

Revista de Ciencias Sociales

50 *Años*
ANIVERSARIO

Leadership trends in institutions of Higher Education: A bibliometric review

Suárez-Amaya, Wendolin*
Ganga-Contreras, Francisco**
Alarcón-Henríquez, Nancy***
Abello-Romero, Juan****

Abstract

This Investigation aims to analyze scientific production and thematic trends in the field of leadership in institutions of higher education. This is a documentary type review which seeks to show how a bibliometric analysis of the Web of Science database is conducted. Information processing was carried out using the Biblioshiny and VOSviewer tools. The criteria for the searches and analysis were: The evolution in publications by areas of knowledge, countries, affiliations, authors and their collaborations, relevant journals and articles, as well as topics, with emphasis on the areas of education and management. The results suggest a considerable increase, 120% between 2017 and 2018, with an impact on related areas such as psychology and sustainability. Production is concentrated in the United States and England, however, when it comes to authors, attention needs to be paid to groups from the United Kingdom, China and Norway. In terms of themes, competencies, soft skills and well-being stand out. It is concluded that scientific production on leadership in higher education is expanding, which represents a research niche with development possibilities, whose interests in recent times have leaned towards practices necessary to guarantee success when exercising leadership.

Keywords: University governance; higher education institutions; scientific production; educational management; educational research.

* Doctora en Ciencias Sociales. Académica del Departamento de Gestión Organizacional en la Universidad Tecnológica Metropolitana, Santiago, Chile. E-mail: wsuarez@utem.cl ORCID: <https://orcid.org/0000-0003-3825-5781>

** Doctor en Administración de Empresas. Doctor en Gestión Estratégica y Negocios Internacionales. Académico del Departamento de Educación en la Universidad de Tarapacá, Arica, Chile. E-mail: franciscoganga@academicos.uta.cl ORCID: <https://orcid.org/0000-0001-9325-6459> (Autor de correspondencia)

*** Magister en Gestión de Empresas. Académica del Departamento de Gobierno y Empresa en la Universidad de Los Lagos, Santiago, Chile. E-mail: n.alarcon@ulagos.cl ORCID: <https://orcid.org/0000-0003-3025-0257>

**** Doctor en Ciencias de la Administración. Académico del Departamento de Contabilidad y Auditoría en la Universidad de Santiago de Chile, Santiago de Chile, Chile. E-mail: juan.abello@usach.cl ORCID: <https://orcid.org/0000-0003-3064-3456>

Tendencias del liderazgo en instituciones de educación superior. Una revisión bibliométrica

Resumen

Esta investigación tiene como objetivo analizar la producción científica y tendencias temáticas en el ámbito del liderazgo en instituciones de educación superior. La revisión es de tipo documental, y realiza un análisis bibliométrico de la base de datos Web of Science. El procesamiento de la información se realizó utilizando las herramientas Biblioshiny y VOSviewer. Los criterios para la búsqueda y análisis son: Evolución en publicaciones por áreas de conocimiento, países, afiliaciones, autores y sus colaboraciones, revistas y artículos relevantes, así como también, las temáticas, con énfasis en las áreas de educación y gerencia. Los resultados sugieren un incremento considerable, 120% entre 2017 y 2018, con impacto en áreas relacionadas como psicología y sostenibilidad. La producción se concentra en Estados Unidos e Inglaterra, sin embargo, en lo que respecta a autores, se requiere poner atención a los grupos de Reino Unido, China y Noruega. En cuanto a temáticas destacan las competencias, habilidades blandas y el bienestar. Se concluye que la producción científica en liderazgo en educación superior se encuentra en expansión, lo cual representa un nicho de investigación con posibilidades de desarrollo, cuyos intereses en los últimos tiempos, se inclinan hacia prácticas necesarias para garantizar el éxito al ejercer el liderazgo.

Palabras clave: Gobernanza universitaria; instituciones de educación superior; producción científica; gerencia educativa; investigación en educación.

Introduction

The study of leadership in different organizations will always be relevant, given that since human beings made the decision to advance in groups, there have always been those who take on the challenge of leading them along a certain path and taking them in a specific direction. Higher education institutions do not escape this reality, generating a diversity of research, both theoretical and empirical. The above brings with it the need to properly distribute resources, which has driven the evaluation of scientific activity and its impact on society (Suárez & Pérez-Anaya, 2018).

A set of tools has been created for theoretical work, where the use of bibliometrics is a trend that is used in all departments. Bibliometrics is based on the search for statistically regular behavior over time in various elements related to the production and consumption of scientific information (Ardanuy, 2012; Matos, Contreras & Olaya, 2023).

These are contributions originating from the documentation sciences that have been applied to various areas of knowledge, with emphasis on generally accepted refined indicators such as: the rate of growth of scientific information or its obsolescence (Price's Law), the dispersion or concentration of works in certain scientific journals (Bradford's Law); and the concentration or dispersion of the productivity of the authors dedicated to developing knowledge in the subject (Lotka's Law). These studies, in the words of Machado et al. (2016), show communication frequencies and identify behavioral models that are established in data analysis patterns.

As a result of the above, doing bibliometric research in any field makes sense, because it becomes a tool to assess the influence of a certain research topic in the scientific community, measured by citations and related to a specific publication to the advancement of knowledge, i.e. allows to identify thematic trends and their development, to identify emerging topics, who are and where

are the research groups dedicated to collecting information on the topic of interest.

The current study is part of this field of work, which aims to analyze various trends in the field of higher education management to contribute to the creation of excellence in knowledge produced in this strategic field. educational organizations. The information search focused on the Web of Science (WOS) database for the fields of education and management.

1. Theoretical foundation

1.1. Leadership in Universities

Leadership is one of the variables that university senior management needs to exercise to achieve better results in organizations. In terms of leadership with a focus on higher education, there is a history of review work applied to various topics and contexts, such as the e-Leadership or digital leadership and its influence on both the administrative process and learning (Arnold & Sangrá, 2018; Jameson et al., 2022); and, sustainable leadership (Sánchez-Carrillo et al., 2022; Aung & Hallinger, 2023).

Additionally, there are studies that focus on the way in which women exercise leadership, as well as their barriers or facilitators (Pando et al., 2022; Meza-Mejía, Villareal-García & Ortega-Barba, 2023), which stand out in the Vietnamese context, Maheshwari (2021); Maheshwari, Nayak & Ngyyen (2021); and, in the Indies, Banker (2023); Also different investigations regarding the dominant concepts and discourses such as power practices are also evident (Allan, Gordon & Iverson, 2006); toxic leadership (Smith & Fredricks-Lowman, 2020); the required competencies (Salazar, Muñoz-Jara & Caviedes, 2023; Virgili-Lillo, Cedeño & Escalona, 2023); middle leadership (Maddock, 2023); and leadership of the teaching-learning process (Kinnunen et al., 2024).

