

# **FINANCIAL LITERACY AND EMPLOYMENT: AN OVERVIEW AND BIBLIOMETRIC ANALYSIS**

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## **Abstract**

People are currently facing high unemployment rates, and one of the main causes is financial literacy. Financial literacy is critically important for people as it enables them to effectively manage their money and decide whether to invest or save. Furthermore, everyone must be educated from an early age about financial issues because they will be taught about how to save, invest, budget, and borrow. The purpose of this article is to investigate the scientific literature on financial education and employment. To this end, we conducted a bibliometric analysis of financial literacy and the relationship between financial literacy and employment. The research methodology included a bibliometric analysis conducted with the VOSviewer software. The results highlight low rates of financial literacy in terms of knowledge, behaviour and attitude. The main determinants of poor financial literacy include poor financial education in schools, disinterest of people in the subject, limited accessibility to financial resources, and insufficient involvement of people in financial issues. Policy makers must take into account this unfavourable situation with respect to the state of financial literacy and implement actions to address it.

## **Keywords**

financial literacy, employment, bibliometric analysis, VOSviewer

## **JEL Classification**

G53, E20, C88

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## **Introduction**

The main assumption of the research is that financial literacy plays an important role in employment performance. There are issues strongly related to the financial education of individuals, such as identifying appropriate jobs, wage negotiation, retirement planning, personal budgeting, and financial security. In this regard, the objective of the paper is to

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perform a bibliometric analysis of the literature that addresses financial literacy and the relation between financial literacy and employment to identify the main correlations between the two concepts. The novelty of the study derives from the fact that few authors have conducted a bibliometric analysis to study the relationship between financial education and employment. In addition to this, the bibliometric analysis is of recent date and highlights the most important issues related to the scientific literature in one field which can be a base for other practitioners.

Today, everyone must have financial skills to face the challenges of socioeconomic changes. Furthermore, every country needs financially educated people who create economic development and well-being. Financial literacy is more than knowing theoretical concepts regarding the financial environment, it is about saving, consuming, investing, and borrowing. However, the level of financial knowledge is relatively low among a broad category of people, and this is a weakness for any economy.

Financial literacy can be regarded as a certificate that empowers people to live a financially secure life, to make appropriate decisions in terms of income, and to identify relevant jobs. It is also important for people to become financially independent and this can be accomplished when they are financially literate. Furthermore, although retirement is a concept that many people do not consider for the present, its importance is relevant for long-term well-being. The positive benefits that financial literacy creates for people are multiple and of current state.

In the first section of the article, a brief overview of the literature on financial literacy and employment is presented, highlighting the ideas of relevant authors in the field. Section 2 introduces the research methodology that was used for the identification of the scientific articles and for the bibliometric analysis. The results of the research and the discussion of these results are presented in Section 3 of the paper. A database provided by the Web of Science platform was used to design the bibliometric analysis. Subsequently, the database was processed in VOSviewer, which is a statistical programme that processes the scientific literature in a specific research field. The discussion of the research results focused mainly on the most significant papers, organisations, authors and countries, keywords, and also the citation. The last section comprises the most important conclusions of the research, including future research directions and the limitations of the study.

## **1. Review of the scientific literature**

The European Commission (2023) defines financial literacy as the financial skills used by people when they have to make important decisions related to their incomes. Therefore, everyone need to know what to do with their money in order to benefit from this on the long-term. Nowadays, many people do not know the cost of saving or borrowing. In addition, people do not have enough knowledge of the opportunities to invest money.

There are many scientific articles that aim to investigate the role of financial literacy in developing countries (Baidoo et al., 2018; Bongomin et al., 2018; Kiliyanni & Sivaraman, 2016). Financial literacy has an important place in developing countries as it empowers people with financial skills, encourages entrepreneurial initiatives, and fosters investments in the stock market.

The investigations of many authors on the relationship between financial education and the labour market are mainly concerned with the financial skills of people who are already employed, and less with being employed (Willows, G., 2019; Kamakia et al., 2017). Sabri and Zakaria (2015) stated that the level of financial literacy has a high impact on the well-being and financial stress of the young employees.

Financial literacy is essential for both employers and employees as it provides them with knowledge of the structure of taxes, budgets, or expenses. Employees should not remain financially limited only to salary, they must learn how to effectively exploit their incomes. For example, a small part of the salary could be invested in the stock market if the necessary financial skills are owed. On the other hand, employers need to know how to invest in the long term so their economic status will increase positively. Companies today have access on the stock market to various opportunities that could help grow their activities and image.

When it comes to employment, Struckell et al. (2022) argue that financial literacy helps many people to become self-employed. Financial literacy provides people with necessary skills to establish a company on their own and to grow it sustainably. Self-employed people have financial confidence and manage to use their income for investment strategies.

