia during the financial crisis. *Journal of Banking & Finance*, *37*(10), 3904–3923. https://doi.org/10.1016/j.jbankfin.2013.07.014

Klapper, L., Lusardi, A., & Van Oudheusden, P. (2015). *Financial literacy around the world*. Washington, DC: Standard & Poor's Ratings Services Global Financial Literacy Survey.

Klapper, L., & Panos, G. A. (2011). Financial literacy and retirement planning: The Russian case. *Journal of Pension Economics and Finance*, *10*(4), 599–618. https://doi.org/10.1017/S1474747211000503

Knoll, J., & Matthes, J. (2017). The effectiveness of celebrity endorsements: A meta-analysis. *Journal of the Academy of Marketing Science*, *45*(1), 55–75. https://doi.org/10.1007/s11747-016-0503-8

Korom, P. (2019). A bibliometric visualization of the economics and sociology of wealth inequality: A world apart? *Scientometrics*, *118*(3), 849–868. https://doi.org/10.1007/s11192-018-03000-z

Kumar, S., Tomar, S., & Verma, D. (2019). Women's financial planning for retirement: Systematic literature review and future research agenda. *International Journal of Bank Marketing*, *37*(1), 120–141. https://doi.org/10.1108/IJBM-08-2017-0165

Lee, J. M., Lee, J., & Kim, K. T. (2019). Consumer financial well-being: Knowledge is not enough. *Journal of Family and Economic Issues*, *41*(2), 218–228. https://doi.org/10.1007/s10834-019-09649-9

Leydesdorff, L., Bornmann, L., & Wagner, C. S. (2017). Generating clustered journal maps: An automated system for hierarchical classification. *Scientometrics*, *110*(3), 1601–1614. https://doi.org/10.1007/s11192-016-2226-5

Li, C., Wu, K., & Wu, J. (2017). A bibliometric analysis of research on haze during 2000–2016. *Environmental Science and Pollution Research*, *24*(32), 24733–24742. https://doi.org/10.1007/s11356-017-0440-1

Lin, C., Hsiao, Y.-J., & Yeh, C.-Y. (2017). Financial literacy, financial advisors, and information sources on demand for life insurance. *Pacific-Basin Finance Journal*, *43*, 218–237. https://doi.org/10.1016/j.pacfin.2017.04.002

Lusardi, A. (2019). Financial literacy and the need for financial education: Evidence and implication. *Swiss Journal of Economics and Statistics*, *155*(1), 1. https://doi.org/10.1186/s41937-019-0027-5

Lusardi, A., & Mitchell, O. S. (2007a). Baby Boomer retirement security: The roles of planning, financial literacy, and housing wealth. *Journal of Monetary Economics*, *54*(1), 205–224. https://doi.org/10.1016/j.jmoneco.2006.12.001

Lusardi, A., & Mitchell, O. S. (2007b). Financial literacy and retirement preparedness: Evidence and implications for financial education. *Business Economics*, *42*(1), 35–44. https://doi.org/10.2145/20070104

Lusardi, A., & Mitchell, O. S. (2008). Planning and financial literacy: How do women fare? *American Economic Review*, *98*(2), 413–417. https://doi.org/10.1257/aer.98.2.413

Lusardi, A., & Mitchell, O. S. (2011a). Financial literacy and retirement planning in the United States. *Journal of Pension Economics & Finance*, *10*(4), 509–525. https://doi.org/10.1017/S147474721100045X

Lusardi, A., & Mitchell, O. S. (2011b). Financial literacy around the world: An overview. *Journal of Pension Economics and Finance*, *10*(4), 497–508. https://doi.org/10.1017/S1474747211000448

Lusardi, A., & Mitchell, O. S. (2014). The economic importance of financial literacy: Theory and evidence. *Journal of Economic Literature*, *52*(1), 5–44. https://doi.org/10.1257/jel.52.1.5

