Review Article https://doi.org/10.12973/eu-jer.15.1.19

European Journal of Educational Research
Volume 15, Issue 1, 19 - 38.
ISSN: 2165-8714
http://www.eu-jer.com/

Quality in Higher Education Institutions as a Transversal Tool in Institutional Accreditation: A Bibliometric Review

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Received: April 13, 2025 ▪ Revised: July 20, 2025 ▪ Accepted: August 16, 2025

Abstract: Globalization, digitalization, and evolving national regulations have intensified the need for rigorous quality-assurance systems to secure accreditation in Higher Education Institutions (HEIs). This study asks: What theoretical contributions underpin HEI accreditation, and how have research themes evolved? Employing the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) and Bibliometric Analysis via Biblioshiny and Vantage Point, we examined 1,252 documents indexed in Scopus® (781) and Web of Science™ (471) from 2012 to May 2025. Findings delineate three production phases—Foundation Consolidation (2012–2017), Expansion and Diversification (2017–2020), and Sustained Transformation and Innovation (2020–2025)—and three thematic perspectives: (a) Teaching and Learning Quality, (b) Technology and Sustainability as Quality Catalysts, and (c) Governance, Management, and Accountability. Multiple Correspondence Analysis (MCA) identified three Motor Theme clusters—[1] Sustainable Development and Institutional Change, [2] Technological Pedagogy and Student Experience, and [3] Governance and Regulation—led by Spain, the United States, Chile, Colombia, the UK, Australia, and India. Conclusions underscore accreditation's dual role as a strategic lever for institutional improvement and a competitive mechanism, with emerging focus on competency, e-learning, employability, machine learning, and sustainability. Future research should explore cross-border accreditation dynamics; the impact of AACSB and NAAC standards on business-school curriculum design and program quality; accreditation's pedagogical effects; and leadership practices for effective implementation.

Keywords: *Accreditation, bibliometric analysis, education, higher education, quality.*

To cite this article: Puerta-Guardo, F. A., Cantillo-Orozco, A. S., Castillo-Loaiza, J. L., Narváez-Grisales, J. A., & Molina-Guerrero, C. J. (2026). Title. *European Journal of Educational Research, 15*(1), 19-38. https://doi.org/10.12973/eu-jer.15.1.19

Introduction

Most evaluation and accreditation frameworks in higher education aim to certify institutional quality by accrediting programs that meet predetermined standards aligned with their mission and strategic objectives (Enríquez Estrella et al., 2024). This process of quality assurance has become nearly universal and is intensifying due to several factors (Jarvis, 2014). First, the massive expansion of student enrolment has prompted institutions to prioritize pedagogical improvements to boost academic performance and completion rates (Elzagheid, 2019). Second, rising tuition costs and growing demands for accountability have intensified scrutiny of teaching and learning processes (Hou, 2012a).

Furthermore, the consolidation of the global knowledge economy has led universities to implement internationalization strategies to attract talent (Hou et al., 2013). In this context, cross-border higher education has become crucial, underscoring the need to strengthen the capacity of national agencies to evaluate these educational offerings (Hou, 2012b, 2012c). The self-certification system faces significant challenges, including inadequate reviewer selection, inconsistent decisions, and conflicts of interest when the same agency handles both accreditation and rankings (Hou et al., 2018). Additionally, academics' attitudes toward accreditation are only "moderately positive," indicating it is not yet fully integrated into daily institutional operations (Rosa et al., 2020). Lack of awareness, resistance to change, cultural factors, and neoliberal influences are the main barriers to implementing these systems, which can lead to a fragmentation of institutional identity (Alhazmi & Almashhour, 2024).

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International accreditation, although beneficial, presents challenges in developing countries, including increased bureaucratization, high costs, and potential misalignment with regional specificities (Ashour & Ghonim, 2017; Hou et al., 2022). Another enduring tension is the conflict between the accountability burden imposed by performance indicators and universities' ability to innovate. This raises the question of whether current indicators adequately reflect quality in a mass education system (Sarrico, 2022). Accreditation is often perceived as a "bureaucratic burden" focused more on accountability than on quality improvement, which is complicated by the inherent complexity of higher education institutions (Blanco-Ramírez & Berger, 2014).

These challenges raise key questions about how quality theory can facilitate accreditation, the impact of global trends on internal processes, the balance between accountability and innovation, the role of leadership, and the influence of bodies like AACSB. Based on their experience, the researchers were motivated to investigate scientific production on quality in higher education to establish elements that support continuous improvement and quality processes in teaching.

To understand the evolution of the topic "Quality and Accreditation in Higher Education Institutions as a Transversal Tool in Institutional Development" and to address the research questions, a Systematic Literature Review (SLR) and a bibliometric analysis were conducted. The SLR was structured in phases following the S-curve model: an Initial Phase (2012-2017) of foundation consolidation, a Growth Phase (2017-2020) of expansion and diversification, and a Maturation Phase (2020 onwards) of transformation and innovation (Figures 2-10; Tables 3-5). The bibliometric analysis, supported by tools like Biblioshiny, Vantage Point, Excel, and Mendeley, complemented the study by examining the dynamics and trends in scientific production, identifying patterns, research clusters, and the leadership of various journals.

The methodology was organized into five sequential steps: planning, search settings, review and exclusions, review conduct and eligibility, and bibliometric analysis. This structured approach yielded results including general information, trends in scientific production, author and country cooperation networks, journal publication analysis, source evaluation, conceptual structure, thematic evolution, and thematic maps (Figures 3-10, Tables 3-5). Together, these stages reflect a comprehensive analysis of the main thematic groups and their key contributions in the field of quality and accreditation in higher education.

Literature Review

Initial Phase – IP (2012-2017): Consolidation of Foundations.

During this period, quality in higher education began to be recognized as a key tool for institutional accreditation, a process that ensures institutions meet minimum standards and enhances global competitiveness (Kayal & Khalife, 2025; Kumar et al., 2020). The literature of this phase defined institutional quality as the pursuit of excellence and consistency between purposes and mission (Pedraja-Rejas et al., 2012). Accreditation has evolved from a quality assurance mechanism to a strategic tool for global positioning, facilitating access to financial aid and fostering inter-institutional relationships (Blanco-Ramírez & Berger, 2014; Eaton, 2015). Evaluation and accreditation systems shared the common objective of promoting quality by accrediting programs that met predefined standards and criteria aligned with institutional projects (Tshai et al., 2014). This phase involved establishing permanent quality assurance procedures, which improved internal processes (Espinoza & González, 2013). The success of an accreditation process was often measured by the duration of the accreditation and the number of optional areas accredited (Cancino & Schmal, 2014). Universities favored evaluation mechanisms that prioritized improvement over control (Cardoso et al., 2013). The direct link between regulation and teaching quality was established, recognizing that quality teaching requires quality faculty (Galán et al., 2014). Accreditation has become an academic impact factor, differentiating institutions and granting them "world-class" status (Hou et al., 2012); however, it can also create contradictions if it overlooks ethics or social responsibility (Cooper et al., 2014). Furthermore, this foundational phase established that perceived service quality and value have a positive influence on student satisfaction and intent to continue (Dlačić et al., 2013). It also underscored the importance of quality supervision for student experiential learning to ensure proper alignment (Miragaia & Soares, 2017).

Growth Phase – GP (2017-2020): Expansion and Diversification.

The growth phase saw a significant increase in quality assurance and accreditation practices, which directly influenced institutional rankings and international reputation (Kayal & Khalife, 2025). This period emphasized the importance of documentation, consistency, and resource allocation for effective quality assurance and explored the integration of technology, particularly in distance education (Kayal & Khalife, 2025; Toprak & Sakar, 2020). A key characteristic of this phase was the shift towards more sophisticated, outcome-based evaluation models, with Outcome-Based Education (OBE) becoming central to accreditation processes worldwide (Kumar et al., 2020). The main goals of accreditation were to raise awareness and demonstrate best practices (Kooli, 2019). The quantitative expansion of the sector drove a focus on improving teaching quality to enhance student success rates (Elzagheid, 2019), solidifying the understanding that accreditation serves as a tool for facilitating and measuring high-quality service and is a form of institutional inclusion

(Simangunsong, 2019). The close relationship between the quality of the educational service process and educational outcomes was recognized, where student satisfaction with the process could predict satisfaction with the results.