Retirement planning is intertwined with employment. Employment helps people to earn money and make retirement savings. Many authors state that financial literacy has positive effects on retirement planning (Landerrette & Martínez, 2013; Clark et al., 2017; Nguyen & Rozsa, 2019). Financial literacy empowers people with the appropriate skills to plan their own financial resources for a financially secure future. People with financial skills know how to save, how to consume rationally, and how to invest safely. Moreover, the retirement strategy can contribute to retirement goals.

## **2. Research methodology**

This research aims to examine the literature that has addressed financial education and the bridge between financial education and employment. To achieve this purpose, it was performed a bibliometric analysis. Many researchers have recently been using bibliometric analysis to study the literature because it provides valuable information on the state of research in a particular field. Bibliometric analysis can also highlight the most valuable authors, the most valuable scientific papers, collaborations between authors, organisations, and countries, the co-occurrence of keywords or the number of citations in a specific field. At the same time, the results of the bibliometric analyses are

valuable resources that can be exploited by many stakeholders, such as researchers or policy makers.

Bibliometric analysis was conducted using the VOSviewer software. The advantages of VOSviewer programme are that it provides an overview of the relationships between articles, authors, organisations, countries and keywords. Many researchers have used this software in recent years to perform bibliometric analyses.

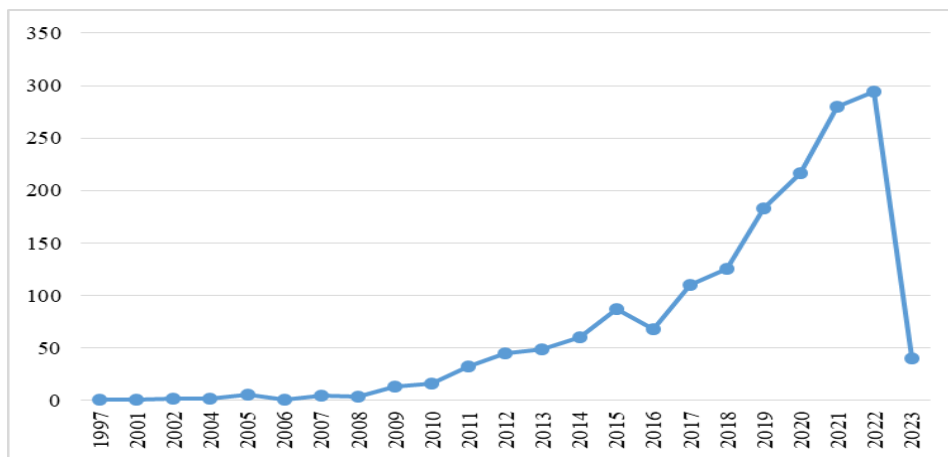
The comprehensive database was retrieved from the Web of Science platform. The Web of Science is known for the qualitative collection of scientific papers in many research areas. The keywords used for searching the Web of Science platform were "financial literacy" for the financial literacy database and "financial literacy" and "employ\*" for the financial education and employment database. For the present study, we have selected only SCI-EXPANDED, SSCI and A&HCI scientific articles. Therefore, the database on financial literacy includes 1,641 scientific articles published between 1997 and 2023. On the other hand, the database on financial education and employment includes a number of 71 scientific articles, all published since 2008 and until now.

The bibliometric analysis of the topic areas involved, among other elements, the analysis of the most important scientific articles, organizations, authors and countries, keyword analysis and citation analysis. Citation is an essential part of bibliometric analysis because it outlines the scientific impact that an article has on the academic environment. Moreover, the citation review shows the interest of other authors in a particular field. An additional component of bibliometric analysis is the co-occurrence of keywords. The co-occurrence of keywords provides valuable information to authors about the most used keywords in a particular field and on the basis of this information they can establish connections between the subject being researched and the terms used by the authors..

### **3. Results and Discussion**

#### **3.1. A Bibliometric Analysis of Financial Education**

In this section a bibliometric analysis has been performed in the field of financial education. The financial education database includes 1,641 scientific articles published during the period 1997-2023. The selected scientific articles have a strong influence on financial education. It can be observed that the interest of researchers in financial education has started to increase slowly since 2011 (Figure 1). Furthermore, in 2017 it is emphasized a significant increase in the number of scientific publications addressing the topic of financial education, a tendency that continues until 2022. The scientific articles published until now have also been considered in the analysis. This concerns 40 scientific articles published in 2023.



**Figure 1. Evolution of scientific articles related to financial literacy**

*Source:* Author's own research based on the Web of Science database

In Table 1 a ranking of the most **influential authors** who have published in the field of financial education can be observed, according to the number of scientific articles in their portfolio. Therefore, Olivia Mitchell, Annamaria Lusardi, Patricia Boyle and Mostafa Saidur Rahim Khan show the greatest interest in the area of financial education. Olivia Mitchell is a professor at the University of Pennsylvania (United States) in the field of risk economics and policy. Annamaria Lusardi is a professor of economics and accounting at George Washington University (United States). Patricia Boyle is a professor at Rush University Medical Center in Chicago, United States. Mostafa Saidur Rahim Khan is a professor at the School of Economics at Hiroshima University (Japan). The first three authors work in educational institutions in the United States of America, suggesting a high interest in financial education in this region.

