

Research in higher education quality assurance worldwide (2003–2023): a bibliometric analysis from the Scopus database

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ABSTRACT

Quality assurance in higher education is vital for the development of educational systems, improving teaching and research capacity, and enhancing global institutional reputation and competitiveness. This study assesses the state of research on quality assurance in higher education across countries, identifies leading nations, examines international cooperation networks and highlights the achievements and emerging trends in quality assurance in higher education. Using bibliometric analysis with Biblioshiny and VOSviewer, we analyze a dataset comprising 675 published works on quality assurance in higher education from the Scopus database (2003 - 2023). Findings reveal 1537 authors and 23,540 citations in total, with averages of 14.75 citations and 2.49 coauthors per document. The UK, USA, Australia, Germany and South Africa are the most influential countries. Leading contributing organizations include the University of Hong Kong, Imam Abdulrahman Bin Faisal University, Universitas Jambi and the University of Kassel. Key journals are *Quality in Higher Education* (78 articles) and *Quality Assurance in Education* (67 articles). Emerging trends are sustainable development in education and educational policies assurance. New findings provide a comprehensive overview of global higher education quality assurance, offering insights for scientists, universities and countries to identify new directions, foster collaboration and promote research in this area.

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Introduction

Higher education is the level of education that provides the necessary workforce for society in all fields of life. It also offers lifelong learning opportunities, enabling individuals to enhance their knowledge and skills over time based on the needs of society. Quality assurance in higher education is a process of activity, detection, control and adjustment in which a university, as an academic institution, ensures that the quality of the educational process is maintained in accordance with the standards the university has set for itself (Wilger, 1997).

The formulation of an accurate definition of quality assurance in higher education has been addressed in numerous studies. However, even with a precise understanding of quality assurance in higher education, assessing the quality of education in universities based on standards and criteria remains a challenging task (Seyfried & Pohlenz, 2018). The concept of quality in higher education can be defined by the relevance (fitness for purpose) of the mission and objectives of universities, in relation to the extent to which the higher education institution/program/course meets its stated mission and objectives. The quality of a higher education institution, program or course is also evaluated by the extent to which it meets the minimum standards set for inputs, processes and outcomes (Bikas & Sanyal, 2007). Quality assurance in higher education can also be understood as the educational activities of a university

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that include academic standards. The assessment of educational quality is based on the achievement levels of university graduates compared to the set objectives and the fulfillment of the university's mission. This focuses on the specific levels of knowledge, skills and abilities that students attain by participating in a particular educational program (Dill et al., 2007).

The global concern of countries about higher education lies in the quality of training provided by higher education institutions. This concern is reflected in many research organizations focused on quality assurance in higher education. The International Network for Quality Assurance Agencies in Higher Education operates as a professional association that supports quality assurance agencies worldwide. The establishment of several quality assurance organizations in various regions highlights the importance of educational quality issues in the labor market. These regional agencies exist in various geographic areas, such as the European Quality Assurance Network, the Arab Network for Quality Assurance in Higher Education and similar regional agencies in Asia, the Caribbean and Africa (Elassy, 2015).

Quality assurance in universities is a top priority that helps universities achieve high standards in university rankings (Odeh et al., 2025). The higher education quality assurance system serves as a framework to maintain and enhance educational standards at universities. Higher education institutions must consistently demonstrate their commitment to educational quality in order to attract students and uphold their reputation in the face of global competition among educational institutions. Additionally, effective quality control contributes to the creation of a skilled and professional workforce that meets the expectations of employers (Kayyali, 2023). Quality assurance is also a driving force for institutions to achieve excellence in higher education. However, ensuring that higher education programs meet both local and international standards simultaneously is a challenge for many countries today. Therefore, collaboration among quality assurance agencies is necessary to exchange knowledge, collaborate on research and share resources, helping universities gradually align with international standards (Javed & Alenezi, 2023). Quality assurance in higher education demonstrates and verifies that the educational outcomes of an institution have been achieved and maintained (Barthakur et al., 2024). Scopus is a database that stores published research works by scientists worldwide, including various types of data such as original articles, books, book chapters from reputable global publishers and conference proceedings indexed in the Scopus directory (Scopus, n.d.). Through bibliometric analysis in the Scopus database, it is possible to extract information regarding the number of published works, collaboration networks and researchers' interests in the same field, as well as emerging research directions and the countries that publish most in the field of interest (Xu & Yu, 2019). Bibliometric analysis also aids in conceptualizing and defining scientific issues that the research needs to address (Chellappandi & Vijayakumar, 2018).

This paper focuses on exploring article data in the Scopus database over the past 20 years (2003–2023) regarding quality assurance in higher education and bibliometric analysis to investigate the following issues:

1. How many articles have been published? How many authors worldwide have shown interest in this research direction? What is the citation rate of these articles, and which countries or universities have published the most on this topic?
2. What are the current research trends in quality assurance in higher education, including concepts, keywords and emerging terms in the field of quality assurance in higher education?
3. How has the issue of quality assurance worldwide attracted the attention of nations and educational organizations in the context of current globalization?