On the other hand, studies such as Akanji et al. (2020); Pedraja-Rejas, Rodríguez-Ponce

& Muñoz-Fritis (2021); Grajfoner, Rojon & Eshraghian (2022); and Mahabubul (2022), are dedicated to the study of the influence of organizational culture on leadership style in universities. Similarly, efforts have been made to prove that managerial honesty has a positive effect on moral performance at work (Erkutlu & Chafra, 2020) and academic personal satisfaction (Kasalak et al., 2022). This phenomenon has also been associated with variables such as organizational change (Kemplin & Mechur, 2018), organizational commitment (Ndlovu et al., 2018; Alamir et al., 2019; Almutairi, 2020).

In this order of ideas, the research developed by Udin et al. (2019) managed to demonstrate that there is a positive relationship between leadership styles, communication skills and employee satisfaction. Likewise, the work of Bracho-Fuenmayor (2023) identifies leadership skills, such as empathy and communication to navigate times of change in academia. For their part, Al-Mansoori & Koc (2019) incorporated systems driven by innovation and intrinsic motivation as an analysis variable, as a complement to the Multifactor Leadership survey, which is the most used on the subject. In a complementary way, the study developed by Van Hemmen et al. (2015) identify that, among leadership styles, participative is the strongest explanatory factor with respect to innovative entrepreneurship in universities, in a sample of 43 countries.

It should be noted that the style most worked on in the specialized literature is transformational leadership, some of the variables involved being student performance in the teaching-learning process (Balwant et al., 2019; Kucharska & Rebelo, 2022); the organizational climate in change-oriented organizational citizenship behavior (López-Domínguez et al., 2013).

A contextual factor that has significantly influenced leadership studies in education is the Covid-19 pandemic, which has posed unprecedented challenges in the educational field, even though experiences with virtual education were already being developed, a good part of Institutions with a tradition of face-

to-face education were not prepared to assume the changes that were produced abruptly, which forced them to define, in record time, new ways of working, the challenge of the technological gap and inequalities in access to technology (Bebbington, 2021; Watermeyer et al., 2021; Sedereviciute-Paciauskiene, Valantinaite & Kliukas, 2021; Pekkolaa et al., 2021; Baumber et al., 2021; Chisholm-Burns, Brandon & Spivey, 2021; Dumulescu & Mutiu, 2021; Aftab et al., 2022; Muchabaiwa & Gondo, 2022; Yeboah, 2022; Mittal et al., 2022; Roy & Brown, 2022; Chitpin & Karoui, 2022; Shoaib et al., 2022, Du Plessis et al., 2022).

In summary, it is evident from a theoretical point of view that leadership in educational organizations requires being approached from a multifactorial perspective, highly permeated by the situational, the contingent, which includes not only the influence of leaders and their relationship with followers, but also, its deterministic nature in quantitative factors such as performance, and qualitative factors such as the organizational environment and well-being. In the case of the academy, a double challenge appears: on the one hand, compliance with the teaching-learning process, and on the other, the challenge of good management. On both levels, leadership appears as a concurrent aspect.

2. Methodology

To analyze scientific production and thematic trends in the field of leadership in higher education institutions, a documentary review was carried out; the Web of Science database from Clarivate Analytics was used as a source of information; For this purpose, a search strategy was established that included the terms Leadership and Higher Education, the latter in quotes. The relationship between both terms is given by the Boolean operator AND.

This is how the strategy of Leadership and Management were applied (“Higher

Education” OR universit*). The results of this search were filtered by their access level, by document type and by year, to include only open access articles published until 2023, obtaining a total of 2,886 results. Subsequently, a filter was applied by research areas, to include only those that presented at least one document relevant to the research, this by reading the title and abstract of the articles. In total, 34 categories were included, representing 1,118 articles (see Table 1).

Table 1
Search strategy and inclusion and exclusion criteria

Finding Wos Core and all of the editions. Search based on topic (KW, KWPlus, Title y Abstract) N= 2.886		
Access	Open Access	1,247
Document Type	Article	1,166
Language	English or Spanish	1,118

Source: Own elaboration, 2024.

To carry out the bibliometric analysis, the Biblioshiny tool was used, from the Bibliometrix package, which operates through the R work environment, that is, it is a mathematical software oriented to data processing, with a graphical work environment (Aria & Cuccurullo, 2017; Araya-Pizarro & Verelst, 2023). Using this tool, thematic maps were constructed based on the algorithm of Callon, Courtial & Laville (1991), which grouped the subthemes present in the literature according to their level of relevance and development.

The algorithm keywords were grouped into semantic units that make up clusters based on their frequency. Taxonomic mapping considers the use of two variables, one is centrality, that is, the degree of interaction of the network with other networks; and the other variable is density, which refers to the strength of the internal associations of a group (Araya-Pizarro & Verelst, 2023). This is how the subtopics are divided into 4 different quadrants (Ganga-Contreras et al., 2024), these are:

a. Motor themes: Central cluster, objects of systematic attention with strong internal and

external connections.

b. Main themes: Central cluster but low internal density. These are usually transfer points or growing problems.

c. Niche topics: A core set of strong internal links. Usually highly developed areas that gradually lost interest.

d. Emerging themes: a remote and underdeveloped cluster that through dynamic analysis shows development and connection to other networks.

Similarly, Lotka's law was used as a reference for analysis to check whether the majority of articles came from a small group of authors (Ubizagástegui, 1999). Using the software VOSviewer v1.6.19, it was possible to plot networks of contributors to the entire set of analyzed documents (Van Eck & Waltman, 2018), without a normalization method and based on the general strength of the nodal distribution bond attribute (total bond strength). Also, with his help, we were able to create a diagram of keyword networks in documents. To this end, a normalization method was applied based on linking and

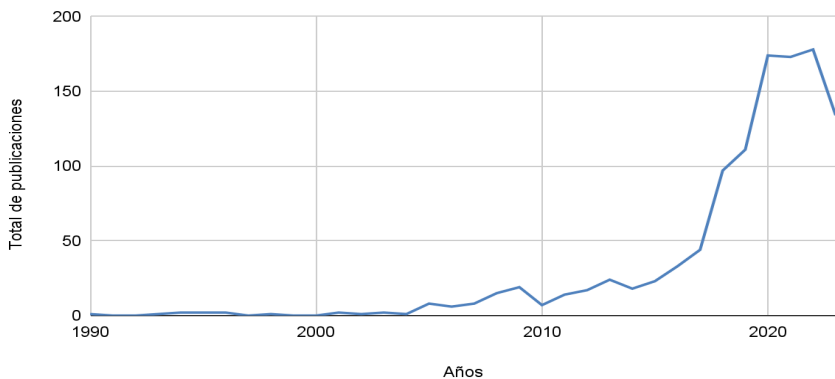
partitioning nodes based on a general link strength attribute, as for the cofactor.