Maturation Phase - MP (2020 onwards): Transformation and Sustained Innovation.

In the maturation phase, the literature reflects a consolidation of quality assurance and accreditation practices, highlighting the need for independent evaluation and international harmonization (Dugarova et al., 2016). Accreditation evolved into a more complex process focused on continuous improvement and alignment with labour market demands (Dugarova et al., 2016). The link between internal quality management and external accreditation models was also emphasized. This phase is characterized by a holistic approach, recognizing that external accreditation is a differentiating aspect of higher education (Kayal & Khalife, 2025). The primary purpose is to promote continuous improvement through a comprehensive evaluation of institutional quality and its academic programs (Enríquez Estrella et al., 2024). This approach acknowledges the important role of higher education in providing students with skills for the job market, making quality and student satisfaction key concerns (Hai, 2022). Accreditation has also played a strategic role in this phase as a means to secure greater financial support from public and governmental institutions (Guzmán-Puentes & Guevara-Ramírez, 2022). The prevailing concepts of accreditation and institutional quality are supported by institutions dedicated to promoting quality education, funded by both governmental and non-governmental agencies (Aburizaizah, 2022). This phase has a refined understanding of the close relationship between the quality of the educational service process and educational outcomes, where student satisfaction with the process can predict satisfaction with the results (Dinh et al., 2021), leading to improved evaluation mechanisms and more effective accreditation processes.

Methodology

Step 1. Planning

In this phase, the Scopus® and Web of Science™ (WoS™) databases were selected as primary scientific sources. Scopus® comprises over 100+ million records and indexed citations dating back to 1970 from 20.5+ million active author profiles and 28.9+ thousand actives journals (Elsevier, 2025), while WoS™ contains 271 million records and 3 billion cited references (Clarivate, n.d.).

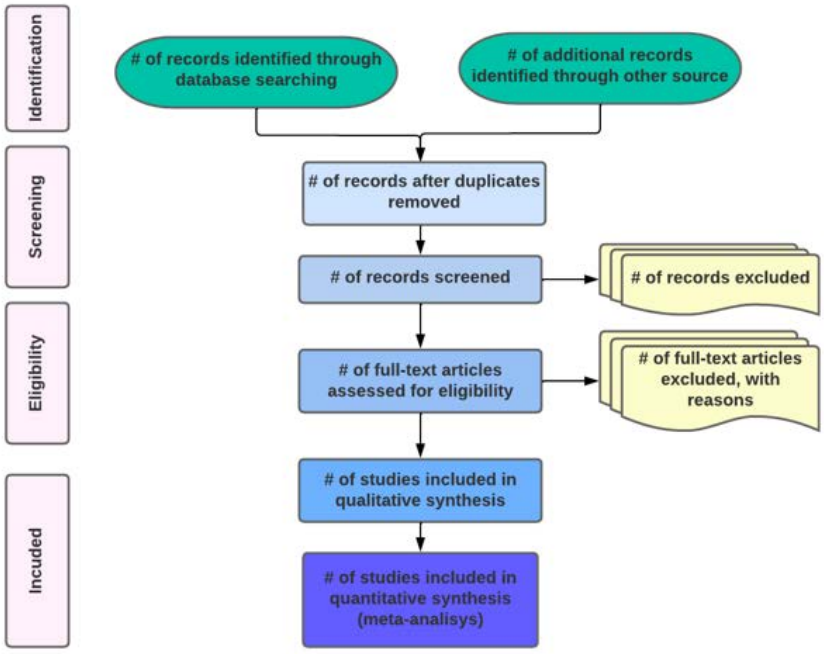


Figure 1. The Flow of Information Through the Different Phases of a Systematic Review. Source: Adapted from Moher et al. (2009)

Following these selections, the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) protocol was applied to guide the inclusion and exclusion of records (Moher et al., 2009), as illustrated in Figure 1. Additionally, the methodological framework of Tranfield et al. (2003) was adopted to structure the planning, review, conduct, and reporting phases of this study.

Step 2. Search Settings

A comprehensive search strategy was developed employing Boolean operators and proximity commands to optimize retrieval. Exact phrases were enclosed in double quotation marks (“”), truncation was applied using the asterisk (*) to capture all morphological variants, “AND” was used to combine distinct concepts, and “OR” was applied to filter by publication year, document type, and language. In Scopus®, the TITLE-ABS-KEY field code targeted document titles, abstracts, and author keywords, whereas in Web of Science™, the Topic field encompassed titles, abstracts, author keywords, and Keywords Plus, as defined by the search equation in Table 1. The temporal range of the past thirteen years was selected to trace foundational theories and evidence for significant growth up to the present. English and Spanish were chosen due to their prevalence among retrieved studies. Finally, only peer-reviewed articles were included, given their central role in scientific production.

Table 1. Search Settings

Step	Applied search terms Words used	Number of publications	
		Scopus®	WoS™
Search Equation	*"Accreditation*" AND "Education*" AND "Quality*" AND "Higher Education*")*	1.763	570
Screening by year	*Limit-to (Pubyear, 2012) OR Limit-to (Pubyear, 2013) OR Limit-to (Pubyear, 2014) OR Limit-to (Pubyear, 2015) OR Limit-to (Pubyear, 2016) OR Limit-to (Pubyear, 2017) OR Limit-to (Pubyear, 2018) OR Limit-to (Pubyear, 2019) OR Limit-to (Pubyear, 2020) OR Limit-to (Pubyear, 2021) OR Limit-to (Pubyear, 2022) OR Limit-to (Pubyear, 2023) OR Limit-to (Pubyear, 2024) OR Limit-to (Pubyear, 2025))*	1381	527
Screening by Document Types and Languages	*Limit-to (Doctype, "ar")) AND (Limit-to (Language, "English") OR Limit-to (Language, "Spanish"))*	804	471

Source: Own Elaboration Based on Scopus® and WoS™ Information

Step 3. Review and Exclusions

Search equations were applied to titles, abstracts, and keywords, and results were limited to peer-reviewed articles in English or Spanish published between 2012 and 2025 (Table 1). The initial query retrieved 1,763 documents from Scopus® and 570 from WoS™. After applying the language and date filters, 1,252 articles remained—781 from Scopus® and 471 from WoS™—as depicted in Figure 2.