In terms of **affiliated institutions**, the most significant contributions belong to four institutions in the United States: the University of Pennsylvania, the National Bureau of Economic Research, the University System of Ohio, and the University of California System (Table 1). Therefore, the presence of the United States of America is noticeable again. The scientific results of these institutions are highly valued in the United States, and this situation outlines that financial education is a concept of significant importance to the economic development of the United States.

Table 1 also shows the **countries** with the highest number of publications related to financial education. Among these, the most notable are the United States (628 publications), the People's Republic of China (175 publications), Australia (133 publications), England (131 publications), and Germany (114 publications). It can be noted that the leading country is the United States. The issue of financial literacy is of high interest in the United States, since it contributes to economic development, retirement planning, rational consumption, or long-term investments. Generally, the scientific articles published by authors in the United States have approached topics like

financial literacy and economic effects, participation in the stock market, financial planning, financial skills of young and old people, financial behaviour, financial decisions, or ways of teaching financial education.

**Table 1. Top authors, institutions and countries that published on financial literacy**

Top authors		Top institutions		Top countries	
<i>Author</i>	<i>TP</i>	<i>Institution</i>	<i>TP</i>	<i>Country</i>	<i>TP</i>
Mitchell, Olivia S.	31	University of Pennsylvania	45	USA	628
Lusardi, Annamaria	29	National Bureau of Economic Research	35	Peoples R China	175
Boyle, Patricia A.	23	University System of Ohio	35	Australia	133
Khan, Mostafa Saidur Rahimv	21	University of California System	29	England	131
Bennett, David A.	18	University of London	29	Germany	114
Xiao, Jing Jian	16	George Washington University	28	Netherlands	89
Yu, Lei	16	Tilburg University	28	Italy	77
Kadoya, Yoshihiko	15	Rush University	26	Spain	53
Clark, Robert L. A.	12	Ohio State University	25	India	47
Gerrans, Paul	11	University of Southern California	25	Japan	47

*Source:* Author's own research based on the Web of Science database

Abbreviations: TP, total publications.

The information in Table 2 highlights the **journals** with the highest number of scientific articles published in the area of financial education. The results outline that the highest number of scientific articles was published in the Journal of Consumer Affairs (65 scientific publications), Sustainability (56 scientific publications), and the Journal of Pension Economics Finance (55 scientific publications). The Journal of Consumer Affairs is a scientific journal indexed in the second quartile in the Economics. Concerning Sustainability, it is a journal also indexed in the second quartile in the field of Environmental Sciences. The Journal of Pension Economics Finance is indexed in the second quartile, also in the field of Economics.

**Table 2. Top 10 publication titles with significant contributions to the area of financial literacy**

Publication Titles	Number of scientific publications
Journal of Consumer Affairs	65
Sustainability	56
Journal of Pension Economics Finance	55
International Journal of Bank Marketing	47
International Journal of Consumer Studies	47
Journal of Family and Economic Issues	36
Frontiers in Psychology	35
Journal of Economic Behavior Organization	31
Journal of Banking Finance	26
Journal of Behavioral and Experimental Finance	25

*Source:* Author's own research based on the Web of Science database

According to the information provided by the Web of Science database, the most cited scientific articles that have studies on financial education subject belong to Lusardi (2014, 1. 213 citations), Lusardi (2007, 794 citations), Fernandes (2014, 681 citations), Van Rooji (2011, 680 citations), Lusardi (2011, 588 citations), Lusardi (2010, 574 citations), Huston (2010, 564 citations), Lusardi (2008, 521 citations), Van Rooji (2012, 371 citations), and Hastings (2013, 300 citations). Table 3 summarises the most important insights resulted after reviewing the scientific articles.

**Table 3. Top 10 most cited scientific articles related to financial literacy**

Brief presentation of the most cited scientific articles in the field of financial literacy

Lusardi, A., & Mitchell, O. S. (2014). The economic importance of financial literacy: Theory and evidence. *American Economic Journal: Journal of Economic Literature*, 52(1), 5-44.

In this paper, the authors highlight that financial education has a significant impact on economic development. Financial knowledge can help to anchor economic concepts and make the right decisions about consumption, saving and investment. In the long term, economic decisions can result in negative consequences if people do not possess the right financial knowledge. As a result, policy-makers need to focus their efforts on improving the financial literacy of people because the welfare of the population is dependent upon it.