3. Results and discussion

3.1. Number of publications per year and by areas of knowledge

The 1,118 articles recovered were published in a period of 34 years, specifically between 1990 and 2023, where the largest number of works is concentrated in the last decade. Since 2005, annual production begins to experience sustained growth, which is interrupted in 2010, when the number of articles published drops from 19 to 7, and then rebounds to 14 in 2011. The annual rate of Growth remains similar until 2018, when an increase of 120.4% is observed, going from 44 articles in 2017 to 97 in 2018. In the time series presented, it reaches its maximum point in 2022 with a total of 178 publications (see Graph I).

Publicaciones por año



Source: Own elaboration, 2024.

Graph I: Publications by year in leadership and higher education recorded in the Web of Science database. Period 1990-2020

The analysis of the results obtained on the Web of Science platform shows that scientific publications on leadership in the field of higher education constitute a wealth of knowledge that has experienced a notable increase. Phenomenon that has been previously identified in the works of Najam & Mustamil (2020); Ashiq et al. (2023); Jiang et al. (2024).

When making a distribution by area of knowledge, it was found that all the articles

were published in 83 research areas, of these, 10 qualify as the most productive. Of this classification, 2 stand out with the greatest number of articles, these are: Educational Research, and Business Economics; Thirdly, there are the articles that are present in two categories, such as: Science & Technology - Other Topics and Environmental Sciences & Ecology (see Table 2).

Table 2

Top 10 of the most productive research areas in leadership and education in the Web of Sciences database. Period 1990-2023

Areas of Investigation	Total Publishings	Percentage Total
Education & Educational Research	244	21.82%
Business & Economics	158	14.13%
Science & Technology - Other Topics; Environmental Sciences & Ecology	55	4.92%
Health Care Sciences & Services	54	4.83%
Psychology	39	3.49%
Public, Environmental & Occupational Health	39	3.49%
Education & Educational Research; Health Care Sciences & Services	37	3.31%
General & Internal Medicine	36	3.22%
Social Sciences - Other Topics	36	3.22%
Science & Technology - Other Topics	27	2.42%

Source: Own elaboration, 2024.

When analyzing the information grouped by area of knowledge, a significant percentage of participation in the areas of business and research in education can be noted, which together represent close to half of scientific production. Now, the coverage presented by the health area in its various manifestations is notable, such as service and care, which together represents close to 25% of the total. These results offer emerging trends in educational management, while the institution studies itself. Examples of these are the works of Hickson et al. (2007); Wu, Chen & Li (2008); Ntim, Sooberoyen & Broad (2017); and, that of Klofsten et al. (2019).

In Table 3, it can be noted in more detail, using 2018 and 2022 as base years, the increase in scientific production in the areas of business

and education. In 2017, both areas: Business with 14 articles in WOS and education with 36, cover 54% of scientific production. By 2022, they cover 49% of the total, with 36 and 52 articles respectively

Table 3

Number of articles on leadership and education published in Web of Science by selected research area. Base in the years 2018 and 2022

Areas of Investigation	2018	2022
Business Economics	20	36
Education Educational Research	32	52
Enviromental	7	23
Social sciences	6	8

Source: Own elaboration, 2024.

The above demonstrates that leadership in education from the perspective of management and education is in full development, and therefore, represents an opportunity to continue exploring as a line of research.

3.2. Countries

When reviewing the total scientific production generated by countries in the field of leadership and higher education, it is evident that the largest number of publications are from the United States and England, with 247 and 168 articles respectively (see Table 4). Although the difference between the number of publications between one country and another is considerable, during the last 10 years, the annual production of England surpassed that of the United States on up to 3 occasions. However, the most important difference is in the North American country, which in 2021

published 41 articles, compared to 19 in the European country (see Graph II).

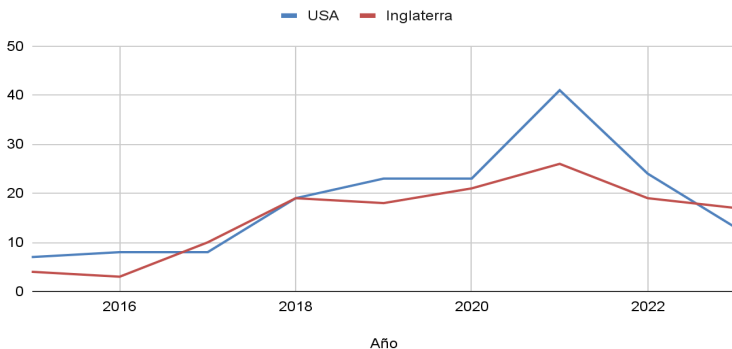
Table 4
Countries with the highest number of publications on leadership and education in the Web of Sciences database. Period between 1990 and 2023

País	Cantidad
USA	247
ENGLAND	168
AUSTRALIA	79
PEOPLES R CHINA	70
SPAIN	61
CANADA	44
SOUTH AFRICA	44
FINLAND	37
MALAYSIA	35
TURKEY	34

Nota: Showing 10 out of 108 entries.

Source: Own elaboration, 2024.

Publicaciones por año, USA e Inglaterra



Source: Own Elaboration, 2024.

Graph II: Evolution of the number of publications from the United States and England for the period 2015-2023

3.3. Affiliations

There are a total of 1,780 Universities and research centers associated with the scientific production analyzed. Of these, the University of California System is the one that accumulates the largest number of works,

with 24. This is followed by the University of London with 17 and another 3 entities with 12 publications each (see Table 5). This result is expected, given that the United States and England lead the way in scientific production worldwide.

Table 5
Affiliations with the most publications on leadership and higher education in Web of Sciences. Period of 1990 - 2023

Affiliation	Quantity
UNIVERSITY OF CALIFORNIA SYSTEM	24
UNIVERSITY OF LONDON	17
HARVARD UNIVERSITY	12
TAMPERE UNIVERSITY	12
UNIVERSITY OF EASTERN FINLAND	12
UNIVERSITY OF TORONTO	12
MINISTRY OF EDUCATION SCIENCE OF UKRAINE	11
PENNSYLVANIA COMMONWEALTH SYSTEM OF HIGHER EDUCATION PCSHE	11
UNIVERSITY OF GRANADA	11
KING ABDULAZIZ UNIVERSITY	10

Note: Showing 10 out of 1.780 entries.

Source: Own elaboration, 2024.

These results influence the growing participation by area of knowledge, proof of this is that, when reviewing the production of the

University of California System, the trend leans towards Education Educational Research and Health Care Sciences Services (see Table 6).

Table 6
University of California System publications in leadership and higher education by research area in Web of Sciences. Period of 1990 - 2023

Areas of Investigation	Quantity
Education Educational Research	8
Health Care Sciences Services	8
General Internal Medicine	3
Public Environmental Occupational Health	3
Business Economics	2
Social Sciences Other Topics	2
Agriculture	1
History Philosophy Of Science	1
Meteorology Atmospheric Sciences	1
Neurosciences Neurology	1

Note: Showing 10 out of 14 entries.