Lusardi, A., Mitchell, O. S., & Curto, V. (2010). Financial literacy among the young. *Journal of Consumer Affairs*, *44*(2), 358–380. https://doi.org/10.1111/j.1745-6606.2010.01173.x

Lusardi, A., & Mitchell, O. S. (2017). How ordinary consumers make complex economic decisions: Financial literacy and retirement readiness. *Quarterly Journal of Finance*, *7*(3), 1750008. https://doi.org/10.1142/S2010139217500082

Lusardi, A., Samek, A., Kapteyn, A., Glinert, L., Hung, A., & Heinberg, A. (2017). Visual tools and narratives: New ways to improve financial literacy. *Journal of Pension Economics & Finance*, *16*(3), 297–323. https://doi.org/10.1017/S1474747215000323

Lusardi, A., & Tufano, P. (2015). Debt literacy, financial experiences, and overindebtedness. *Journal of Pension Economics and Finance*, *14*(4), 332–368. https://doi.org/10.1017/S1474747215000232

Lyons, A. C., Chang, Y., & Scherpf, E. (2006a). Translating financial education into behavior change for low-income populations. *Journal of Financial Counseling and Planning*, *17*(2), 27–45.

Lyons, A. C., Palmer, L., Jayaratne, K. S. U., & Scherpf, E. (2006). Are we making the grade? A national overview of financial education and program evaluation. *Journal of Consumer Affairs*, *40*(2), 208–235. https://doi.org/10.1111/j.1745-6606.2006.00056.x

Mandell, L. (2008). Financial literacy of high school students. In J. J. Xiao (Ed.), *Handbook of consumer finance research* (pp. 163–183). New York, NY: Springer.

Mandell, L., & Klein, L. S. (2009). The impact of financial literacy education on subsequent financial behavior. *Journal of Financial Counseling and Planning*, *20*(1), 10.

Meier, S., & Sprenger, C. D. (2013). Discounting financial literacy: Time preferences and participation in financial education programs. *Journal of Economic Behavior & Organization*, *95*, 159–174. https://doi.org/10.1016/j.jebo.2012.02.024

Miller, M., Reichelstein, J., Salas, C., & Zia, B. (2014). Can you help someone become financially capable? A meta-analysis of the literature. Policy Research Working Paper Series 6745. Washington, DC: The World Bank.

Modigliani, F., & Brumberg, R. (1954). Utility analysis and the consumption function: An interpretation of cross-section data. In K. K. Kurihara (Ed.), *Post-Keynesian economics* (pp. 388–436). New Brunswick, NJ: Rutgers University Press.

Montalto, C. P., Phillips, E. L., McDaniel, A., & Baker, A. R. (2019). College student financial wellness: Student loans and beyond. *Journal of Family and Economic Issues*, *40*(1), 3–21. https://doi.org/10.1007/s10834-018-9593-4

Moreno-Herrero, D., Salas-Velasco, M., & Sánchez-Campillo, J. (2018). The knowledge and skills that are essential to make financial decisions: First results from PISA 2012. *FinanzArchiv*, *74*(3), 293–339. https://doi.org/10.1628/fa-2018-0009

Moschis, G. P. (1987). *Consumer socialization: A life-cycle perspective*. Lexington, MA: Lexington Books.

Mottola, G. R., & Kieffer, C. N. (2017). Understanding and using data from the national financial capability study. *Family and Consumer Sciences Research Journal*, *46*(1), 31–39. https://doi.org/10.1111/fcsr.12227

Mundy, S. (2011). Financial capability: Why is it important and how can it be improved. . *Perspective report* (pp. 3–6). Reading, UK: CfBT Education Trust. Retrieved from https://www.educationdevelopmenttrust.com/EducationDevelopmentTrust/files/0f/0fbddece-6d06-478f-abd7-4c40ce591d0d.pdf

Murendo, C., & Mutsonziwa, K. (2017). Financial literacy and savings decisions by adult financial consumers in Zimbabwe: Financial literacy and savings decisions. *International Journal of Consumer Studies*, *41*(1), 95–103. https://doi.org/10.1111/ijcs.12318

Noctor, M., Stoney, S., & Stradling, S. (1992). *Financial literacy: A discussion of concepts and competences of financial literacy and opportunities for its introduction into young people's learning* (Report prepared for the National Westminster Bank). London, UK: National Foundation for Education Research.