Lusardi, A., & Mitchell, O. S. (2007). Baby boomer retirement security: The roles of planning, financial literacy, and housing wealth. *Journal of monetary Economics*, 54(1), 205-224.

First published in 2007, the authors of this article address the issue of financial education in association with the level of financial planning. The results of the study argue for an improved level of financial planning as it results in significant savings and wealth over time. In addition, the authors emphasise that people who plan their income acquire strong financial knowledge and it helps them become wealthier during their retirement.

Fernandes, D., Lynch Jr, J. G., & Netemeyer, R. G. (2014). Financial literacy, financial education, and downstream financial behaviors. *Management science*, 60(8), 1861-1883.

The research insight which predominates in the article encompasses new ways of developing financial literacy for people. According to the authors, the concern of many financial education courses is the focus on theoretical knowledge about the financial market and less on developing social skills. Furthermore, the authors emphasize that people attending financial education courses should put financial skills into practice right after that step because in the long term they will gradually disappear. An essential point regarding financial education is the way of educating young people because their code of behaviour can change in the future and the financial skills they have gained at a moment can transform into wrong economic decisions.

Van Rooij, M., Lusardi, A., & Alessie, R. (2011). Financial literacy and stock market participation. *Journal of Financial economics*, 101(2), 449-472.

The authors investigate the relationship between financial education and investment decisions in the stock market. The results of the research show that a large number of individuals involved in the research lack strong financial knowledge, and this constitutes a negative factor for future investment decisions in the capital market. Whether it is stocks or bonds, for people with poor financial knowledge, it is a risk they do not wish to assume. As a consequence, the authors argue for improving the financial literacy of people to encourage capital market initiatives.



Lusardi, A., & Mitchell, O. S. (2011). Financial literacy around the world: an overview. *Journal of pension economics & finance*, 10(4), 497-508.

This research focusses on developing financial literacy of people around the world because financial decisions have a long-term impact on the economic situation. In addition, the authors point out the differences in financial education that are prevalent between men and women, between ethnic minorities, and between household backgrounds. Authors emphasize that financial literacy will lead to smart economic decisions and ensure long-term retirement.

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Lusardi, A., Mitchell, O. S., & Curto, V. (2010). Financial literacy among the young. *Journal of consumer affairs*, 44(2), 358-380.

From the perspective of these authors, financial education is particularly essential for the economic development of a country. The findings of this study include the poor financial literacy of young people included in the study due to their background. The financial code of behaviour of young people whose parents had a secondary education was significantly different from the financial code of behaviour of young people whose parents had a higher education and were investing. Financial decisions are therefore strongly influenced by the level of education and by the environment within which people operate in their day-to-day activities.

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Huston, S. J. (2010). Measuring financial literacy. *Journal of consumer affairs*, 44(2), 296-316.

The author argues that financial education is crucial for making appropriate financial decisions in the short, medium and long term. She also explores the various mechanisms of financial education to highlight their limitations and inspire the development of novel and cost-effective methodologies.

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Lusardi, A., & Mitchell, O. S. (2008). Planning and financial literacy: How do women fare?. *American economic review*, 98(2), 413-417.

The study of financial education among women in the United States constitutes the central theme of this paper. On the whole, women whose financial knowledge is limited are economically disadvantaged. Poor financial education among women has a significant impact on their retirement decisions and negatively impacts their standard of living later in life. The globalization and economic conjuncture in which most states operate demand an improvement in the financial literacy of women in order to be able to make wise financial decisions. However, the authors consider planning as a strength for financial decisions.

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Van Rooij, M. C., Lusardi, A., & Alessie, R. J. (2012). Financial literacy, retirement planning and household wealth. *The Economic Journal*, 122(560), 449-478.

The study emphasizes the relationship between financial education, retirement planning and household well-being. The general opinion of the authors is that financial education significantly influences the welfare of households and people. High financial literacy encourages participation in the stock market and saving decisions. Consequently, the effects of these actions will be positive in the long term and will allow people to accumulate assets until retirement age.

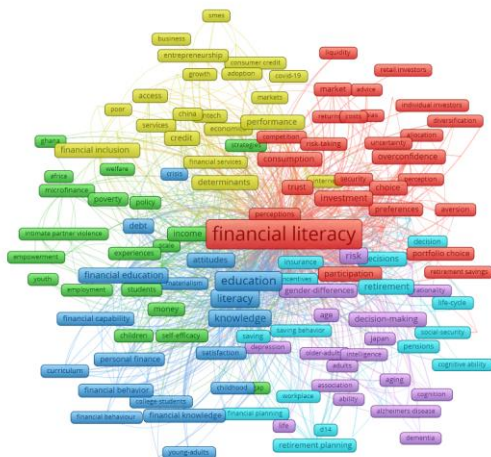
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Hastings, J. S., Madrian, B. C., & Skimmyhorn, W. L. (2013). Financial literacy, financial education, and economic outcomes. *Annu. Rev. Econ.*, 5(1), 347-373.