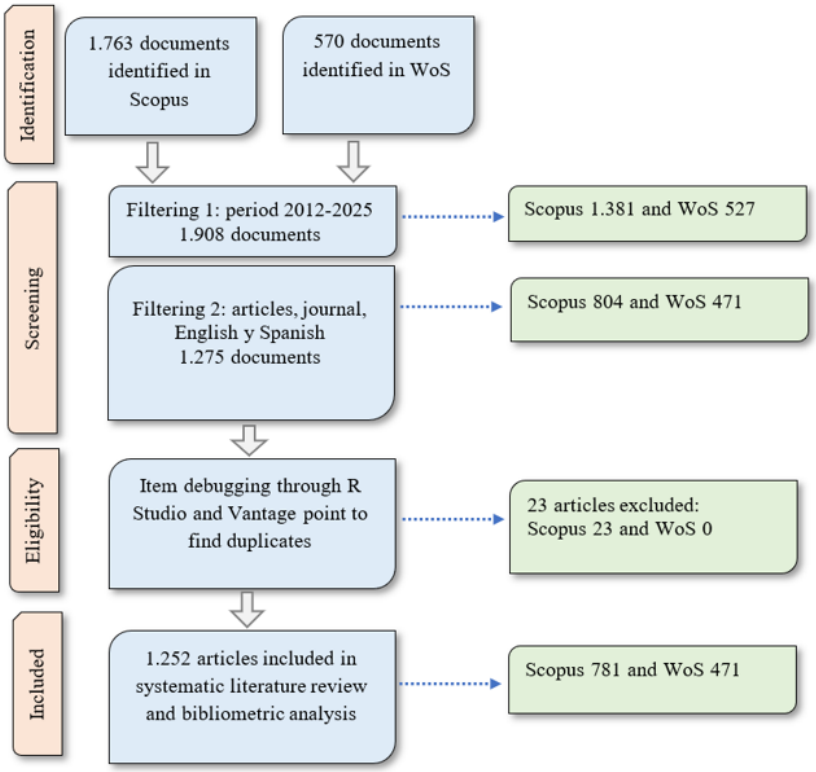


Figure 2. Phases of Bibliographic Tracking. Source: Own Elaboration

Step 4. Conduct of Review and Eligibility

To ensure rigorous purification and selection of articles for both the bibliometric analysis and the Systematic Literature Review, bibliographic data were exported in CSV, BibTeX, plain text, and RIS formats. The resulting datasets were processed using Vantage Point, R Studio, and the Mendeley reference manager (Table 2), where records were consolidated and refined. During this process, 23 duplicate records were identified and removed, yielding a final corpus of 1,252 articles as the primary input for the bibliometric analysis. The methodological phases of the review are summarized in Figure 2.

Step 5. Bibliometric Analysis

To examine scientific production by country, research area, keywords, and co-authorship networks, a rigorous scientometric analysis (bibliometrics) was conducted. This quantitative approach analyses bibliographic data on a specific topic (Aria & Cuccurullo, 2017; Ramos Meza, 2021). The analysis leveraged several tools, including Bibliometrix for in-depth analysis of scientific output, Vantage Point for mapping national research contributions and their connections to key terms, and Excel for data mining. Mendeley was used to streamline reference management and ensure compliance with APA standards.

Table 2. Tools for Bibliometric Analysis

Software	Use	Results	F/T*
BIBLIOMETRIX	Provides core collection metrics and author collaboration measures.	Main Information	3
	Analyses scientific production over time and calculates growth rate.	Annual Scientific Production	4
	Computes h-index, g-index, m-index, P (number of publications), PY_Start, TC (total citations), NP (number of products).	Most Influential Authors in Accreditation in HEIs 2012-2025	3*
	Describes authors' publication frequency in a given field.	Author Productivity According to Lotka's Law.	5
	Identifies the top 20 journals by h-index, g-index, m-index, TC, NP, and PY_Start.	Most Relevant Sources	4*
	Measures the number of citations a document has received from all documents in the database; reports Q-quartile, DB (database), h-index, and TC.	Most Cited Documents Worldwide	5*
	Maps relationships among concepts or terms using factorial analysis (data reduction techniques) to identify subfields.	Correspondence Analysis and Clustering Map of words	7
	Highlights topic trends, showing convergence or divergence of themes over time.	Thematic Evolution Network Visualization	8
	Applies clustering algorithms to keyword co-occurrence networks to reveal distinct thematic clusters.	Thematic Map.	9
vantage point	Analyses geographical distribution and research leadership by country.	Scientific Production by Country	6
	Performs multidimensional analyses to provide deeper insights into research trends, often visualized as bubble charts.	Bubbles chart.	10
X	Performs data mining, cleans and reviews datasets, and identifies duplicates.	Data cleaning and deduplication	NA
MENDELEY	Manages references and resolves citation formatting issues.	Ensures compliance with APA 7th edition and organizes references	NA

Note: F: Figure, T*: Table. NA: Not Applicable. Software: Biblioshiny in R, Vantage Point, Excel®, and Mendeley. *Source: Own Elaboration.*

Findings

To facilitate comprehension of the bibliometric analysis, the results are organized into seven sequential stages: (1) General Information; (2) Trend of Scientific Production; (3) Scientific Production by Authors and Institutional Cooperation Networks; (4) Scientific Production by Country and Collaboration Networks; Journal Publication Analysis; (5) Evaluation of Scientific Sources; (6) Conceptual Structure; and (7) Thematic Evolution: Topic Evolution (2012-2021

to 2022-2025), these stages offer a descriptive account of the principal thematic clusters identified and their respective scholarly contributions.

General Information

The quantitative characterization of the 2012–2025 corpus reveals an average annual growth rate of 4.22%.

Figure 3. Main Information. Source: Taken from Biblioshiny in R

A total of 1,252 articles were published across 663 distinct outlets by 3,798 authors, yielding an average output of 4.81 articles per author per year and 9.15 citations per document. International co-authorships accounted for 8.71% of all publications, corresponding to an average of 3.26 authors per article (Figure 3).

Trend of Scientific Production

Figure 4 illustrates an exponential growth pattern of scientific production, conforming to an S-curve lifecycle model commonly used to chart the historical progression of research domains (Rezaeian et al., 2017). Between 2012 and 2017, fewer than 60 articles were published on higher education accreditation, marking the Initial Phase. From 2018 onwards, production increased sharply, peaking at 174 articles in 2024, an 84% rise. As of May 2025, 65 articles have already been recorded, surpassing the output of the Initial Phase (IP). The Growth Phase (GP), from 2017 to 2020, saw renewed scholarly interest and a more practice-oriented approach to quality, influenced by increased public and governmental scrutiny. During the Maturation Phase (MP), from 2020 onwards, the introduction of novel evaluation models to accommodate ICT-mediated learning further stimulated the development of innovative quality assessment processes in higher education. The sustained upward trajectory, with 174 articles in 2024 and 65 for the first five months of 2025, indicates that this research area continues to garner significant academic attention and remains a fertile domain for future investigation.

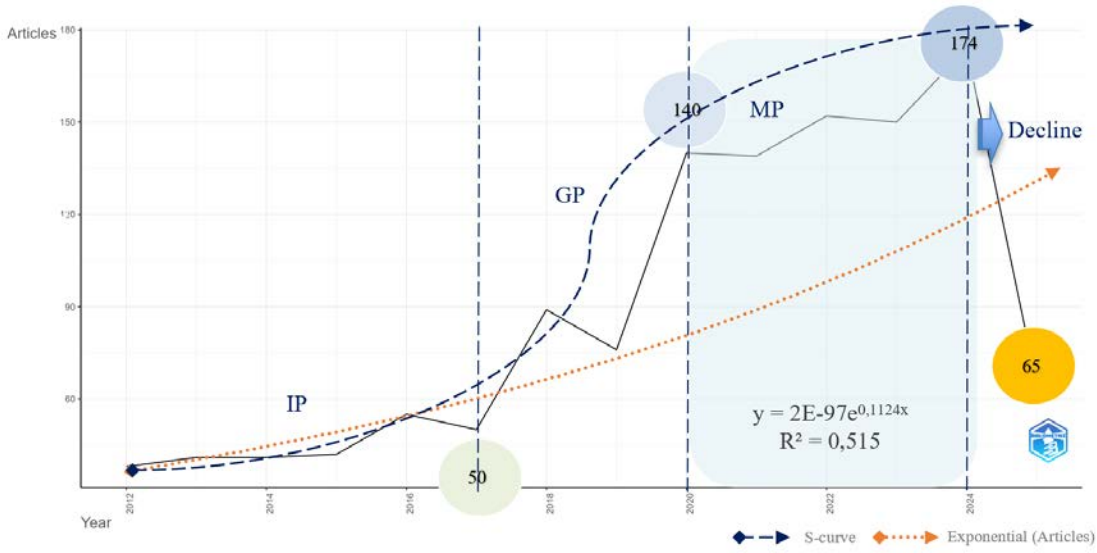


Figure 4. Annual Scientific Production. Source: Adapted From Biblioshiny in R

Scientific Production by Authors and Institutional Cooperation Networks

Table 3 presents the most prolific authors in the field of accreditation in higher education institutions. Leading the list is Angela Yung Chi Hou of National Chengchi University, Taiwan, who accounts for 16.14% of total citations. She is followed by Liliana Pedraja-Rejas of the University of Tarapacá, Chile (10%), Emilio Rodríguez Ponce, also of the University of

Tarapacá, Chile (7%), Sonia Cardoso of Lusófona Univeristy, Portugal (7%), Alberto Amarante of the University of Porto, Portugal (4.84%), and Gerardo Luú Blanco of Boston College, United States (4.22%).