Source: Own elaboration, 2024.

3.4. Authors and Contributions

When analyzing the authors on the subject in the areas of education and business, a total of 4,181 authors are identified, of which there are 3 with the highest number of publications among the first 10; they are Mousa M, Shafait Z and Stensaker B, with 4 publications each (see Table 7). It should be noted that Mousa M's work focuses on the areas of Business Economics and Public Administration and his main affiliation is

Cardiff Metropolitan University, United Kingdom. While Shafait Z, has focused his research interests in the areas of Environmental Sciences Ecology and Psychology; its main collaborating entities being Northwestern Polytechnical University and Zhejiang Normal University, both Chinese institutions. On the other hand, Stensaker B's studies are entirely in the area of Education Educational Research, and his main affiliation is the University of Oslo, Norway.

Table 7
Top 10 most productive authors on the subject of leadership and higher education in the Web of Sciences database. Period of 1990 - 2023

Authors	Quantity
Mousa M	4
Shafait Z	4
Stensaker B	4
Atan T	3
Ayoubi RM	3
Bolden R	3
Egbrink MGAO	3
Floyd A	3
Gosling J	3
Harvey G	3

Source: Own elaboration, 2024.

In terms of collaborations, Mousa M has mainly worked in collaboration with Ayoubi RM and Massoud HK, confirming a cluster of institutions in the UK; while, the main co-author

of Shafait Z is Huang JY who generates joint publication from China; and that of Stensaker B, and Maassen P who represent the third pole of development from Oslo (see Table 8).

Table 8
Top collaborations by authors in leadership and education publications registered in the Web of Sciences database. Period of 1990 - 2023

Collaborations separated by Authors					
Mousa M		Shafait Z		Stensaker B	
Authors	Quantity of Articles	Authors	Quantity of Articles	Authors	Quantity of articles
Ayoubi RM	3	Huang JY	2	Maassen P	2
Massoud HK	3	Cai BB	1	Aamodt PO	1
Abdelgaffar HA	1	Chen LF	1	Cai YZ	1
Murtaza G	1	Meyer N	1	Frolich N	1
Puhakka V	1	Sroka W	1	Hovdhaugen E	1
		Zhu YM	1	Rosso A	1
				Ruan JY	1

Source: Own elaboration, 2024.

These results reveal, first of all, that leadership in higher education does not show a concentration of authors, that is, we cannot speak of consolidated theoretical-empirical references on the subject. Secondly, the authors are located in dissimilar and geographically dispersed development poles. It is striking that the most productive authors do not belong to the institutions identified as most productive. The above is because these productive institutions, although they contribute to a greater extent with scientific production related to higher education, they emphasize the area of health and care, and not from the perspective of educational management as is the case of the aforementioned authors.

3.5. Journals and relevant Articles

The 1,118 articles have been published in a total of 587 specialized journals, of which Sustainability is the one with the largest number, 51 in total (see Table 9). This is followed by Academic Medicine and Frontiers in Psychology. 100% of the articles published by Sustainability belong to the areas Environmental Sciences Ecology and Science Technology Other Topics; while the 32 Academic Medicine publications belong to Education Educational Research and Health Care Sciences Services. The fifth journal with the most publications is Education Sciences with 18 publications, in which England is the country with the greatest presence.

Table 9
Journals registered in Web of Sciences with the largest number of publications in leadership and higher education. Period of 1990 - 2023

Journals	Quantity
SUSTAINABILITY	51
ACADEMIC MEDICINE	32
FRONTIERS IN PSYCHOLOGY	25
JOURNAL OF NURSING MANAGEMENT	21
EDUCATION SCIENCES	18
INTERNATIONAL JOURNAL OF ENVIRONMENTAL RESEARCH AND PUBLIC HEALTH	18
ASIA PACIFIC MANAGEMENT REVIEW	17
BMC HEALTH SERVICES RESEARCH	16
STUDIES IN HIGHER EDUCATION	16
PLOS ONE	13

Note: Showing 10 out of 587 entries

Source: Own Elaboration, 2024.

It is also worth highlighting the multidisciplinary nature of the knowledge generated, as is the case of Sustainability and Frontiers in Psychology, this is perceived as an opportunity to expand the field of knowledge, as it contributes to the integration of different perspectives, methods and approaches in a way collaborative that allows us to offer

innovative, holistic solutions.

Regarding the articles that are relevant to the database, Table 10 shows a top 10 articles. This selection is obtained from a choice made by Web of Sciences based on the coincidences between the terms. key search strategy and job titles, abstract and keywords; in this way it sorts the list of jobs in descending order.

Table 10
Articles of greatest relevance in the research areas of management and education & educational research according to the Web of Sciences database

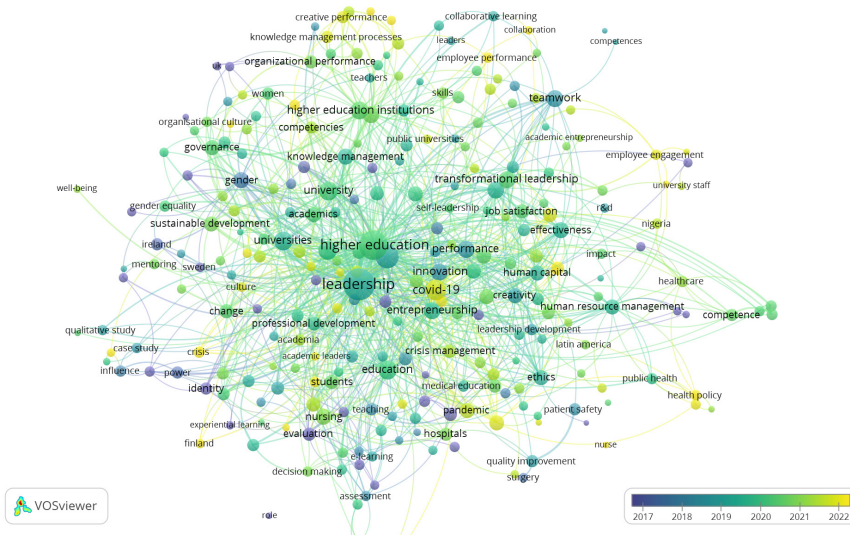
Author	Title	Year	Journal	Quotes
Waring, M.	Management and leadership in UK universities: exploring the possibilities of change	2017	JOURNAL OF HIGHER EDUCATION POLICY AND MANAGEMENT	7
Vuori, J.	Distributed leadership in the construction of a new higher education campus and community	2019	EDUCATIONAL MANAGEMENT ADMINISTRATION & LEADERSHIP	11
Wan, CD; Sirat, M; Razak, DA	Academic governance and leadership in Malaysia: Examining the national higher education strategic initiatives	2020	JOURNAL OF INTERNATIONAL AND COMPARATIVE EDUCATION	6
Cornelius-Bell, A; Bell, PA	Partnership as Student Power: Democracy and Governance in a Neoliberal University	2020	RADICAL TEACHER	4
Al-Husseini, S; El Beltagi, I; Moizer, J	Transformational leadership and innovation: the mediating role of knowledge sharing amongst higher education faculty	2021	INTERNATIONAL JOURNAL OF LEADERSHIP IN EDUCATION	47
Vlachopoulos, D	Organizational Change Management in Higher Education through the Lens of Executive Coaches	2021	EDUCATION SCIENCES	6
McNamara, A	Crisis Management in Higher Education in the Time of Covid-19: The Case of Actor Training	2021	EDUCATION SCIENCES	4
Lamm, KW; Sapp, LR; Randall, NL; Lamm, AJ.	Leadership development programming in higher education: an exploration of perceptions of transformational leadership across gender and role types	2021	TERTIARY EDUCATION AND MANAGEMENT	2
Popkova, EG; Sergi, BS	Strategic academic leadership and high-tech economic growth	2023	FRONTIERS IN EDUCATION	4
Crawford, M.	Being a Head of Department in an English University	2023	EDUCATIONAL REVIEW	3