The authors of this study examined the scientific literature on financial education to validate whether financial competencies teach people the right consumption and investment decisions. Some of the main results highlight the poor performance of people in terms of financial knowledge, as well as the poor economic situation of people who do not have financial skills.

*Source:* Author's own research based on the scientific literature

Another characteristic of bibliometric analysis is the **co-occurrence of keywords**. Keywords with the most occurrences in scientific articles studying financial education are (Figure 3): *financial literacy* (1,114 occurrences), *education* (261 occurrences), *literacy* (201 occurrences), *behaviour* (198 occurrences), *knowledge* (165 occurrences), *impact* (136 occurrences), *risk* (110 occurrences), *gender* (107 occurrences), *financial education* (98 occurrences), *wealth* (93 occurrences) and *health* (93 occurrences). Therefore, authors publishing in the financial education area were primarily interested in financial knowledge of people, risk, gender gaps in financial education, wealth, and the health of financially educated people. Other important keywords relate to retirement, investment, consumption, decision making, financial inclusion, or savings.



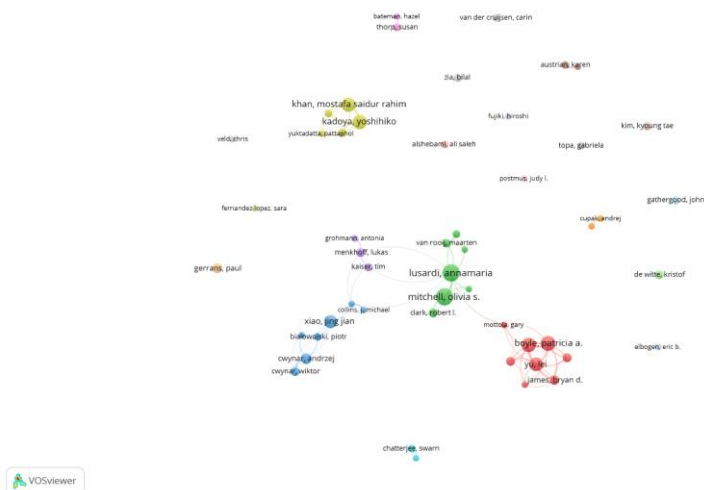
VOSviewer

**Figure 2. Analysis of the most used keywords in scientific articles on financial education**

*Source:* Author's own research based on VOSviewer software

Furthermore, **collaboration between authors** for the publication of scientific articles is an important part of bibliometric analysis. This indicates a strong interest for a specific field of study and the work to elaborate qualitative scientific articles. The most illustrative author collaboration networks are shown with green, red, blue, and yellow

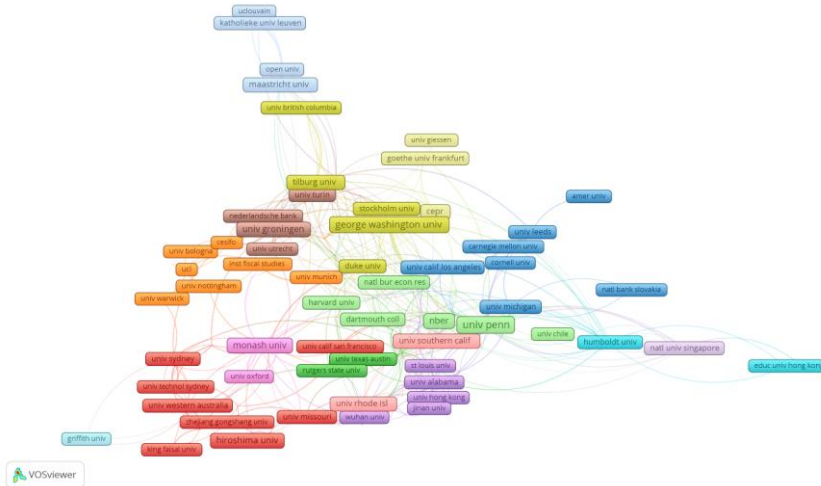
bullets in Figure 4. The more prominent the bubbles, the stronger the collaboration between authors. It can be noted the collaboration between Lusardi Annamaria and Mitchell Olivia, the collaboration between Boyle Patricia and Bennett David, and the collaboration between Xiao Jing Jian and Cwynar Andrzej. These authors collaborated most often in publishing scientific articles on financial education.