Table 3. Most Influential Authors in Accreditation in HEIs 2012-2025

Authors	Affiliation - Country of Author	H	G	M	TC	NP	P
Angela Yung-Chi Hou	National Chengchi University, Taiwan	7	11	0.583	180	11	2012
Emilio Rodriguez Ponce	University of Tarapacá, Chile	5	7	0.417	78	7	2012
Alberto Amaral	University of Porto, Portugal	4	4	0.4	54	4	2014
Gerardo Luú Blanco	Boston College, United States	4	4	0.4	47	4	2014
Sonia Cardoso	Lusophone University, Portugal	4	5	0.364	78	5	2013
Karen Hui-Jung Chen	National Taipei University of Education, Taiwan.	4	4	0.4	42	4	2014
Christopher Hill	British University in Dubai, United Arab Emirates.	4	5	0.667	33	5	2018
Lilianga Pedraja Rejas	University of Tarapacá, Chile.	4	8	0.333	75	9	2012
Maria Joao Rosa	University of Aveiro, Portugal.	4	5	0.364	77	5	2013
Inês Hexssel Grochau	Federal University of Rio Grande do Sul, Brazil	3	4	0.429	30	4	2017
Chokri Kooli	University of Ottawa, Canada.	3	3	0.6	54	3	2019
Daniel A. Lopez	University of Los Lagos, Chile.	3	3	0.333	39	3	2015
Robert Morse	US News and World Report, United States	3	3	0.273	76	3	2013
Cuong Huu Nguyen	Van Lang University, Vietnam. Information	3	3	0.429	66	3	2017
Claudia S. Sarrico	Higher Education Policy Research Center, Portugal.	3	3	0.333	27	3	2015
Cristina Sin	Lusophone University, Portugal.	3	3	0.375	50	3	2016
Orlando Tavares	CIPES (Center for Higher Education Policy Research), Portugal	3	3	0.375	50	3	2016
Carla Schwengber Ten Caten	Federal University of Rio Grande do Sul, Brazil	3	3	0.429	27	3	2017
Abdullah M. Almuhaideb	Imam Abdulrahman Bin Faisal University, Saudi Arabia	2	2	0.5	15	2	2020

Note: H: H_Index; G: G_Index; M: M_Index; P: PY_Start; TC: Total Citations; NP: Number of Products. Source: Own Elaboration Based on Biblioshiny Information

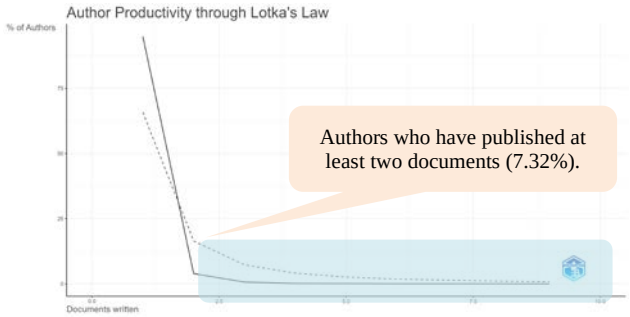
Authors in this field share the view that accreditation and quality-assurance systems are crucial for internal enhancement, external accountability, and strategic governance. These systems are influenced by government policies, rankings, organizational culture, pedagogical methodologies, and internal stakeholders. Accordingly, three main perspectives can be identified in the literature:

1. Accreditation and Quality as Policy Instruments: This perspective frames accreditation and quality as tools for strategic governance and policy implementation. Authors such as Emilio Rodríguez Ponce and Liliana Pedraja-Rejas analyze how accreditation and strategic management influence institutional quality and competitiveness, as well as student satisfaction, within a national context (e.g., Chile). Gerardo Luú Blanco and Cuong Huu Nguyen view accreditation as an evaluative system, advocating for a shift from administrative accountability to social responsibility by tracing the evolution of assessment policies in China. Angela Yung-Chi Hou and Karen Hui-Jung Chen investigate how national accreditation policies and global rankings drive strategic development in Taiwanese higher education, focusing on institutional autonomy and graduate employability. This perspective also includes contributions from Robert Morse, who provides insights on university ranking systems as key quality evaluation tools, a theme echoed by Hou and Chen.

2. Internal-Actor Perspectives and Process-Oriented Approaches: This approach focuses on the internal dynamics and stakeholder perceptions of quality assurance. Sonia Cardoso and Maria João Rosa use a bottom-up methodology to explore faculty perceptions and attitudes toward accreditation. Alberto Amarante, Chokri Kooli, Daniel A. López, and Christopher Hill examine the relationship between accreditation and internal institutional processes. Their work examines how international program accreditation affects teaching and learning quality, while also assessing the associated risks and benefits within the Arab context.

3. Analyses of Quality and Social Relevance: This perspective links quality assurance with broader societal and managerial concerns. Claudia S. Sarrico and Cristina Sin analyse how performance indicators, particularly student evaluations, have become accountability mechanisms shaped by accreditation procedures, and how

these systems address issues of equity and social relevance. Carla Schwengber Ten Caten and Inês Hexssel Grochau assess managerial quality by evaluating teacher-manager competencies and challenges, highlighting the critical need for strengthened interpersonal skills and effective quality management.



No. of Items	No. of Authors	%
1	3604	94.9%
2	150	3.9%
3	26	0.7%
4	8	0.2%
5	5	0.1%
6	2	0.1%
8	2	0.1%
9	1	0.0%

Figure 5. Author Productivity According to Lotka's Law. Source: Own Elaboration Based on Biblioshiny Data in R

Of the 1,252 documents, Figure 5 applies Lotka's Law to author productivity, revealing that 3,604 authors (94.9%) contributed a single publication to the field. An additional 150 authors produced two papers, 26 authors produced three, and a small cohort authored between four and nine articles, representing the most prolific subset within the study population. This distribution underscores a pronounced publication inequality, with only a limited group of scholars driving the core research on accreditation in higher education.

Scientific Production by Country and Collaboration Networks

Figure 6 maps the geographic distribution of the 1,252 publications, with deeper red hues indicating greater research leadership as measured by output volume. The top five contributing countries are the United States (157 publications), Spain (94), the United Kingdom (82), Chile (67), and a tie between Australia and India (59 each), followed by Colombia (53). Collaboration clusters reveal that the United States leads international co-authorship, particularly with Taiwan, the United Arab Emirates, Mexico, Chile, the United Kingdom, Malaysia, South Korea, Colombia, Germany, and Canada, underscoring its central role in global research networks.