Source: Own elaboration, 2024.

The area of interest that appears in all the results is Education & Educational Research, where the most relevant article corresponds to the authorship of Waring (2017) the article is titled: Management and leadership in UK universities: exploring the possibilities of change. It should be noted that 4 of these 10 works were published in 2021, coinciding with the period with the highest number of publications in general. There are no important trends regarding authors, institutions or serial publications that can be highlighted.

3.6. Themes

The themes are identified from the thematic coincidences identified in the keywords contained in the works. Thus, it is possible to visualize in Figure I the co-occurrence of keywords, the temporal evolution and the clusters formed by them, which in this case there are 17.



Source: Own elaboration, 2024 through Vos Viewer Software.

Figure I: Co-occurrence of keywords in leadership and higher education articles in the Web of Science database. Period of 2007-2023

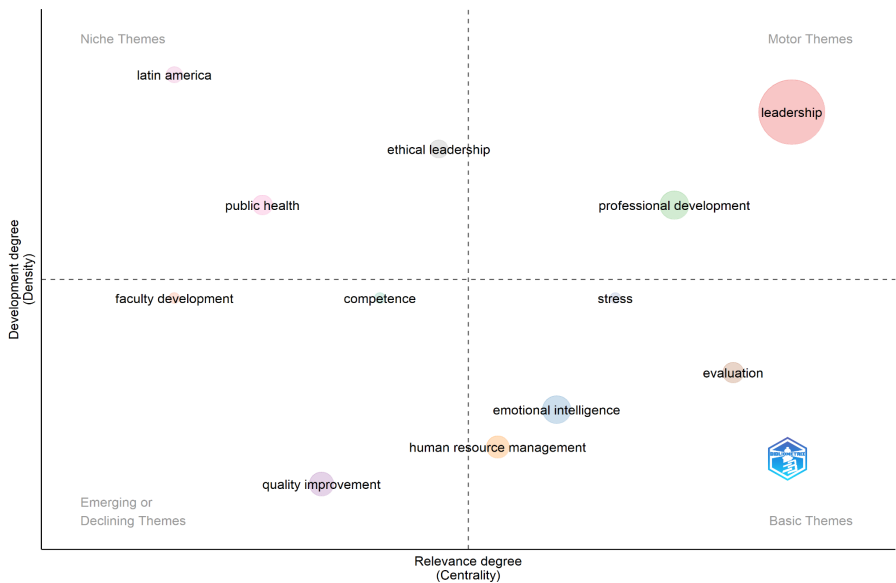
The clusters range from 27 items to 2. The key terms Leadership (n= 154), Higher Education (n= 127) and Management (n= 49), were the 3 most frequent keywords in the total of articles studied. Leadership forms a cluster of 17 items with other terms such as knowledge management, knowledge sharing and universities. Higher Education, on the other hand, forms a cluster of 19 items, with words such as employability, soft skills or competences. Thirdly, Management forms a

cluster of 6 items with change or sustainability. Other high frequency keywords were Covid-19 (n= 35), education (n= 29) or transformational leadership (n= 25).

Specifically, the key term Covid-19 forms a cluster mainly with the words burnout, competence, crisis management, soft skills and stress. In the same way, Covid-19 has its highest frequency in the year 2022, thus being the key term whose maximum frequency is observed most recently.

Additionally, the application of the algorithm of Callon et al. (1991), allows the construction of a thematic map that groups the main key terms into thematic areas according to four quadrants, depending on their frequency and the strength of their links among themselves (250 words, min cluster

5, clustering algorithm infomap) (see Figure II). As driving themes, that is, they represent the main research problems, there are the predominant terms such as leadership, higher education and management, represented in cluster 1.



Source: Own elaboration, 2024 through Biblioshiny software.

Figure II: Taxonomic map based on Callon's algorithm of articles related to leadership and higher education in the web of sciences database. Period of 1990 - 2023

On the other hand, in the quadrant of basic topics (topics of high relevance, but under development), are the terms emotional intelligence, evaluation or human resource management. For their part, topics such as competencies and quality are topics that are emerging, and with regard to niche topics, there are ethical leadership and public health in the Latin American context.

In general terms, it can be said that the thematic trends around leadership in higher education show correspondence relationships with various variables that demonstrate the

concerns or research problems on which experts in the field are focusing. Themes such as knowledge management, sustainability, employability, soft skills and competencies appear as the most frequent. The presence of an emerging issue, Covid-19, is notable, particularly in topics such as burnout, skills, management crisis, soft skills and stress. That is, there is a notable interest in the topics of well-being, self-care and adaptation to unexpected situations, and how this affects the organizational climate and performance.

Conclusion

By developing this bibliometric analysis, the importance of carrying out this type of work is evident, especially for those who are starting a line of research or need to update the existing one. The findings have allowed us to have a panoramic and updated vision of the behavioral patterns of the research that has been developed around the topic of leadership and higher education.

The first approach to the research background allowed us to corroborate the multifactorial nature of leadership in various processes related to success in educational organizations, and even though scientific production on these topics has been developed, it continues to expand.

Regarding institutions and authors, it is evident that it cannot be considered a topic with consolidated theoretical-empirical references; Furthermore, the authors are located in dissimilar and geographically dispersed development poles. These results invite us to continue exploring the topic, in order to expand or refine the searches, depending on the relevance given to the results.

Another element to highlight is the multidisciplinary nature of the phenomenon. Of particular interest is the growing amount of scientific production that is being generated from related disciplines such as medical sciences and psychology, for example, to address issues associated with health, well-being and the development of life skills. These variables have been highlighted by the pandemic and its possible effects on people.