Norvilitis, J. M., & MacLean, M. G. (2010). The role of parents in college students' financial behaviors and attitudes. *Journal of Economic Psychology*, *31*(1), 55–63. https://doi.org/10.1016/j.joep.2009.10.003

Norvilitis, J. M., Merwin, M. M., Osberg, T. M., Roehling, P. V., Young, P., & Kamas, M. M. (2006). Personality factors, money attitudes, financial knowledge, and credit-card debt in college students1. *Journal of Applied Social Psychology*, *36*(6), 1395–1413. https://doi.org/10.1111/j.0021-9029.2006.00065.x

O'Connor, G. E. (2019). Exploring the interplay of cognitive style and demographics in consumers' financial knowledge. *Journal of Consumer Affairs*, *53*(2), 382–423. https://doi.org/10.1111/joca.12195

O'Connor, G. E., & Kabadayi, S. (2020). Examining antecedents of health insurance literacy: The role of locus of control, cognitive style, and financial knowledge. *Journal of Consumer Affairs*, *54*(1), 227–260. https://doi.org/10.1111/joca.12266

OECD. (2005). *Improving financial literacy: Analysis of issues and policies*. Paris: OECD Publishing.

OECD. (2009). *Financial literacy and consumer protection: Overlooked aspects of the crisis*. Paris, France: OECD Publishing.

OECD. (2014). PISA 2012 technical background. In OECD (Ed.), *PISA 2012 Results: Students and money: Financial literacy skills for the 21st Century* (Vol. VI, pp. 123–145). Paris: OECD Publishing.

OECD. (2016). *OECD/INFE international survey of adult financial literacy competencies* (technical report). Paris: OECD.

OECD. (2017). *PISA 2015 results: Students' financial literacy*. Paris: OECD Publishing.

OECD. (2018). *G20/OECD INFE policy guidance on digitalisation and financial literacy*. Paris, France: OECD Publishing.

Paul, J., & Benito, G. R. (2018). A review of research on outward foreign direct investment from emerging countries, including China: What do we know, how do we know and where should we be heading? *Asia Pacific Business Review*, *24*(1), 90–115. https://doi.org/10.1080/13602381.2017.1357316

Paul, J., & Criado, A. R. (2020). The art of writing literature review: What do we know and what do we need to know? *International Business Review*, *29*(4), 101717. https://doi.org/10.1016/j.ibusrev.2020.101717

Paul, J., & Mas, E. (2019). Toward a 7-P framework for international marketing. *Journal of Strategic Marketing*, 1–21. https://doi.org/10.1080/0965254X.2019.1569111

Paul, J., Parthasarathy, S., & Gupta, P. (2017). Exporting challenges of SMEs: A review and future research agenda. *Journal of World Business*, *52*(3), 327–342. https://doi.org/10.1016/j.jwb.2017.01.003

Paul, J., & Rosado-Serrano, A. (2019). Gradual internationalization vs born-global/international new venture models. *International Marketing Review*, *36*(6), 830–858. https://doi.org/10.1108/IMR-10-2018-0280

Peeters, N., Rijk, K., Soetens, B., Storms, B., & Hermans, K. (2018). A systematic literature review to identify successful elements for financial education and counseling in groups. *Journal of Consumer Affairs*, *52*(2), 415–440. https://doi.org/10.1111/joca.12180

Pilkington, A., & Fitzgerald, R. (2006). Operations management themes, concepts and relationships: A forward retrospective of *IJOPM*. *International Journal of Operations & Production Management*, *26*(11), 1255–1275. https://doi.org/10.1108/01443570610705854