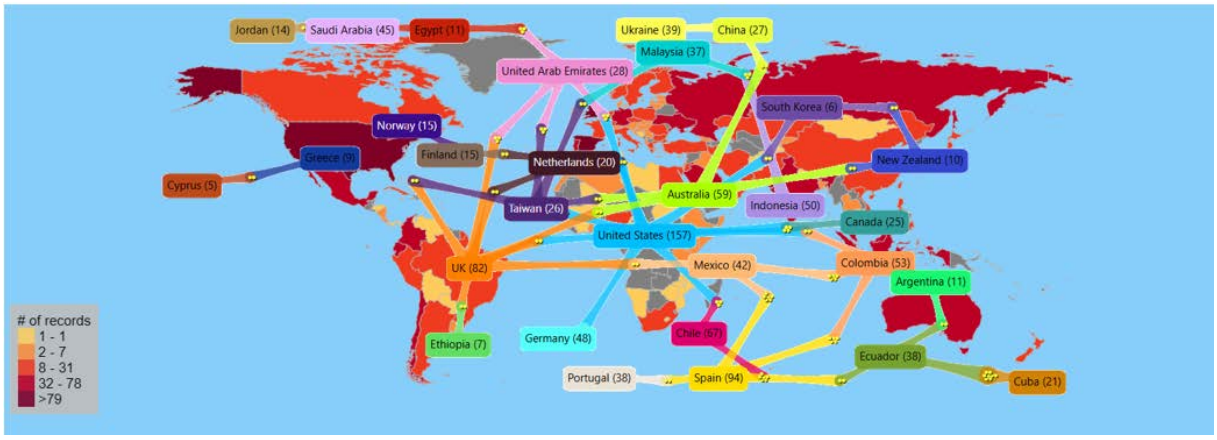


Figure 6. Scientific Production by Country. Source: Own Elaboration Based on Vantage Point

Journal Publication Analysis

Table 4 ranks the top 20 journals by h-index, g-index, m-index, total citations (TC), number of publications (NP), and publication start year (PY start). Leading the list is Quality Assurance in Education, which accounts for 41 articles and 543 citations. Close behind, Quality in Higher Education has published 39 articles and accrued 423 citations. Higher Education appears next with 16 articles and 323 citations, followed by Studies in Higher Education with 23 articles and 297 citations. At the lower end of the spectrum, the European Journal of Higher Education recorded 5 articles and 71 citations.

Table 4. Most Relevant Sources

Item	Journals	H	G	M	TC	NP	PY
1	Quality Assurance in Education	13	22	0,929	543	41	2012
2	Quality in Higher Education	13	18	1,083	423	39	2014
3	Higher Education	11	16	0,786	323	16	2012
4	Studies in Higher Education	9	17	0,75	297	23	2014
5	Higher Education Policy	8	12	0,571	154	17	2012
6	Journal of Clinical Nursing	8	11	0,571	239	11	2012
7	Formación Universitaria	7	11	0,5	141	16	2012
8	Assessment and Evaluation in Higher Education	6	7	0,545	112	7	2015
9	International Journal of Educational Management	6	9	0,6	117	9	2016
10	Sustainability (Switzerland)	6	9	0,857	140	9	2019
11	International Journal of Emerging Technologies in Learning	5	7	0,357	58	7	2012
12	Revista Venezolana de Gerencia	5	5	0,625	45	5	2018
13	Sustainability	5	11	0,833	142	12	2020
14	TQM Journal	5	8	0,357	84	8	2012
15	Accreditation and Quality Assurance	4	4	0,5	45	4	2018
16	Asia Pacific Education Review	4	5	0,286	121	5	2012
17	BMC Medical Education	4	6	0,8	43	6	2021
18	Educación XXI	4	4	0,364	53	4	2015
19	Education Sciences	4	6	0,667	41	11	2020
20	European Journal of Higher Education	4	5	0,5	71	5	2018

Note: H: h-index; G: g-index; M: m-index; TC: Total Citations; NP: Number of Products; PY_start. Source: Adapted from Biblioshiny

The journals mentioned in Table 4 focus on higher education and educational quality, having different areas of focus and areas of study. Some, such as Quality Assurance in Education and Accreditation, focus on quality assessment and accreditation in higher education. Others, such as Higher Education and Studies in Higher Education, focus on academic research in higher education, while Assessment and Evaluation in Higher Education focuses on evaluating the quality of higher education. "University Training" focuses on university education in Latin America, Higher Education Policy on the policies and strategies that shape higher education, Interscience on interdisciplinary issues, and in the case of the International Journal of Educational Management, on the management and administration of education at all levels.

Evaluation of Scientific Sources

The articles in Table 5 converge on the theme of quality in higher education, viewing it through the lens of teaching, governance, and technology. These studies aim to provide practical insights for educators, administrators, and policymakers by proposing theoretical frameworks, such as the EMIS model (Martins et al., 2019) and the Borrego and Henderson change-strategy model (2014). Three predominant thematic patterns emerge from this body of work:

1. Focus on Teaching and Learning Quality: This research examines strategies to improve pedagogical processes. Noroozi et al. (2016) investigate online peer feedback's effect on argumentative essays, while Bao (2020) assesses the quality of remote teaching during the COVID-19 pandemic. Daumiller et al. (2019) explore how instructors' motivational goals influence teaching, and Paquot (2018) analyzes the role of phraseological competence in student writing quality.
2. Technology and Sustainability as Quality Catalysts: This theme links quality improvement to technological integration and sustainable practices. Martins et al. (2019) evaluate how Educational Management Information Systems (EMIS) impact student success. Liesa-Orús et al. (2020) examine faculty perceptions of ICTs in fostering 21st-century skills. Azeiteiro et al. (2015) and Müller-Christ et al. (2014) assess the effectiveness of e-learning and education for sustainable development (ESD). Finally, Kohl et al. (2022) advocate for a whole-institution approach to sustainability, emphasizing the university's role in this area.
3. Governance, Management, and Accountability Analysis: This cluster addresses quality from the perspective of institutional governance and policy. Ntim et al. (2017) analyze governance and transparency in UK higher education, noting a lack of voluntary disclosure of teaching and research outcomes. Alajoutsijärvi et al. (2018) focus on the role of governance frameworks in driving educational change. Zapp and Ramirez (2019) discuss how a "global education regime" influences national policies. Lastly, Blanco-Ramírez and Berger (2014) explore how accreditation agencies promote the professionalization of university management.

Table 5. Most Cited Documents Worldwide

No	Reference	DOI	Q	DB	IH	Country	TC
1	Bao (2020)	10.1002/hbe2.191	Q1	S	40	USA	996
2	Borrego and Henderson (2014)	10.1002/jee.20040	Q1	S	119	USA	143
3	Brahimi and Sarirete (2015)	10.1016/j.chb.2015.03.013	Q1	S	226	United Kingdom	131
4	Azeiteiro et al. (2015)	10.1016/j.jclepro.2014.11.056	Q1	S	232	Netherlands	146
5	Ntim et al. (2017)	10.1108/AAAJ-10-2014-1842	Q1	S	10	United Kingdom	143
6	Daniel et al. (2015)	10.7238/rusc.v12i1.2475	Q1	W	6.6	Spain	95
7	Noroozi et al. (2016)	10.1016/j.iheduc.2016.05.002	Q1	S	124	United Kingdom	114
8	Müller-Christ et al. (2014)	10.1016/j.jclepro.2013.02.029	Q1	S	354	United Kingdom	106
9	Collins and Park (2016)	10.1007/s10734-015-9941-3	Q1	S	118	Netherlands	70
10	Daumiller et al. (2019)	10.1037/edu0000271	Q1	S	264	United States	85
11	Martins et al. (2019)	10.1016/j.tele.2018.10.001	Q1	S	120	United Kingdom	79
12	Blanco-Ramírez and Berger (2014)	10.1108/QAE-07-2013-0031	Q2	S	56	United Kingdom	72
13	Kumar et al., (2020)	https://doi.org/10.1016/j.jesp.2020.103971	Q1	S	180	United States	78
14	Denovan and Macaskill (2013)	10.1002/berj.3019	Q1	S	107	United Kingdom	74
15	Zapp and Ramirez (2019)	10.1080/03050068.2019.1638103	Q1	S	72	United Kingdom	73
16	Ibrahim et al. (2019)	10.1109/ACCESS.2018.2889635	Q1	S	290	United States	71
17	Alajoutsijärvi et al. (2018)	10.5465/amle.2015.0199	Q1	S	100	United States	71
18	Kohl et al. (2022)	10.1108/IJSHE-10-2020-0398	Q1	S	85	United States	67
19	Liesa-Orús et al. (2020)	10.3390/su12135339	Q1	S	207	Switzerland	67
20	Paquot (2018)	10.1080/15434303.2017.1405421	Q1	S	39	United States	60

Note: Q: Quartile; DB: Database; H: h-index; TC: Total Citations. Source: Own Elaboration Based on Biblioshiny Information