Finally, it can be said that the findings not developed in this work open possibilities for the future. It is considered necessary to expand the analysis around comparisons with other databases such as Scopus, as well as apply literature reviews on the information identified as relevant to contrast theoretical and methodological approaches.

Bibliographic references

Aftab, J., Abid, N., Sarwar, H., & Veneziani, M. (2022). Environmental ethics,

green innovation, and sustainable performance: Exploring the role of environmental leadership and environmental strategy. *Journal of Cleaner Production*, 378, 134639. <https://doi.org/10.1016/j.jclepro.2022.134639>

Akanji, B., Mordi, C., Ituma, A., Adisa, T. A., & Ajonbadi, H. (2020). The influence of organisational culture on leadership style in higher education institutions. *Personnel Review*, 49(3), 709-732. <https://doi.org/10.1108/PR-08-2018-0280>

Alamir, I., Ayoubi, R. M., Massoud, H., & Al Hallak, L. (2019). Transformational leadership, organizational justice and organizational outcomes: A study from the higher education sector in Syria. *Leadership & Organization Development Journal*, 40(7), 749-763. <https://doi.org/10.1108/LODJ-01-2019-0033>

Al-Husseini, S., El Beltagi, I., & Moizert, J. (2021). Transformational leadership and innovation: the mediating role of knowledge sharing amongst higher education faculty. *International Journal of Leadership in Education*, 24(5), 670-693. <https://doi.org/10.1080/13603124.2019.1588381>

Allan, E. J., Gordon, S. P., & Iverson, S. V. (2006). Re/thinking practices of power: The discursive framing of leadership in The Chronicle of Higher Education. *Review of Higher Education*, 30(1), 41-68. <https://doi.org/10.1353/rhe.2006.0045>

Al-Mansoori, R. S., & Koc, M. (2019). Transformational leadership, systems, and intrinsic motivation impacts on innovation in Higher Education Institutes: Faculty perspectives in engineering colleges. *Sustainability*, 11(15), 4072. <https://doi.org/10.3390/su11154072>

- Almutairy, Y. M. A. (2020). Leadership self-efficacy and organizational commitment of faculty members: Higher Education. *Administrative Science*, 10(3), 66. <https://doi.org/10.3390/admsci10030066>
- Araya-Pizarro, S., & Verelst, N. (2023). Análisis bibliométrico sobre la calidad de la educación superior en Chile. *Educación*, 32(62), 5-32. <https://doi.org/10.18800/educacion.202301.010>
- Ardanuy, J. (2012). *Breve introducción a la bibliometría*. Universitat de Barcelona.
- Aria, M., & Cuccurullo, C. (2017). Bibliometrix: An R-tool for comprehensive science mapping analysis. *Journal of Informetrics*, 11(4), 959-975. <https://doi.org/10.1016/j.joi.2017.08.007>
- Arnold, D., & Sangrà, A. (2018). Dawn or dusk of the 5th age of research in educational technology? A literature review on (e-)leadership for technology-enhanced learning in higher education (2013-2017). *International Journal of Educational Technology in Higher Education*, 15, 24. <https://doi.org/10.1186/s41239-018-0104-3>
- Ashiq, M., Ur Rehman, S., Ahmad, N., Atoum, I., Aqil, M., & Ahmad, S. (2023). A bibliometric review of leadership literature in library and information science profession, 1959–2022. *SAGE Open*, 13(4). <https://doi.org/10.1177/21582440231208767>
- Aung, P. N., & Hallinger, P. (2023). Research on sustainability leadership in higher education: A scoping review. *International Journal of Sustainability in Higher Education*, 24(3), 517-534. <https://doi.org/10.1108/IJSHE-09-2021-0367>
- Balwant, P. T., Birdi, K., Stephan, U., & Topakas, A. (2019). Transformational instructor-leadership and academic performance: a moderated mediation model of student engagement and structural distance. *Journal of further and higher education*, 43(7), 884-900. <https://doi.org/10.1080/0309877X.2017.1420149>
- Banker, D. V. (2023). Status of women leadership in the Indian higher education sector. *International Journal of Educational Management*, 37(3), 662-680 <https://doi.org/10.1108/IJEM-06-2022-0216>
- Baumber, A., Allen, L., Key, T., Kligyte, G., Melvold, J., & Pratt, S. (2021). Teaching resilience: Enabling factors for effective responses to covid-19. *Students Success*, 12(3), 14-25. <https://doi.org/10.5204/ssj.1773>
- Bebbington, W. (2021). Leadership strategies for a higher education sector in flux. *Studies in Higher Education*, 46(1), 158-165. <https://doi.org/10.1080/03075079.2020.1859686>
- Bracho-Fuenmayor, P. L. (2023). Habilidades de liderazgo en tiempos de cambio: Una mirada en las universidades del Zulia-Venezuela. *Revista de Ciencias Sociales (Ve)*, XXIX(3), 517-530. <https://doi.org/10.31876/rcs.v29i3.40736>
- Callon, M., Courtial, J. P., & Laville, F. (1991). Co-word analysis as a tool for describing the network of interactions between basic and technological research: The case of polymer chemistry. *Scientometrics*, 22, 155-205. <https://doi.org/10.1007/BF02019280>
- Chisholm-Burns, M. A., Brandon, H. H., & Spivey, C. A. (2021). Leadership lessons from administrators, faculty, and students during the COVID-19 pandemic. *Currents in Pharmacy Teaching and Learning*, 13(10), 1306-1311. <https://doi.org/10.1016/j.cptl.2021.07.001>