**Figure 3. Collaboration between authors for the publication of scientific articles on financial education**

Source: Author’s own research based on VOSviewer software

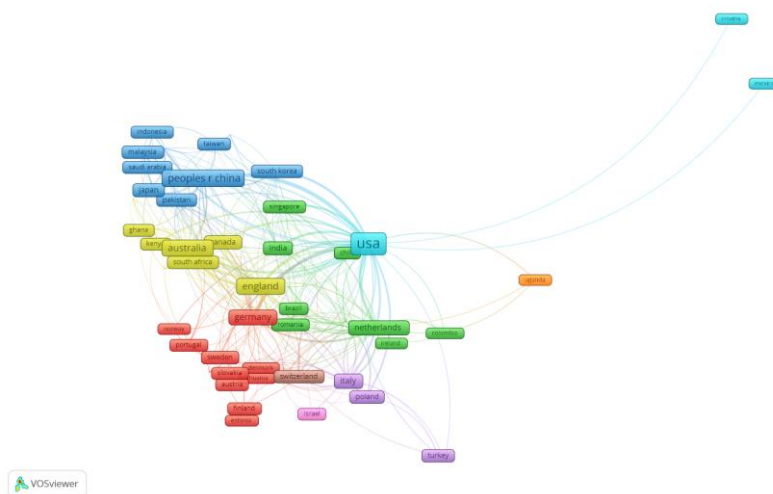
The **collaboration between organisations** for the publication of scientific articles in the field of financial education is graphically represented in Figure 5. At first sight, a strong collaboration can be observed between (1) George Washington, Stockholm University, Duke University, Tilburg University and University British Columbia, (2) University of Groningen, Utrecht University, and Nederlandsche Bank, (3) Maastricht University, Open University, Katholieke Universiteit Leuven, and UCLouvain, and (4) University of Rhode Island and University of Southern California.



**Figure 4. Collaboration between organizations for the publication of scientific articles on financial education**

Source: Author’s own research based on VOSviewer software

The last type of collaboration for the publication of scientific articles is the **collaboration between countries**. The colour clusters shown in Figure 6 suggest the network of collaboration between authors in various countries. The United States of America, Germany, England, Australia, the People's Republic of China, the Netherlands, and Italy are the countries with the strongest collaborations between authors in terms of publishing scientific articles in the field of financial education.

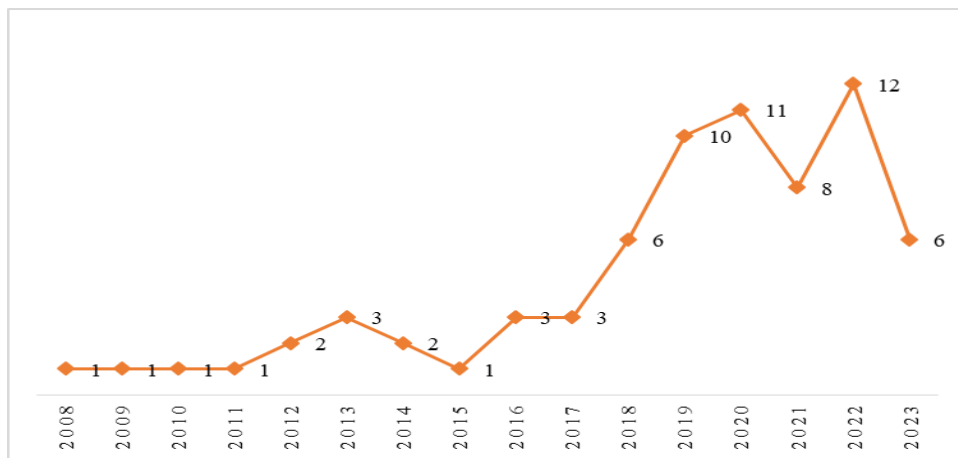


**Figure 5. Collaboration between countries for the publication of scientific articles on financial education**

*Source:* Author's own research based on VOSviewer software

### **3.2. A bibliometric analysis of the relation between financial literacy and employment**

The evolution of scientific articles that addressed financial education in relation to employment shows a high number of articles in the period 2019-2022 (Figure 7). Presumably, the number of scientific articles was higher in this period because it was marked by socio-economic happenings, such as the Covid-19 pandemic and the war that started in Ukraine. In times of crisis, financial education is critical for financial security. Furthermore, during the health pandemic, many people lost their jobs permanently or were suspended from their jobs. Strong financial education can help people in this situation. Since the beginning of 2023, six scientific articles have been published so far, but these have also been included in this study.



**Figure 6. Evolution of scientific articles related to financial literacy and employment**

Source: Author’s own research based on the Web of Science database

The most notable authors, institutions, and countries with scientific publications that address financial education and employment are highlighted in Table 4. Edward Miller, Abdul Latheef Kiliyanni, Yang Li, Sunitha Sivaraman and Annamaria Lusardi have each published two articles. According to the classification, these authors show a high interest in exploring the relationship between financial education and the labour market. From an institutional perspective, the California State University System and the National Institute of Technology NIT System are the most active, with three scientific articles published each in the period under review. Moreover, most of the institutions are from the United States of America. The countries that published the most scientific papers addressing the issue of financial education and employment are the United States (22 publications), People’s Republic of China (9 publications), and India (6 publications). In the USA, the subject of financial education is of current interest because the financial system that prevails on this market demands people with advanced financial skills.

