A Bibliometric Analysis on the Role of Financial Education as a Challenge in Sustainable Business Development

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Abstract

In recent years the research relies on state-of-art digital methods for reliable and accurate results, for a full assessment of existing studies. This study is based on the bibliometric analysis, a method generally recognized and appreciated in recent years due to the accessibility of bibliometric software and availability scientific databases. The aim of this research is to analyse the existing works in the field of financial education at the European level and in our country by using keywords, graphical methods of comparative assessment made available by digital applications and databases.

The analysis of researches conducted so far leads to the need of searching for new solutions to adapt to the current economic situation. The studies focus on effective analysis to influence educational decision makers, deans and directors of business schools, to really assess the long-term financial viability of business models and to focus on rethinking these models in the future.

Key words: financial education, business performance, bibliometric analysis.
J.E.L. classification: M10

1. Introduction

Organizations face an acute shortage of skilled staff. In the digitization era, many occupations have disappeared from the labour market. The education is an expensive and time-consuming process, but past experience has proven its inestimable value. The technologies are constantly changing, and the aim is to increase the performance based on quantity and quality with low, unconventional costs. The education is a key factor in pursuing these objectives.

In view of these findings, there is a need for systematic studies and analysis to assess the current level of education and target resources to help increase the level of scientific knowledge and practical skills of the population. One of the methods widely applied in current research studies is the bibliometric statistics, a powerful tool used to analyse and assess the latest results obtained by scientists and research institutions. The research focuses on analysing the existing scientific works on financial education by accessing the Scopus database, using keywords as query tools. The study uses data on the number of citations and publication ranking, the number of existing papers in the field of financial education, as well as social, territorial, economic graphical analysis.

The data extracted from the Scopus database were processed using the R software, version 4.4.2, through the Biblioshiny web interface and VOSviewer software.

2. Literature review

In their 2024 Noblel Prize-winning book "Why Nations Fail", authors Daron Acemoglu and James A. Robinson compared two related, but completely different societies, South Korea and North Korea as follows: "Those in the North grow up in poverty, without entreprenorial initiative, creativity, or adequate education to prepare them for skilled work. […] Those in the South obtain a good education, and face incentives that encourage them to exert effort and excel in their chosen vocation."

According to the information published on the OECD website, a major hindrance in timely and effective development of the education system in Romania is the lack of a more flexible and less restrictive legislative, regulatory and procedural framework for institutions and individuals that leaves little room for flexible adaptation and real changes.

In 2014, Drule A. M., Popa I. E., Nistor R., and Chis A. published in „Amfiteatrul economic", a publication of the University Of Economic Studies Bucharest, the first research "*Quality of the teaching Process and its factors of influence from the perspective of future business specialists*", cited 1042 times between 2020 – 2023 and 864 times in 2024.

In 2020, Horobet A., Vrînceanu G., Hurduzeu G. and Lupu R., from the University of Economics of Bucharest, published in Walter de Gruyter the paper "*Financial Literacy in Romania: A Test of Economics and Business Students*". The paper assesses Romania's position as unacceptably low, ranking last in the European Union in terms of financial literacy. An OECD study indicates differences in the level of knowledge according to demographic characteristics, age, students' education cycle, lifestyle, property ownership and students' involvement in transactions and contracts on the financial market.

Cornuel E., Thomas S. and Wood E., analyse in the paper "Looking Back and thinking Forward in Global Focus" the evolution of business schools over the past decade in the face of the pandemic at global level. The pandemic has brought technology-enhanced methods and online learning to the forefront of debates about how to design business models and frame the future of schools to align with the range of challenges associated with the managerial midset.

In the paper "College Students' Distractions from Learning Caused by Multitasking in Online vs. Face-to-Face classes: A Case study at a Public University in Romania" published in 2022, the authors Kamer Ainur Aivaz and Daniel Teodorescu demonstrate an increase in students' motivation with the introduction of online courses and the use of digital resources in the learning and evaluation process. Technology is an important way to engage young people and introduce interactive, practical working methods.

3. Research methodology

The research is based on the bibliometric analysis of published works, the cooperation of scientists and research institutes in result evaluation and measurement of outcomes in this field.

Bibliometrics has been a research method used since the 19th century and it was been recognized as relevant in quantifying and analysing data.