Conceptual Structure

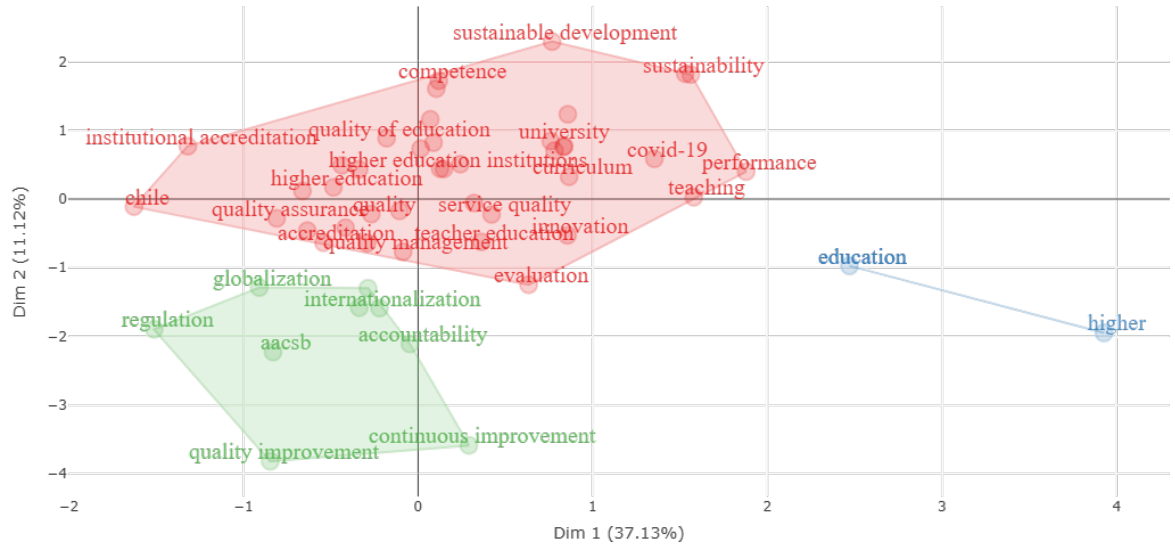


Figure 7. Correspondence Analysis and Clustering Map of words. Source: Own Elaboration Based on VOSviewer

Figure 7 was generated using Multiple Correspondence Analysis (MCA) on the keyword field ("DE") to visualize term co-occurrence patterns in the merged WoS™ and Scopus® dataset. Keywords positioned closer together are more likely to appear in the same documents, and clusters were identified via k-means. The first two dimensions account for 37.13% (Dim 1) and 11.12% (Dim 2) of variance, with Dim 1 capturing a more dominant thematic axis. Three distinct clusters emerge:

- Red Cluster (Pedagogy, Technology, and Student Experience): Situated in the upper region, this cluster centers on systemic and evolving aspects of *quality, accreditation, and contemporary challenges in higher education*. Prominent terms include "Sustainable development," "Sustainability," "Competence," "Quality of education," "Quality Assurance," "Service Quality," "Higher Education Institutions," "Accreditation," "Institutional Accreditation," "Curriculum," "Teacher Education," "Teaching," "Innovation," "COVID-19," "Performance," "Evaluation," "Quality Management," and "Chile." High Dim 1 loadings for "students," "teaching," and "learning" confirm a classroom-level focus. The presence of "COVID-19" underscores the pandemic's impact on virtual instruction. Key representative studies are Bao (2020) on Peking University's online teaching strategies during the pandemic; Noroozi et al. (2016) on online peer feedback and argumentative essay quality; Daumiller et al. (2019) on instructors' motivational goals and perceived teaching quality; and Azeiteiro et al. (2015) on e-learning for sustainable development.
- Green Cluster (Governance, Accreditation, and Regulation): Located in the lower-left quadrant, this cluster addresses external, policy-driven dimensions of quality and accreditation. Key terms include "Globalization," "Internationalization," "Regulation," "Accountability," "AACSB," "Quality Improvement," and "Continuous Improvement." Representative works include Zapp and Ramirez (2019) on how internationalization and global education regimes shape accreditation; Blanco-Ramírez and Berger (2014) on accreditation's role in professionalizing university management; and Ntim et al. (2017) on governance structures and voluntary transparency in UK higher education accountability.
- Blue Cluster (Sustainable Development Education and Institutional Change): Consisting primarily of *"Education"* and *"Higher"*, this isolated cluster reflects the foundational context of higher-level education. Its relative distance from the centroid indicates fewer co-occurrences with other terms. Central documents include Borrego and Henderson (2014) on change strategies for STEM education, Kohl et al. (2022) on a whole-institution approach to sustainability, and Müller-Christ et al. (2014) on the university's contributions to sustainable development across campus, curriculum, and community.

Thematic Evolution: Topic Evolution (2012-2021 to 2022-2025)

Figure 8 contrasts author-supplied keywords from the periods 2012–2021 and 2022–2025, highlighting shifts in research priorities as identified by authors themselves. New and ascending topics in 2022–2025 include:

- Competency, reflecting a heightened emphasis on skills-based education and workforce readiness.
- E-learning, whose prominence has accelerated in response to the COVID-19 pandemic's impact on digital instruction.
- Employability and Engineering Education, indicating growing concern for practical graduate outcomes and discipline-specific training needs in engineering.
- Machine Learning, emerging as a focal point for educational data mining, adaptive learning systems, and strategic institutional analytics.
- Sustainability, underscoring an increased integration of environmental and social responsibility principles within higher education curricula and governance.

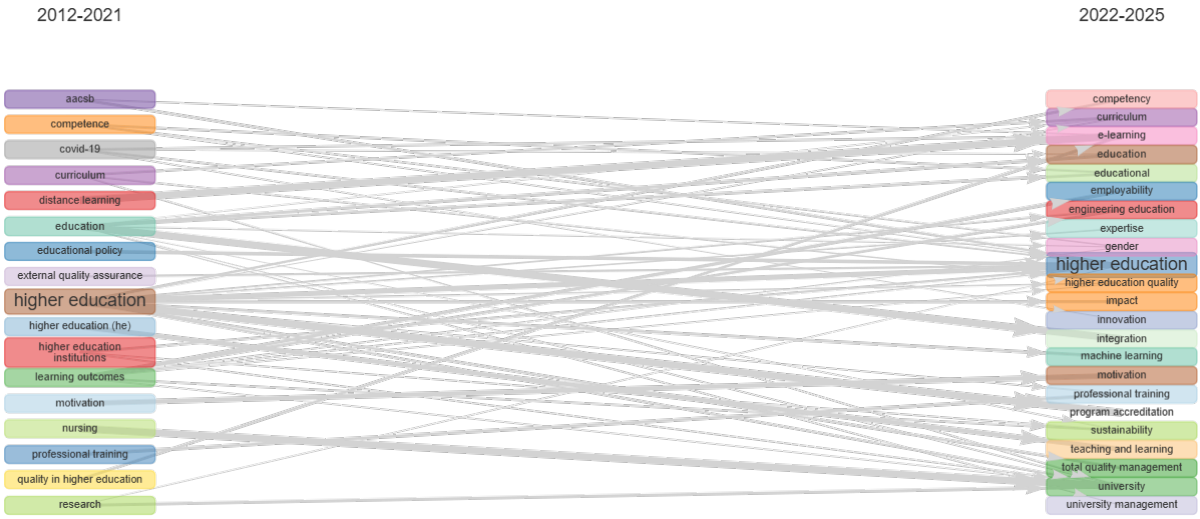


Figure 8. Thematic Evolution Network Visualization. Source: Own Elaboration Based on Biblioshiny in R

Stable Topics: Some topics appear in both periods. This suggests these are core themes that remain consistently relevant.

- Higher Education: Continues as a central theme across both periods.
- Education: Remains a foundational umbrella concept.
- Curriculum: Sustains focus on program design and pedagogical frameworks.
- Professional Training: Ongoing interest in developing workforce-ready graduates.
- University Management: Reflects enduring challenges and strategies in institutional governance and leadership.