**Table 4. Top authors, institutions and countries that published on financial literacy and employment**

Top authors	Top institutions		Top countries		
Author	TP	Institution	TP	Country	TP
Miller, Edward A.	2	California State University System	3	USA	22
Kiliyanni, Abdul	2	National Institute of Technology NIT	3	Peoples R China	9

Latheef	System				
Li, Yang	2	California State University East Bay	2	India	6
Sivaraman, Sunitha	2	George Washington University	2	Australia	5
Lusardi, Annamaria	2	National Institute of Technology Calicut	2	Indonesia	4
Lee, Taejun (David)	1	North Carolina State University	2	Malaysia	4
Leahy, Tony	1	Universidad de Chile	2	Canada	3
Lee, Cheng-Wen	1	Universiti Putra Malaysia	2	Germany	3
Landerretche M, Oscar M.	1	University of Massachusetts Boston	2	South Africa	3
Lord, Simon R.	1	University of Massachusetts System	2	South Korea	3

Source: Author’s own research based on the Web of Science database

Abbreviations TP, total publications.

In terms of **publication titles**, Sustainability published four scientific articles, Frontiers in Psychology, International Journal of Bank Marketing, and Journal of Business Research have each published three scientific articles. All these journals have a high impact on the academic environment.

The authors who have the highest number of **citations** are *Goyal* (2021, 187 citations), *Alessie* (2011, 115 citations), *Bannier* (2018, 40), *Frijns* (2014, 37 citations), *Cumurovic* (2019, 33 citations), *Aydin* (2019, 31 citations), *Clark* (2017, 28 citations), *Kodongo* (2018, 28 citations), *Lachance* (2014, 27 citations) and *Pang* (2010, 27 citations). Altogether, these authors have studied the relationship between financial literacy and employment, entrepreneurship, labor market position, retirement planning, the updating of financial competencies of specific categories of employees, employment level, experiential learning, and social media (Table 5).

**Table 5. Top 10 most cited scientific articles related to financial literacy and employment**

Authors	Method of research	Results
<i>Goyal &amp; Kumar (2021)</i>	Bibliometric methods	The research findings indicate a low level of financial education among people, which contributes negatively to the economy of a country. Moreover, the authors argue for

		improving financial performance and urge policy makers and other stakeholders towards this goal. From a labour market perspective, it is pointed out that people who are financially literate succeed in becoming self-employed.
<i>Alessie et al.</i> (2011)	Questionnaire	In this paper, the authors aimed to study the financial behaviour of people in the Netherlands after the financial crisis of 2007-2008. Therefore, the main results show that, after this financial crisis, people have realised the poor level of financial knowledge. At the same time, people became more concerned about retirement and realised how appropriate financial education would help them build a more successful retirement plan.
<i>Bannier &amp; Schwarz</i> (2018)	SAVE panel	The study highlights the importance of financial literacy for the well-being of individuals. Moreover, the authors observe that the level of financial knowledge is not the same for everyone, but varies by gender and by educational level. The sample of individuals that was the basis of the research included a majority of working people.
<i>Frijns et al.</i> (2014)	Questionnaire	The most important results of this study show that financial education and experience have a positive impact on financial skills of people. Moreover, the authors emphasise on how to teach financial concepts and insist more strongly on stock market games. Therefore, trainers must update the manner in which they teach financial education courses and increase the use of experiential learning.
<i>Ćumurović &amp; Hyll</i> (2019)	SAVE panel	The level of financial literacy strongly influences the employment decisions of people, according to the authors. People with strong financial knowledge choose to become entrepreneurs, while people with poor financial knowledge decide to remain employed. As a result, the authors argue that one factor that can intensify entrepreneurial decisions can be financial education.
<i>Aydin &amp; Akben Selcuk</i> (2019)	Questionnaire, structural equation	The review of the paper concludes that the authors emphasise that financial education in schools is of high importance. Some of the



	modeling	results show that students with high social status and with a good family history are more likely to be financially educated. The authors also show that young people who are financially competent know how to manage their income correctly. Particular emphasis is given to the way young people think about financial plans for the future, which are often non-existent.
<i>Clark et al. (2017)</i>	Questionnaire	This study was conducted on employees of the Federal Reserve System and findings show that their education level is higher than that of the general population. Furthermore, the authors observe that financially literate individuals are more inclined to save for a formal retirement plan.
<i>Kodongo (2018)</i>	Questionnaire	The author emphasizes the relationship between policy and financial inclusion in Kenya throughout this research. Therefore, the author argues for an improvement in the financial performance of people, for a correct use of financial market resources.
<i>Lachance (2014)</i>	Questionnaire, regression analysis	This author addresses the topic of financial education in relation to social networks. This correlation highlights that people can improve their financial literacy when they seek advice from social media for specific financial decisions. This view is grounded in the fact that people once out of the education system will need informal methods of financial education. Therefore, social media advice can provide effective saving and investing solutions. However, the limitations of the study show that not all advice comes from financially educated people and therefore must be filtered.
<i>Pang (2010)</i>	Interview, observation	The results of this study show that the research tool that teachers have implemented (variation theory) had a positive impact on the learning of financial concepts. Furthermore, experiential learning supports young people to accumulate financial knowledge and to be able to individually manage financial situations that happen every day.