This research uses databases in the field of financial education, with a focus on the number of existing papers, in which publication they have appeared so far and which are the most used keywords,

The tool used to identify these publications and keywords was the Scopus database, and the query in the field of financial education used the search key *financial + education + business.*

The database was analysed using the thesaurus option in VOSviewer and the Biblioshiny application for Bibliometrics în R Studio. We selected the Scopus database because it is a well known as a trusted database of scientific date for academic studies, it covers a wide range of keywords and it has a high power in analysing the number of citations, search criteria and result summation.

However, we have to accept a margin of error in the analytic capacity, depending on the database used.

For a graphical analysis of the databases, we used the application VOSviewer and Bibliometrix for R Studio, well known for rendering data in clusters, the sinusoidal links and multifactorial analysis..
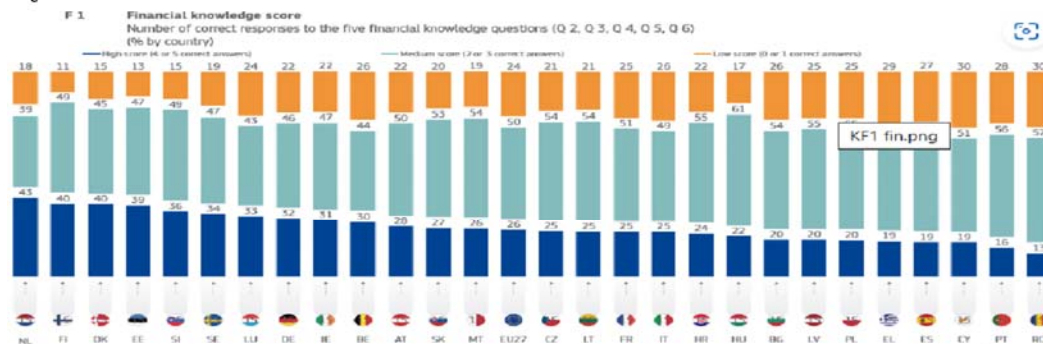
4. Findings

The financial literacy test applied by Ipsos European Public Affairs, administered to a total of 26,139 individuals, out of which 1,063 individuals in Romania, between March 29 and April 5, 2023, placed our country in the last place in the European Union in terms of financial literacy according to the latest Eurobarometer. Figure 1.

The study was commissioned by the European Commission, the Directoate General for Financial Stability, Financial Services and Capital Markets Union, coordinated by the Directorate General for Communication.

Only about a quarter of respondents answered correctly at least four out of five questions on financial literacy. About half of them answered only two or three questions correctly, and another quarter found the questions particularly difficult (either they could not answer any of the questions correctly or they could only answer one out of five). Among the best performing countries are the Netherlands, Denmark, Finland and Estonia, where around four out of then respondents have a high level of financial literacy (43%, 40%, 40% and 39% respectively).

The analysis of the Scopus database by using the search key *financial + education + business** on November 30, 2024, for the time frame between 1999 and 2024 resulted in 270 published papers, and the filter applied for papers in English using the keywords financial management, business education and entrepreneurial education reduced the number of documents to 73.

Figure no. 1. Eurobarometer

Source: (European Commission, 2024)

The economic growth, the industrial and agricultural development is slower in Romania than in other Central European countries, inflation is high and poverty is increasing. In these conditions, it is difficult for education to advance as dramatically as desired in areas such as management and finance, social decentralization or community and parental participation in curricular decisions.

The recommendations for the Romanian Government are to consult with its international partners and to take measures to facilitate and streamline the implementation of external assistance for the development of education based on modern, innovative learning strategies, and interactive, applied teaching practices.