Ponchio, M. C., Cordeiro, R. A., & Gonçalves, V. N. (2019). Personal factors as antecedents of perceived financial well-being: Evidence from Brazil. *International Journal of Bank Marketing*, *37*(4), 1004–1024. https://doi.org/10.1108/IJBM-03-2018-0077

Potocki, T., & Cierpiał-Wolan, M. (2019). Factors shaping the financial capability of low-income consumers from rural regions of Poland. *International Journal of Consumer Studies*, *43*(2), 187–198. https://doi.org/10.1111/ijcs.12498

Randhawa, K., Wilden, R., & Hohberger, J. (2016). A bibliometric review of open innovation: Setting a research agenda. *Journal of Product Innovation Management*, *33*(6), 750–772. https://doi.org/10.1111/jpim.12312

Remund, D. L. (2010). Financial literacy explicated: The case for a clearer definition in an increasingly complex economy. *Journal of Consumer Affairs*, *44*(2), 276–295. https://doi.org/10.1111/j.1745-6606.2010.01169.x

Riitsalu, L., & Põder, K. (2016). A glimpse of the complexity of factors that influence financial literacy: Complexity of financial literacy. *International Journal of Consumer Studies*, *40*(6), 722–731. https://doi.org/10.1111/ijcs.12291

Rosado-Serrano, A., Paul, J., & Dikova, D. (2018). International franchising: A literature review and research agenda. *Journal of Business Research*, *85*, 238–257. https://doi.org/10.1016/j.jbusres.2017.12.049

Santini, F. D. O., Ladeira, W. J., Mette, F. M. B., & Ponchio, M. C. (2019). The antecedents and consequences of financial literacy: A meta-analysis. *International Journal of Bank Marketing*, *37*(6), 1462–1479. https://doi.org/10.1108/IJBM-10-2018-0281

Social and Enterprise Development Innovations. (2004). Financial Capability and Poverty, Discussion paper July 2004, *PRI (Policy Research Initiative) Project 'New Approaches for Addressing Poverty and Exclusion'*, Canada.

Serido, J., Shim, S., & Tang, C. (2013). A developmental model of financial capability: A framework for promoting a successful transition to adulthood. *International Journal of Behavioral Development*, *37*(4), 287–297. https://doi.org/10.1177/0165025413479476

Shen, C.-H., Lin, S.-J., Tang, D.-P., & Hsiao, Y.-J. (2016). The relationship between financial disputes and financial literacy. *Pacific-Basin Finance Journal*, *36*, 46–65. https://doi.org/10.1016/j.pacfin.2015.11.002

Sherraden, M. S. (2013). Building blocks of financial capability. In J. Birkenmaier, J. Curley & M. Sherraden (Eds.), *Financial education and capability: Research, education, policy, and practice* (pp. 3–43). Oxford, UK: Oxford University Press.

Shim, S., Barber, B. L., Card, N. A., Xiao, J. J., & Serido, J. (2010). Financial socialization of first-year college students: The roles of parents, work, and education. *Journal of Youth and Adolescence*, *39*(12), 1457–1470. https://doi.org/10.1007/s10964-009-9432-x

Shim, S., Xiao, J. J., Barber, B. L., & Lyons, A. C. (2009). Pathways to life success: A conceptual model of financial well-being for young adults. *Journal of Applied Developmental Psychology*, *30*(6), 708–723. https://doi.org/10.1016/j.appdev.2009.02.003

Sivaramakrishnan, S., Srivastava, M., & Rastogi, A. (2017). Attitudinal factors, financial literacy, and stock market participation. *International Journal of Bank Marketing*, *35*(5), 818–841. https://doi.org/10.1108/IJBM-01-2016-0012

Small, H. (1973). Co-citation in the scientific literature: A new measure of the relationship between two documents. *Journal of the American Society for Information Science*, *24*(4), 265–269. https://doi.org/10.1002/asi.4630240406