*Source:* Author's own research based on the scientific literature

Regarding the most important keywords on financial education and employment, we observe *financial literacy, education, behavior, knowledge, impact, gender* and *women* (Table 6). Financial education is the term with the most occurrences, but it represents the searched keyword in Web of Science. The relationship between education and financial literacy is obvious, as financial skills can be acquired through learning. Behavior refers to the financial attitude people adopt when they are making informed financial decisions. This is about how people manage their income and how they invest in the long term. An important characteristic of financial education is theoretical knowledge about money, investment opportunities, ways of spending and saving, and medium and long-term financial planning. The socio-economic environment has caused a large gender gap in financial education. Communities must increase the access of women to financial education to increase their employment and financial planning opportunities.

**Table 6. Top 10 occurrences of keywords**

Keywords	Occurrences	Total link strength
Financial literacy	49	168
Education	22	106
Behavior	11	50
Knowledge	10	67
Impact	10	46
Gender	7	43
Women	6	41
Satisfaction	6	28
Investment	6	24
Attitudes	5	28
Decisions	5	27
Performance	5	23
Retirement	4	20
Employment	4	9

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Capability	3	24
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Source: Author's own research based on VOSviewer software

Additional keywords used by the authors and related to employment include *students, workplace, self-employment, human capital, entrepreneurship, low income, and investment decisions*. Students must have an understanding of financial terms and be able to use them when making financial decisions. For young people, financial skills should be considered a long-term capital because they learn to choose a well-paid job, to invest, to save, to spend, and to plan their retirement. Financial planning is a particularly important concept because it guides young people toward accumulating capital over the years, which will enable them to have a secure life in their old age. In the workplace, financial education has an educational role. Many employees in Romania are not financially literate enough to know how to manage their income. There are many investment opportunities for employees with the appropriate financial skills. People in self-employment have to make appropriate financial decisions for the efficient operation of the business and for its further development. The owner is the only one responsible for the continuity of economic activities, and financial skills allow them to spend rationally, to save, and to invest. People as human capital actively contribute to the economic development through their personal and professional skills. These skills need to be complemented by financial skills, as education is about educating people for financial prosperity. Financial education is essential in entrepreneurship because the success of a company depends on the financial skills that the entrepreneur has. Among the most important financial skills required in entrepreneurship is the ability to attract capital, implement long-term financial strategies, manage appropriate financial decisions, and efficiently manage financial problems. Poor financial education is associated with low income. To overcome this level of remuneration, people must try to financially educate themselves. Financial literacy can significantly reduce the gap between salaries. The more financially educated people are, the more successful their investment decisions become. For example, the theoretical concepts of the stock market provide valuable information about investing in the stock market.

## Conclusions

The results of the bibliometric analysis show that the relationship between financial literacy and employment is relatively underinvestigated in the academic literature. One reason for this could be different priorities that researchers and policy makers had about financial literacy. Improvement in financial literacy and higher employment rates can be achieved through more supportive government policies. For instance, introducing well-designed financial education programmes among young people and adults can increase the employment rate more effectively. Likewise, establishing partnerships between universities and firms on the one hand, and financial institutions on the other, would be a valuable training tool in the field of financial education, which in the long term can be beneficial for the labour market.

The research contributes substantially to the financial literacy and employment topics through a bibliometric analysis that exposes the most important authors, institutions, countries, journals, keywords. Furthermore, the results outline the most significant collaboration networks between authors, organisations, or countries. When it comes to financial literacy, many people around the world lack strong financial skills and do not have enough knowledge to save or invest. Some of the main results of the study highlight the importance of financial literacy for developing countries, entrepreneurial initiatives, decent jobs, investments in the stock market, rational consumption, and retirement planning. In conclusion, financial literacy empowers people with the right skills and provides information on how to make effectively financial decisions in the long-term.

The paper presents some limitations that influence the results of the bibliometric analysis. For conducting the bibliometric analysis, we only considered scientific articles provided by Web of Science, but the international databases are numerous, as well as the number of scientific articles. Furthermore, the analysis included only a collection of scientific articles from the SCI-EXPANDED, SSCI, and A&HCI scientific articles. For future research, we consider performing a more complex bibliometric analysis in the field of financial literacy and employment, by including a wide range of scientific papers.

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