Declining or Changing Topics: Topics that appeared in the 2012–2021 period but are absent or less connected in 2022–2025 may be losing standalone relevance or have been incorporated into broader thematic areas. Although this visualization does not allow us to definitively label any topic as "declining," the attenuation of co-occurrence links suggests a relative decrease in emphasis. For example, "motivation" and "quality in higher education" exhibit noticeably fewer connections, indicating either a reduction in direct focus or a transition of these topics into more specialized research streams.

Thematic Map

The Thematic Map (Figure 9) visually represents relationships among research themes based on keyword co-occurrence. It is divided into four quadrants defined by two dimensions: centrality (degree of relevance), which measures how strongly a theme connects to others—high centrality indicates a foundational research area—and density (degree of development), which gauges thematic maturity—high density denotes an established, well-researched topic. The quadrants classify themes as Motor (upper right), which are both central and developed; Basic (lower right), central but underdeveloped; Niche (upper left), well developed but peripheral; and Emerging or Declining (lower left), low in both centrality and density.

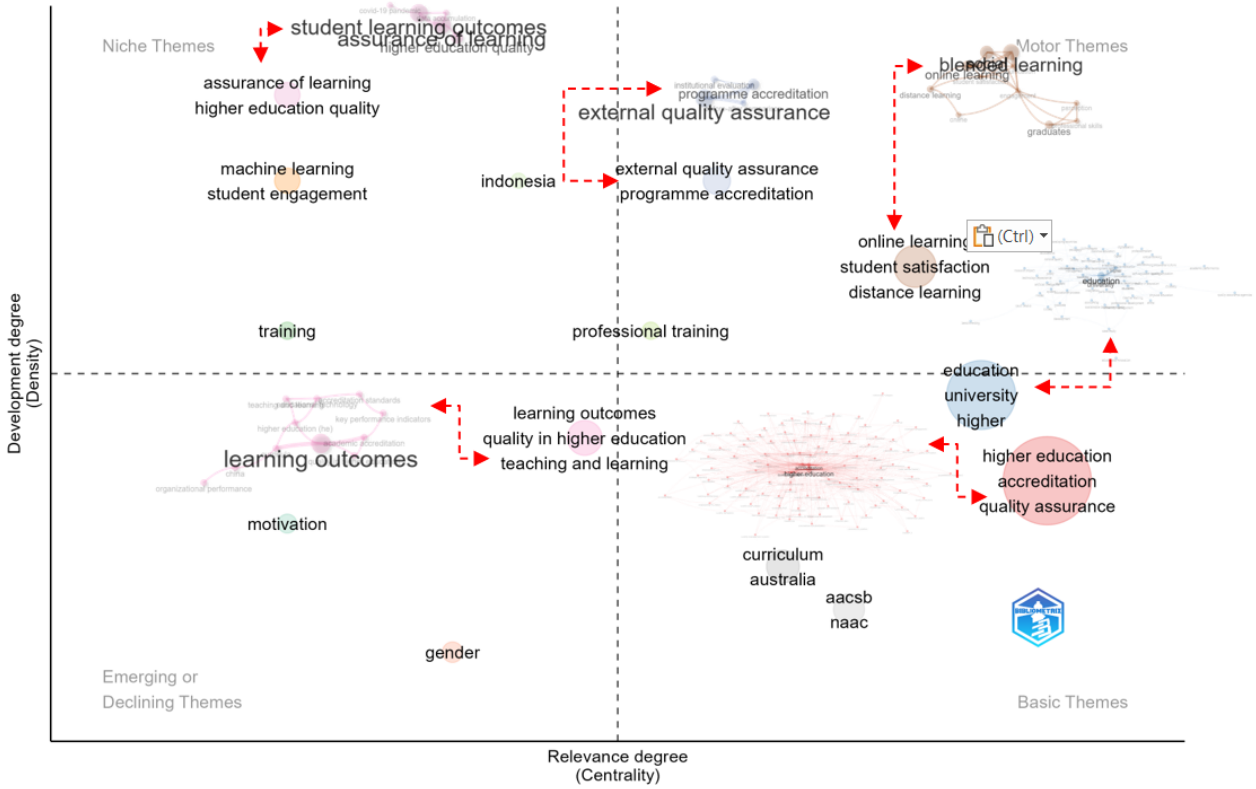


Figure 9. Thematic Map. Source: Own Elaboration Based on Biblioshiny in R

Motor Themes (Upper Right): These themes, characterized by high centrality and density, represent core, well-developed topics that drive the field. The Red Cluster (Higher Education / Accreditation / Quality Assurance) focuses on policies, quality, and the development of HEIs. Its key influential articles include: Jerez et al. (2018), who found that the first-year drop-out rate is a significant predictor of undergraduate program accreditation; De Paor (2016), who examines how professional accreditation complements other quality assurance efforts; and Blanco-Ramírez and Berger (2014). The Blue Cluster (Education / University / Higher) expands this focus to the broader structure and evolution of universities. Its central papers are from Carvajal and Cueto (2022), who detail criteria and standards for university accreditation; Assylbekova and Kalanova (2015), who highlight students' difficulties with a lack of guidance during accreditation; and Kindrya et al. (2019), who advocate for independent assessment institutions and international cooperation to maintain quality. The Orange Cluster (Online Learning / Student Satisfaction / Distance Learning) is driven by studies on digital

pedagogy. Key articles include Ragusa (2025), who supports the importance of socially constructed interactions for student satisfaction in a competitive landscape; Simonova I (2018); and Kocsis and Pusztai (2025).

Basic Themes (Lower Right): With high centrality but low density, these areas are foundational and ripe for further development. The Grey Cluster (Curriculum / Australia / AACSB / NAAC) centers on curriculum and specific accreditation contexts. Its central articles are from Bagga T (2017), who focused on stakeholders' awareness of accreditation; Reddy et al. (2023), who highlighted accreditation's role in enhancing standardization; and Hemmati Noedoust Gilani et al. (2013), who found significant differences in professional knowledge between regional and state universities.

Niche Themes (Upper Left): These are well-developed but peripheral topics, marked by low centrality and high density. The Pink Cluster (Assurance of Learning / Higher Education Quality) is exemplified by Javid and Rossman (2018), who found mixed faculty impressions on quality assurance implementation; Almuhaideb and Saeed (2021), whose work assists cybersecurity programs with ABET accreditation; and Lawson et al. (2015), who identified external drivers as primary reasons for undertaking Assurance of Learning (AOL) outcomes. The Orange Cluster (Machine Learning / Student Engagement) features articles like Fontalvo et al. (2022), who propose a structure for integrating academic activities with learning outcomes; Samin and Azim (2019), who propose a machine learning system for academic resource allocation; and Rybinski (2020), whose methodology can identify inconsistencies in accreditation agency approaches. The Green Cluster (Training) is led by Barraclough et al. (2024), who provide a global consensus on competencies for workforce training; Xavier et al. (2025), whose results show AI-driven feedback improves instructors' efficiency; and Raffaa et al. (2024), who identify effective management strategies like incorporating students' mother tongue. The Light Blue Cluster (External Quality Assurance / Programme Accreditation) is anchored by Mokhtar et al. (2022), who provide insight into Academic Quality Assurance (AQA) through Unified Modelling Language (UML) notation; Bàguena et al. (2023), who found few differences between program and institutional accreditation; and Bejan et al. (2018), whose impact evaluation revealed stable positive attitudes among stakeholders. The Green Cluster (Indonesia) highlights regional inquiry with Yunita et al. (2022), who built a big data ecosystem for higher education in Indonesia; Ma'wa and Setiawan (2024), who showed that complexity and internationalization affect Intellectual Capital Disclosure (ICD); and Sukardi et al. (2022), whose results indicate improper implementation of experiential learning in Indonesian universities.