Spasojevic, B., Lohmann, G., & Scott, N. (2018). Air transport and tourism—A systematic literature review (2000–2014). *Current Issues in Tourism*, *21*(9), 975–997. https://doi.org/10.1080/13683500.2017.1334762

Ståhl, C., Karlsson, E. A., Sandqvist, J., Hensing, G., Brouwer, S., Friberg, E., & MacEachen, E. (2019). Social insurance literacy: A scoping review on how to define and measure it. *Disability and Rehabilitation*, 1–10. https://doi.org/10.1080/09638288.2019.1672111

Stango, V., & Zinman, J. (2009). Exponential growth bias and household finance. *The Journal of Finance*, *64*(6), 2807–2849. https://doi.org/10.1111/j.1540-6261.2009.01518.x

Steinert, J. I., Zenker, J., Filipiak, U., Movsisyan, A., Cluver, L. D., & Shenderovich, Y. (2018). Do saving promotion interventions increase household savings, consumption, and investments in Sub-Saharan Africa? A systematic review and meta-analysis. *World Development*, *104*, 238–256. https://doi.org/10.1016/j.worlddev.2017.11.018

Stolper, O. A., & Walter, A. (2017). Financial literacy, financial advice, and financial behavior. *Journal of Business Economics*, *87*(5), 581–643. https://doi.org/10.1007/s11573-017-0853-9

Talan, G., & Sharma, G. D. (2019). Doing well by doing good: A systematic review and research agenda for sustainable investment. *Sustainability*, *11*(2), 353. https://doi.org/10.3390/su11020353

Tennyson, S., & Nguyen, C. (2001). State curriculum mandates and student knowledge of personal finance. *Journal of Consumer Affairs*, *35*(2), 241–262. https://doi.org/10.1111/j.1745-6606.2001.tb00112.x

Totenhagen, C. J., Casper, D. M., Faber, K. M., Bosch, L. A., Wiggs, C. B., & Borden, L. M. (2015). Youth financial literacy: A review of key considerations and promising delivery methods. *Journal of Family and Economic Issues*, *36*(2), 167–191. https://doi.org/10.1007/s10834-014-9397-0

Tranfield, D., Denyer, D., & Smart, P. (2003). Towards a methodology for developing evidence-informed management knowledge by means of systematic review. *British Journal of Management*, *14*(3), 207–222. https://doi.org/10.1111/1467-8551.00375

Tsay, M.-Y. (2009). Citation analysis of Ted Nelson's works and his influence on hypertext concept. *Scientometrics*, *79*(3), 451–472. https://doi.org/10.1007/s11192-008-1641-7

U.S. Government Accountability Office. (2006). *Financial literacy and education commission: Further progress needed to ensure an effective national strategy*. Washington, DC: The United States Government Accountability Office (GAO).

Uysal, Ö. Ö. (2010). Business ethics research with an accounting focus: A bibliometric analysis from 1988 to 2007. *Journal of Business Ethics*, *93*(1), 137–160. https://doi.org/10.1007/s10551-009-0187-9

Vaihekoski, M. (2011). History of financial research and education in Finland. *The European Journal of Finance*, *17*(5–6), 339–354. https://doi.org/10.1080/1351847X.2010.543829

Van Campenhout, G. (2015). Revaluing the role of parents as financial socialization agents in youth financial literacy programs. *Journal of Consumer Affairs*, *49*(1), 186–222. https://doi.org/10.1111/joca.12064

Van Eck, N. J., & Waltman, L. (2010). Software survey: VOSviewer, a computer program for bibliometric mapping. *Scientometrics*, *84*(2), 523–538. https://doi.org/10.1007/s11192-009-0146-3

Van Rooij, M., Lusardi, A., & Alessie, R. (2011a). Financial literacy and stock market participation. *Journal of Financial Economics*, *101*(2), 449–472. https://doi.org/10.1016/j.joep.2011.02.004

Van Rooij, M. C. J., Lusardi, A., & Alessie, R. J. M. (2011b). Financial literacy and retirement planning in the Netherlands. *Journal of*