Scopus database was accessed for the time frame 2000 - 2004 by using filters to find and analyse documents. Figure 2 Analysis based on the time frame selected, number of sources, number of documents, annual growth rate, number of authors, number of unique authors, number of international co-authors, number of co-authors per document, number of authors' keywords, number of references, date of publication, average number of citations per document and the list could continue depending on the need for information relevant for the research.
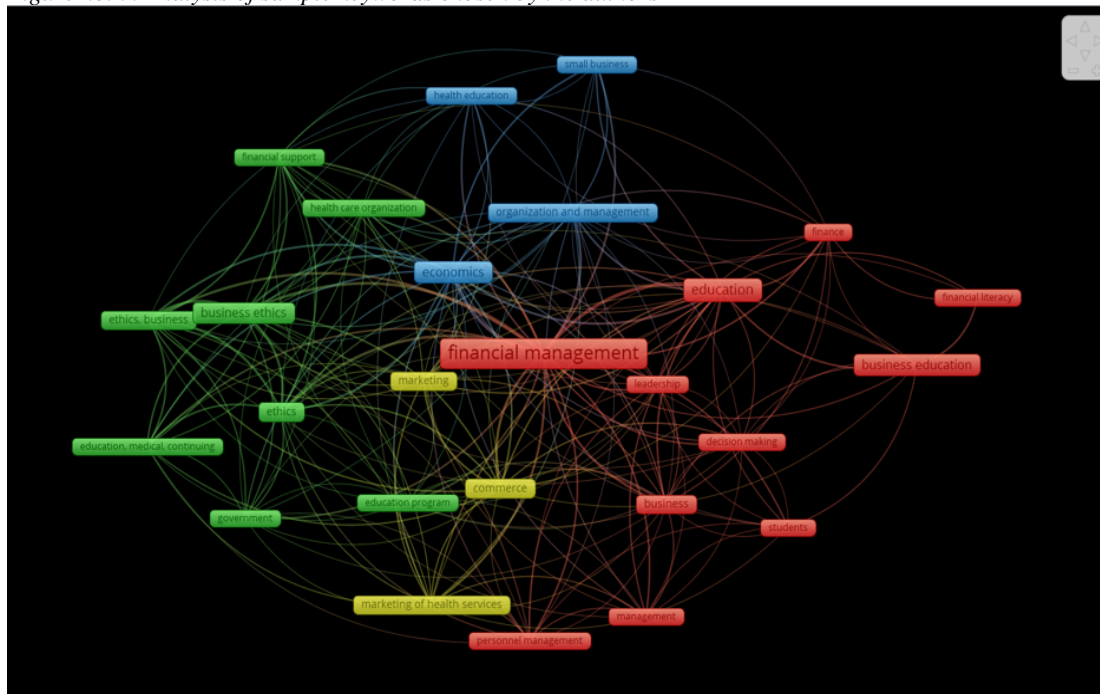
Figure no. 2 Analysis of selected paper sample

Source: Authors' projection based on data extracted from Scopus processed using the Biblioshiny application for Bibliometrix in R Studio, accesed on November 30 2024

The keyword map selected by the authors as relevant for financial education research comprises a total of 239 words, and the use of Thesaurus feature in VOSviewer produced a total of 26 keywords. The conceptual structure of keywords reveals 3 main research themes: financial management, education, and business education. For a relevant research, a structured research model has been generated by using keywords, by interactions between keywords, key phrases to indicate the impact level in the graphic analysis of the financial education matter.

Figure no. 3. Analysis of sample keywords chosen by the authors

Source: Author's projection based on data extracted from Scopus processed with VOSviewer, accessed November 30, 2024
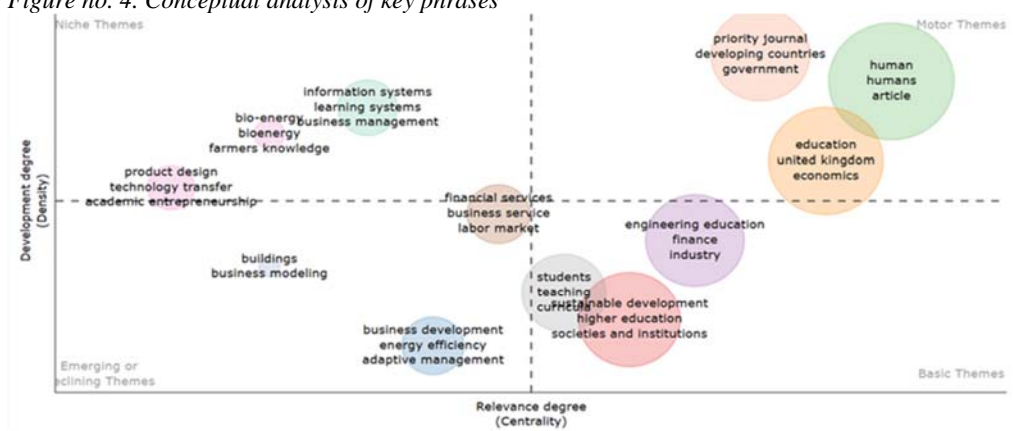
Table no. 1 Most common keywords

Author's keywords	Frequency	Power of links
Financial management.	55.	529.
Economics	19.	245.
Education	24.	194.
Business ethics	14.	181.
Ethics	13.	175.
Organization and management	10.	113.
Marketing	10.	112.
Business	10.	90.
Business education	18.	30.