- Chitpin, S., & Karoui, O. (2022). Educational decision-making during COVID-19 in Ontario: Lessons for Higher Education. *Journal of Higher Education Policy and Leadership Studies*, 3(2), 122-142. <https://dx.doi.org/10.52547/johepal.3.2.122>
- Cornelius-Bell, A., & Bell, P. A. (2020). Partnership as student power: Democracy and Governance in a Neoliberal University. *Radical Teacher*, 118, 21-30. <https://doi.org/10.5195/rt.2020.738>
- Crawford, M. (2023). "Being" a Head of Department in an English University. *Educational Review*, 75(6), 1168-1180. <https://doi.org/10.1080/00131911.2021.2000368>
- Dumulescu, D., & Mutiu, A. (2021). Academic Leadership in the Time of COVID-19—Experiences and Perspectives. *Frontiers in Psychology*, 12, 648344. <https://doi.org/10.3389/fpsyg.2021.648344>
- Du Plessis, M., Jansen, C. D., Simons, A., Frantz, J., Roman, N., & Andipatin, M. (2022). South African Higher Education Institutions at the beginning of the Covid-19 pandemic: Sense-Making and lessons learnt. *Frontiers in Education*, 6, 740016. <https://doi.org/10.3389/educ.2021.740016>
- Erkutlu, H., & Chafra, J. (2020). Leader's integrity and interpersonal deviance: The mediating role of moral efficacy and the moderating role of moral identity. *International Journal of Emerging Markets*, 15(3), 611-627. <https://doi.org/10.1108/IJOEM-07-2018-0406>
- Ganga-Contreras, F., Suárez-Amaya, W., Alarcón-Henríquez, N., Viancos-González, P., Henríquez-Fuentes, F., & Abello-Romero, J. (2024). Scientific production of the relationship between leadership, higher education and digital transformation: A bibliometric analysis. *Interciencia*, 49(1), 8-18. https://www.interciencia.net/wp-content/uploads/2024/02/01_7087_A_Suarez_v49n1_11.pdf
- Grajfoner, D., Rojon, C., & Eshraghian, F. (2022). Academic leaders: In-role perceptions and developmental approaches. *Educational Management Administration & Leadership*, 1-28. <https://doi.org/10.1177/17411432221095957>
- Hickson, G. B., Pichert, J. W., Webb, L. E., & Gabbe, S. G. (2007). A complementary approach to promoting professionalism: identifying, measuring, and addressing unprofessional behaviors. *Academic Medicine*, 82(11), 1040-1048. <https://doi.org/10.1097/ACM.0b013e31815761ec>
- Jameson, J., Rumyantseva, N., Cai, M., Markowski, M., Essex, R., & McNay, I. (2022). A systematic review and framework for digital leadership research maturity in higher education. *Computer and Education Open*, 3, 100115. <https://doi.org/10.1016/j.caeo.2022.100115>
- Jiang, Z., Zhao, X., Wang, Z., & Herbert, K. (2024). Safety leadership: A bibliometric literature review and future research directions. *Journal of Business Research*, 172, 114437. <https://doi.org/10.1016/j.jbusres.2023.114437>
- Kasalak, G., Guneri, B., Ehtiyar, V. R., Apaidin C., & Turker, G. Ö. (2022). The relation between leadership styles in higher education institutions and academic staff's job satisfaction: A meta-analysis study. *Frontiers in Psychology*, 13. <https://doi.org/10.3389/fpsyg.2022.1038824>
- Kinnunen, P., Ripatti-Torniainen, L., Mickwitz, Á., & Haarala-Muhonen,

- A. (2024). Bringing clarity to the leadership of teaching and learning in higher education: A systematic review. *Journal of Applied Research in Higher Education*, 16(1), 265-280. <https://doi.org/10.1108/JARHE-06-2022-0200>
- Klempin, S., & Mechur, M. (2018). Leadership for transformative change: Lessons from technology-mediated reform in broad-access colleges. *The Journal of Higher Education*, 89(1), 81-105. <https://doi.org/10.1080/00221546.2017.1341754>
- Klofsten, M., Fayolle, A., Guerrero, M., Mian, S., Urbano, D., & Wright, M. (2019). The entrepreneurial university as driver for economic growth and social change - Key strategic challenges. *Technological Forecasting and Social Change*, 141, 149-158 <https://doi.org/10.1016/j.techfore.2018.12.004>
- Kucharska, W., & Rebelo, T. (2022). Knowledge sharing and knowledge hiding in light of the mistakes acceptance component of learning culture-knowledge culture and human capital implications. *The Learning Organization*, 29(6), 649-669 <https://doi.org/10.1108/TLO-03-2022-0032>
- Lamm, K. W., Sapp, L. R., Randall, N. L., & Lamm, A. J. (2021). Leadership development programming in higher education: An exploration of perceptions of transformational leadership across gender and role types. *Tertiary Education and Management*, 27, 297-312. <https://doi.org/10.1007/s11233-021-09076-2>
- López-Domínguez, M., Enache, M., Sallan, J. M., & Simo, P. (2013). Transformational leadership as an antecedent of change-oriented organizational citizenship behavior. *Journal of Business Research*, 66(10), 2147-2152. <https://doi.org/10.1016/j.jbusres.2013.02.041>
- Machado, C., Saraiva, M. T., Dos Santos, I. R., & Palmisano, A. (2016). As leis da bibliometria em diferentes bases de dados científicos. *Revista de Ciências da Administração*, 18(44), 111-123. <https://doi.org/10.5007/2175-8077.2016v18n44p111>
- Maddock, L. C. (2023). Academic middle leaders, middle leading and middle leadership of university learning and teaching: A systematic review of the higher education literature. *Journal of Higher Education Policy and Management*, 45(4), 357-392. <https://doi.org/10.1080/1360080X.2022.2160888>
- Mahabubul, G. (2022). The relationship between figureheads and managerial leaders in the Private University Sector: A decentralised, competency-based leadership model for sustainable Higher Education. *Sustainability*, 14(19), 12279. <https://doi.org/10.3390/su141912279>
- Maheshwari, G. (2021). A review of literature on women's leadership in higher education in developed countries and in Vietnam: Barriers and enablers. *Educational Management Administration & Leadership*, 51(5), 1067-1086. <https://doi.org/10.1177/17411432211021418>
- Maheshwari, G., Nayak, R., & Ngyyen, T. (2021). Review of research for two decades for women leadership in higher education around the world and in Vietnam: a comparative analysis. *Gender in Management*, 36(5), 640-658 <https://doi.org/10.1108/GM-04-2020-0137>
- Matos, F. F., Contreras, F., & Olaya, J. C. (2023). *Introducción a la bibliometría práctica*. Asociación de bibliotecólogos del Perú.
- McNamara, A. (2021). Crisis management in Higher Education in the time of