Economic Psychology, *32*(4), 593–608. https://doi.org/10.1016/j.joep.2011.02.004

Van Rooij, M. C. J., Lusardi, A., & Alessie, R. J. M. (2012). Financial literacy, retirement planning and household wealth. *The Economic Journal*, *122*(560), 449–478. https://doi.org/10.1111/j.1468-0297.2012.02501.x

Walstad, W. B., Rebeck, K., & MacDonald, R. A. (2010). The effects of financial education on the financial knowledge of high school students. *Journal of Consumer Affairs*, *44*(2), 336–357. https://doi.org/10.1111/j.1745-6606.2010.01172.x

Walstad, W., Urban, C., Asarta, C. J., Breitbach, E., Bosshardt, W., Heath, J., … Xiao, J. J. (2017). Perspectives on evaluation in financial education: Landscape, issues, and studies. *The Journal of Economic Education*, *48*(2), 93–112. https://doi.org/10.1080/00220485.2017.1285738

Ward, A. F., & Lynch, J. G., Jr. (2019). On a need-to-know basis: How the distribution of responsibility between couples shapes financial literacy and financial outcomes. *Journal of Consumer Research*, *45*(5), 1013–1036. https://doi.org/10.1093/jcr/ucy037

Warmath, D., & Zimmerman, D. (2019). Financial literacy as more than knowledge: The development of a formative scale through the lens of bloom's domains of knowledge. *Journal of Consumer Affairs*, *53*(4), 1602–1629. https://doi.org/10.1111/joca.12286

Williams, A. J., & Oumlil, B. (2015). College student financial capability: A framework for public policy, research and managerial action for financial exclusion prevention. *International Journal of Bank Marketing*, *33*(5), 637–653. https://doi.org/10.1108/IJBM-06-2014-0081

Willis, L. E. (2008). Against financial-literacy education. *Iowa Law Review*, *94*, 197.

Willis, L. E. (2011). The financial education fallacy. *American Economic Review*, *101*(3), 429–434. https://doi.org/10.1257/aer.101.3.429

Xia, J. J., Chen, C., & Chen, F. (2014). Consumer financial capability and financial satisfaction. *Social Indicators Research*, *118*(1), 415–432. https://doi.org/10.1007/s11205-013-0414-8

Xiao, J. J., & O'Neill, B. (2016). Consumer financial education and financial capability: Consumer financial education and capability. *International Journal of Consumer Studies*, *40*(6), 712–721. https://doi.org/10.1111/ijcs.12285

Xiao, J. J., & Porto, N. (2017). Financial education and financial satisfaction: Financial literacy, behavior, and capability as mediators. *International Journal of Bank Marketing*, *35*(5), 805–817. https://doi.org/10.1108/IJBM-01-2016-0009

Xiao, J. J., Tang, C., Serido, J., & Shim, S. (2011). Antecedents and consequences of risky credit behavior among college students: Application and extension of the theory of planned behavior. *Journal of Public Policy & Marketing*, *30*(2), 239–245. https://doi.org/10.1509/jppm.30.2.239

Xu, L., & Zia, B. (2012). *Financial literacy around the world: An overview of the evidence with practical suggestions for the way forward*. Washington, DC: The World Bank.

Xu, X., Chen, X., Jia, F., Brown, S., Gong, Y., & Xu, Y. (2018). Supply chain finance: A systematic literature review and bibliometric analysis. *International Journal of Production Economics*, *204*, 160–173. https://doi.org/10.1016/j.ijpe.2018.08.003

Zhu, A. Y. F. (2018). Parental socialization and financial capability among chinese adolescents in Hong Kong. *Journal of Family and Economic Issues*, *39*(4), 566–576. https://doi.org/10.1007/s10834-018-9584-5

How to cite this article: Goyal K, Kumar S. Financial literacy: A systematic review and bibliometric analysis. *Int J Consum Stud*. 2021;45:80–105. https://doi.org/10.1111/ijcs.12605