Source: Author's projection based on data extracted from Scopus, processed buy using VOSviewer

Within the analysed period, 7 papers were found for Romania written between 2014 and 2021. The first of these 7 papers written in 2014 "*Quality of the teaching Process and its factors of influence from the perspective off future business specialists*" by Drule A. M., Popa I.E., Nistor R., Chis A., Babe; Bolyiai University Cluj Napoca, and published in Amfiteatrul Economic, a publication of the University of Economic Studies of Bucharest, was cited 1042 times between 2020 and 2023 and 864 times in 2024. The research was conducted on a sample including more than 1,500 students enrolled in a master's program in financial management. The analysed data have shown that the most influential performance factors are not the seminars and courses, but especially the use of modern teaching techniques and active involvement of students and teachers in learning activities. The study identifies the most relevant factors in ensuring the quality of a Master's program focused on building practical skills and training the experts in the field of domestic and international fund management.

Figure no. 4. Conceptual analysis of key phrases

Source: Author's projection based on data extracted from Scopus processed by using Biblioshiny application for Bibliometrix in R Studio, accessed on November 30, 2024
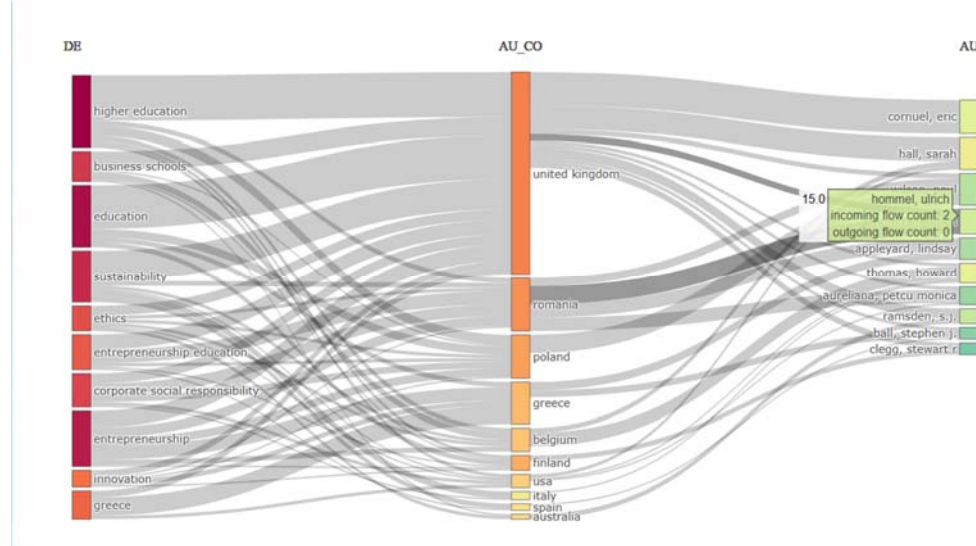
The financial risk analysis presented two unique working models. A conceptual analysis of the development in education level shows relevant progress and signification results in various fields, but the development in financial education seems irrelevant.

For the UK model, capital injection, efficient distribution and cheaper packaging are pathways to profitability and lower risk.

For the Japanese model, diversification of income streams and education reduce the financial risk associated with yield and sales.

The ability to calculate and forecast financial risk could help all developing industries fostering sustainable, successful businesses in their economies

Figure no. 4. Analysis of a sample of keywords chosen by authors from different countries

Source: Author's projection based on data extracted from Scopus processed by using Biblioshiny application for Bibliometrix in R Studio, accessed on November 30, 2024

The database query using the key higher education + business school + sustainability shown as a diagram using the Biblioshiny option in Bibliometrix application for R Studio indicates the level of territorial density of the number of authors and papers written in the field of financial education. The graphic analysis shows an a lack of research in financial education and as a result the volume of information is low and it should be enriched by new studies. In Romania, the diagram shows a limited number of relevant extended studies in the field of financial education and entrepreneurial training shows a complete lack of relevant links.

5. Conclusions

The analysis preformed in this study produced results that indicate the need to define new organizational strategies designed to fulfil the requirements of a modern education system.

The bibliometric analysis facilitates the effort to map the comparative evolutions of different study items and to build solid databases able to contribute to the development of a new research field by using new and significant methods.

These results allow researchers to have an overview of the subject matter, to identify missing knowledge, and to launch new research ideas, contributing to the development of this area of study. The surveys performed at European level and the statistics included in articles reviewed in the Scopus database show clearly the need to conduct research studies in field of education and to assess its role in generating a new economic mindset.

This study has shown that the financial literacy is under-researched and will continue with future bibliometric analysis and further contributions to find the most effective solutions to build and consolidate financial literacy.

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