- Covid 19: The case of actor training. *Education Sciences*, 11(3), 132. <https://doi.org/10.3390/educsci11030132>
- Meza-Mejía, M. D. C., Villarreal-García, M. A., & Ortega-Barba, C. F. (2023). Women and leadership in Higher Education: A systematic review. *Social Sciences*, 12(10), 555. <https://doi.org/10.3390/socsci12100555>
- Mittal, A., Mantri, A., Tandon, U., & Dwivedi, Y. K. (2022). A unified perspective on the adoption of online teaching in higher education during the COVID-19 pandemic. *Information Discovery and Delivery*, 50(2), 117-132. <https://doi.org/10.1108/IDD-09-2020-0114>
- Muchabaiwa, W., & Gondo, R. (2022). Covid-19 and the virtual classroom conundrum in Zimbabwean universities. *Journal of Education*, (86), 107-125. <http://dx.doi.org/10.17159/2520-9868/i86a06>
- Najam, U., & Mustamil, N. (2020). Servant leadership: A bibliometric review. *International Journal of Organizational Leadership*, 9(3), 138-155. <https://doi.org/10.33844/IJOL.2020.60501>
- Ndlovu, W., Ngirande, H., Setati, S. T., & Zhuwao, S. (2018). Transformational leadership and employee organisational commitment in a rural-based higher education institution in South Africa. *SA Journal of Human Resources Management*, 16, 984. <https://doi.org/10.4102/sajhrm.v16i0.984>
- Ntim, C. G., Soobaroyen, T., & Broad, M. J. (2017). Governance structures, voluntary disclosures and public accountability: The case of UK higher education institutions. *Accounting, Auditing & Accountability Journal*, 30(1), 65-118. <https://doi.org/10.1108/AAAJ-10-2014-1842>
- Pando, T. T., Cangalaya-Sevillano, L. M., Herrera, Z. E., & Cabrejos, R. E. (2022). Liderazgo y empoderamiento en las mujeres empresarias en el Perú. *Revista de Ciencias Sociales (Ve)*, XXVIII(E-5), 234-245. <https://doi.org/10.31876/rcs.v28i.38159>
- Pedraja-Rejas, L., Rodríguez-Ponce, E., & Muñoz-Fritis, C. (2021). Liderazgo transformacional y cultura innovativa: Efectos en la calidad institucional. *Revista Venezolana de Gerencia*, 26(96), 1004-1018. <https://doi.org/10.52080/rvgluz.26.96.2>
- Pekkolaa E., Siekkinenb, T., Kujalaa, E.-N., Kannianena J.-P., & Laihonon, H. (2021). An assessment of COVID-19's impact on Finnish University Leadership. *Knowledge Management Research & Practice*, 19(4), 510-516. <https://doi.org/10.1080/14778238.2021.1906773>
- Popkova, E. G., & Sergi, B. S. (2023). Strategic academic leadership and high-tech economic growth. *Frontiers in Education*, 8, 1108527. <https://doi.org/10.3389/educ.2023.1108527>
- Roy, S., & Brown, S. (2022). Higher Education in India in the time of pandemic, sans a learning management system. *AERA Open*, 8. <https://doi.org/10.1177/23328584211069527>
- Salazar, C. M., Muñoz-Jara, Y. A., & Caviedes, D. A. (2023). Competencias directivas en una zona central de Chile. *Journal of the Academy*, (6), 48-65. <https://doi.org/10.47058/joa6.4>
- Sánchez-Carrillo, J. C., Cadarso, M. A., & Tobarra, M. A. (2021). Embracing higher education leadership in sustainability: A systematic review. *Journal of Cleaner Production*, 298, 126675. <https://doi.org/10.1016/j.jclepro.2021.126675>
- Sedereviciute-Paciauskiene, Ž., Valantinaite, I., & Kliukas, R. (2021). Communion,

- Care and Leadership in Computer-Mediated Learning during the Early Stage of COVID-19. *Sustainability*, 13(8), 4234. <https://doi.org/10.3390/su13084234>
- Shoaib, M., Nawal, A., Korsakiene, R., Zámečník, R., Rehman, A. U., & Giedré A. (2022). Performance of Academic Staff during COVID-19 pandemic-induced work transformations: An IPO Model for stress management. *Economies*, 10(2), 51. <https://doi.org/10.3390/economies10020051>
- Smith, N., & Fredricks-Lowman, I. (2020). Conflict in the workplace: A 10-year review of toxic leadership in higher education. *International Journal of Leadership in Education*, 23(5), 538-551. <https://doi.org/10.1080/13603124.2019.1591512>
- Suárez, Y., & Pérez-Anaya, O. (2018). La evaluación de la actividad científica: Indicadores bibliométricos. En J. Avila (Coord.), *Cienciometría y bibliometría. El estudio de la producción científica. Métodos, enfoques y aplicaciones en el estudio de las Ciencias Sociales* (pp. 95-118). Ediciones Corporación Universitaria Reformada.
- Udin, U., Handayani S., Yuniawan, A., & Rahardja E. (2019). Leadership styles and communication skills at Indonesian Higher Education: Patterns, influences, and applications for organization. *Organizations and Markets in Emerging Economies*, 10(1), 111-131. <https://doi.org/10.15388/omec.2019.10.00006>
- Urbizagástegui, R. (1999). La ley de Lotka y la literatura de bibliometría. *Investigación Bibliotecológica: Archivonomía, Bibliotecología e Información*, 13(27), 125-141. <https://doi.org/10.22201/iibi.0187358xp.1999.27.3913>
- Van Eck, N. J., & Waltman, L. (2018). *VOSviewer Manual version 1.6.10*. CWTS Meaningful Metrics. Universiteit Leiden.
- Van Hemmen, S., Álvarez, C., Peris-Ortiz, M., & Urbano, D. (2015). Leadership styles and innovative entrepreneurship: An international study. *Cybernetics and Systems*, 46(3-4), 271-286. <https://doi.org/10.1080/01969722.2015.1012896>
- Virgili-Lillo, M. A., Cedeño, S. J., & Escalona, L. N. (2023). Rector universitario del siglo XXI: primeros insumos para un perfil transformador en Latinoamérica. *Journal of the Academy*, (8), 71-93. <https://doi.org/10.47058/joa8.5>
- Vlachopoulos, D. (2021). Organizational change management in Higher Education through the lens of executive coaches. *Education Sciences*, 11(6), 269. <https://doi.org/10.3390/educsci11060269>
- Vuori, J. (2019). Distributed leadership in the construction of a new higher education campus and community. *Educational Management Administration & Leadership*, 47(2), 224-240. <https://doi.org/10.1177/1741143217725322>
- Wan, C. D., Sirat, M., & Razak, D. A. (2020). Academic governance and leadership in Malaysia: Examining the national higher education strategic initiatives. *Journal of International and Comparative Education*, 9(2), 91-102. <https://doi.org/10.14425/jice.2020.9.2.0913>
- Waring, M. (2017). Management and leadership in UK universities: Exploring the possibilities of change. *Journal of Higher Education Policy and Management*, 39(5), 540-558. <https://doi.org/10.1080/1360080X.2017.1354754>
- Watermeyer, R., Shankar, K., Crick, T., Knight, C., McGaughey, F., Hardman, J., Suri, V. R., Chung, R., & Phelan,

- D. (2021). 'Pandemia': A reckoning of UK universities' corporate response to COVID-19 and its academic fallout. *British Journal of Sociology of Education*, 42(5-6), 651-666. <https://doi.org/10.1080/01425692.2021.1937058>
- Wu, T.-C., Chen, C.-H., & Li, C.-C. (2008). A correlation among safety leadership, safety climate and safety performance. *Journal of Loss Prevention in the Process Industries*, 21(3), 307-318. <https://doi.org/10.1016/j.jlp.2007.11.001>
- Yeboah, R. (2022). COVID-19 and tertiary students' knowledge, usage and challenges of using online learning platforms. *Cogent Education*, 9(1), 2135257. <https://doi.org/10.1080/2331186X.2022.2135257>