Emerging or Declining Themes (Lower Left): These themes exhibit low centrality and density, indicating peripheral topics that may be emerging or declining. The Light Green Cluster (Motivation) is either nascent or losing prominence, with key articles from Velychko et al. (2020), who offer models for integrating program guarantors; Iqbal et al. (2023), who examine the effects of accreditation on motivation; and Daumiller et al. (2019). The Pink Cluster (Gender) similarly reflects under-connected gender studies. Key works include Wallace and Panteli (2018), who discuss the role of relevance in eLearning; Molla (2013), who found that gender inequality is often equated with enrolment disparity; and Verge (2021), who discusses feminist strategic alliances and their potential for policy change.

Figure 10 presents a bubble chart comparing each country's research output and its co-occurrence with principal keywords, where bubble size corresponds to keyword frequency. Spain leads contributions to the Red Cluster and Motor Themes for the term "Higher Education" (52 occurrences), followed by the United States (47), Chile (35), Colombia (25), the United Kingdom (22), Australia (21), and India (18). For "Accreditation" and "Quality Assurance," the United States dominates with 56 and 19 co-occurrences, respectively, trailed by Chile (20), India (17), and Colombia (16). Regarding "Quality" and "University," Chile (13) and Spain (7) are most prominent.

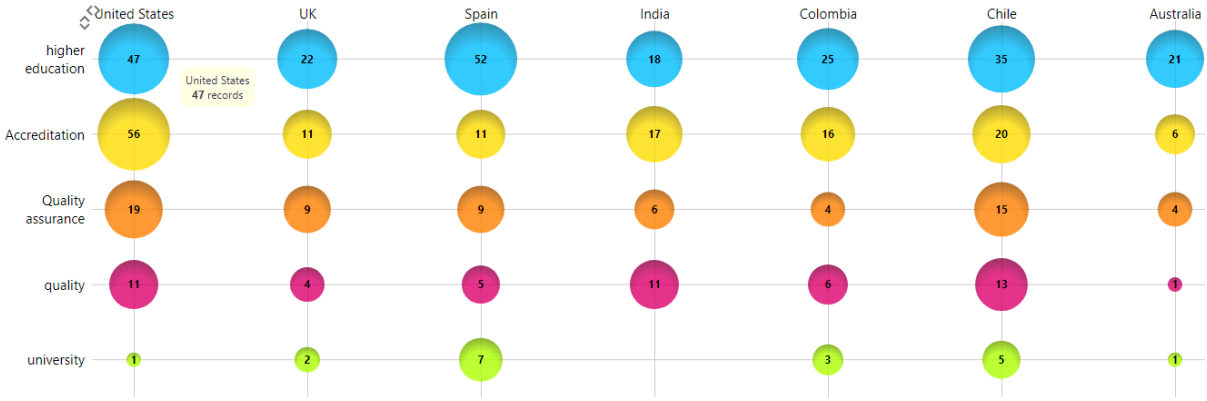


Figure 10. Bubbles chart. Source: own elaboration based on Vantage Point

Conclusion

The resurgence of scholarly interest in accreditation and quality assurance in higher education institutions (HEIs) since 2016 aligns with global policy imperatives such as the Paris Agreement and Sustainable Development Goal 4, as well as

the Organisation for Economic Co-operation and Development (OECD) commitments to the 2030 Agenda. This policy backdrop aligns with Rodriguez-Ponce et al. (2020), who frame quality and competitiveness as "strategic capitals" in Chile, and with Hou et al. (2018), who examine how national accreditation policies and global rankings influence strategic institutional development and graduate employability in Taiwan. The bibliometric findings confirm these theoretical perspectives: the Red Cluster's Motor Themes underscore the centrality of accreditation and quality assurance (Figure 9), and the S-curve trend reflects the field's exponential growth, particularly during the maturity stage (2020–2024) when ICT-mediated learning and new evaluation models emerged (Bao, 2020; Daumiller et al., 2019).

Internal-actor perspectives, as advanced by Cardoso et al. (2013), find empirical support in Lotka's Law distribution (Figure 5), which reveals that a small group of prolific authors drives core contributions, suggesting the value of bottom-up insights into faculty attitudes and motivations. Simultaneously, governance-oriented theories from Nguyen (2021) on accountability systems, and from Sarrico (2022) on performance indicators and social relevance, are echoed in the Green Cluster's Basic Themes and the declining links for "quality in higher education," indicating these foundational topics warrant deeper development. The emergence of niche themes—such as machine learning applied to student engagement—validates Borrego and Henderson's (2014) change-strategy model, pointing to the rapid integration of technology in pedagogical innovation.

Finally, the COVID-19 pandemic's catalytic role, highlighted by Hou et al. (2022), is mirrored in the Orange Cluster of Motor Themes (Online Learning / Student Satisfaction), demonstrating how remote accreditation processes and e-learning quality became indispensable during crisis conditions. These convergences between theoretical frameworks and bibliometric results underscore the dynamic interplay of policy drivers, institutional practices, and emergent technologies in shaping the accreditation research agenda.

This bibliometric study confirms a marked increase in accreditation literature since 2016, driven by global policy commitments, intensified multi-stakeholder agreements, and the proliferation of accreditation bodies. Thematic mapping and evolution analyses identify accreditation and quality assurance as enduring Motor Themes, while governance, curriculum development, and performance indicators remain foundational yet underdeveloped Basic Themes requiring further research. The identification of emerging topics—competency, e-learning, employability, machine learning, and sustainability—highlights a disciplinary shift toward skills-based education, digital pedagogy, and social responsibility.

Author productivity is highly unequal, with over 94 percent of contributors authoring a single paper (Figure 5), which underscores the need to broaden scholarly participation. The S-curve model indicates ongoing growth with no decline anticipated, reaching its peak output of 174 articles in 2024 and already 65 articles by May 2025. This sustained trajectory confirms accreditation's evolution from a procedural requirement to a strategic lever for institutional improvement and transformational leadership.

The COVID-19 pandemic served as a pivotal inflection point, accelerating research on remote accreditation and online quality assurance and embedding these topics within the core research agenda. The United States, Spain, the United Kingdom, Chile, and Colombia emerge as leading contributors, reflecting varied regional policy contexts and the global diffusion of accreditation standards.

Recommendations

To advance theoretical and empirical insights into accreditation in HEIs, future research should target the following areas and research questions:

1. International Accreditation Dynamics: Investigate cross-border accreditation processes, including the role of global ranking bodies and transnational accreditation consortia.
2. Business School Accreditation (AACSB, NAAC): Examine how discipline-specific accreditation standards affect curriculum design, faculty development, and program outcomes.
3. Accreditation's Pedagogical Impact: Analyse how accreditation frameworks shape teaching effectiveness, learning outcomes, and student engagement, with particular attention to machine learning applications.
4. Institutional Leadership and Management: Explore governance structures and transformational leadership practices that facilitate effective accreditation implementation and continuous improvement.

Proposed research questions:

- How is machine learning being leveraged to enhance student engagement in higher education, and what measurable outcomes result from its application?
- What challenges and opportunities arise in curriculum development under AACSB or NAAC accreditation frameworks, and how do they affect program quality?
- Which factors most significantly influence student motivation in online learning environments, and what institutional strategies can effectively address these factors?

- In what ways does gender equality shape accreditation policy and higher education access, and what are its broader impacts on equity?
- How do external quality assurance mechanisms impact institutional performance, and which best practices optimize their effectiveness?

Addressing these questions and fostering cross-national collaboration among researchers and institutions will enrich the literature and inform holistic, evidence-based accreditation models that drive continuous improvement and transformational leadership in higher education.

Generative AI Statement

The authors have not used generative AI or AI-supported technologies. We, as the author(s), take full responsibility for the content of our published work.

Authorship Contribution Statement

Puerta-Guardo: Conceptualization, design, analysis, writing, editing/reviewing, supervision. Cantillo-Orozco: concept and design, data acquisition, data analysis/interpretation, drafting manuscript. Castillo-Loaiza: critical revision of manuscript, statistical analysis, securing funding, admin, technical or material support, supervision, final approval. Narváez Grisales: concept and design, data acquisition, data analysis/interpretation. Molina Guerrero: critical revision of manuscript, technical or material support, supervision, and final approval.

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