Literature review

Quality assurance in higher education

Quality is the provision of a product or service that is distinctive and provides a unique position for the owner or user. It can be said that the traditional concept of quality aligns with viewing quality as excellence. If quality is considered as excellence, it will be associated with the reputation of the organization,

serving as a measure of excellence and providing advantages for certain forces in society. However, this also creates the disadvantage that ‘elite organizations’ are easily perceived as elitist, evoking images of unfair advantages between institutions. This disadvantage will also affect the pinnacle of rankings among institutions (Elassy, 2015).

The quality of higher education has become a common concern due to the rapid growth, diversification and the failure of higher education systems to keep pace with market demands (Vettori, 2023). The quality of education is affected in developing countries, where resources are scarce and government policies are restrictive in ensuring autonomy for higher education institutions in making decisions regarding academic, administrative and financial matters (Javed & Alenezi, 2023). Improving the quality of education today faces many difficulties, especially challenges in developing countries, where higher education is state-managed and public universities rely solely on budget funding from the government. This situation leads to financial shortages and limitations for these institutions (Mussawy & Rossman, 2021). Quality assurance is a systematic approach aimed at identifying market needs and adjusting operational methods to meet those needs. In higher education, quality assurance is viewed as the totality of mechanisms and processes implemented to ensure predetermined quality or continuous quality improvement—this includes planning, identifying, promoting, assessing and controlling the quality of education (Freeman, 1993).

In the Ontario Quality Assurance Framework, the quality of higher education is considered to be: (a) fit for purpose (mission), (b) meeting set index requirements and (c) value-added. Quality assurance in higher education primarily focuses on maintaining quality through a combination of accreditation, assessment and auditing. There are several approaches to quality assurance, each integrating various combinations of self-assessment, audit or peer review and performance indicators. Quality assurance in higher education involves external quality monitoring through external assessments, enhancing training effectiveness, comprehensive quality management through continuous improvement and stakeholder satisfaction. Additionally, it includes accountability reporting to organizations and society regarding enrollment trends, student performance in entrance exams, graduation rates, employment rates and the satisfaction of students and alumni with the institution and educational programs (Nicholson, 2011). The quality of a university is also considered in terms of teaching and learning quality. For decades, the quality of teaching and learning in universities has become a top strategic priority in the development of these institutions (Seyfried & Pohlenz, 2018).

The emergence of quality assurance in higher education is a global trend and is not limited to the increase of independent external accreditation and assessment agencies (Rifo & Durán, 2023). The importance of higher education institutions in meeting standards and requirements for achieving accreditation has significantly increased in recent years. Accreditation is the process of evaluating educational institutions and programs to ensure that they meet specific standards and requirements set by accrediting agencies. Key performance indicators for accreditation are crucial for higher education institutions to measure and demonstrate their compliance with these standards and requirements, as well as to improve the quality of education they provide (Javed & Alenezi, 2023).

In the past two decades, quality assurance processes in higher education have become increasingly prevalent in Europe, the United Kingdom and Australia and are becoming more significant in Canada and the United States (Skolnik, 2010). In Ontario, external auditing and evaluation of graduate programs have been conducted since 1968, while this activity for undergraduate programs has been in place since 1996. The year 2010 marked the establishment of the Quality Council of Ontario Universities and the proposal of a quality assurance framework, under which the Quality Council is responsible for ensuring: (a) the quality of all graduate degree and certificate programs offered by public universities in Ontario and (b) the integrity of the university’s quality assurance processes (Nicholson, 2011). Quality in higher education is a characteristic celebrated with various meanings and measures. Competition for rankings and students has driven organizations to define and identify quality, particularly in the areas of teaching and learning (Morgan et al., 2022).

Quality assurance in universities includes the following standards: (1) the courses offered meet appropriate academic and professional standards; (2) the objectives of the courses are aligned with the context and mission of the institution; (3) the selected methods and available resources to achieve those objectives are appropriate and sufficient and (4) the institution is continuously striving to improve the

quality of its courses (Wilger, 1997). Quality assurance encompasses both internal and external quality assurance (EQA). Internal quality assurance (IQA) refers to the policies and activities through which educational institutions must self-monitor and improve the quality of their educational offerings, while EQA pertains to the policies and activities of organizations and higher education programs that are ensured according to certain standards (Dill et al., 2007). There are three different approaches to the quality of higher education, which include tangible factors, competencies, attitudes, content, delivery methods and reliability, as illustrated in Table 1. These criteria help identify areas that need attention to ensure quality in higher education, and all six criteria represent six crucial dimensions in the quality assurance process at higher education institutions. If one criterion is missing, it would not be possible to achieve the quality of higher education as promised.

Quality assurance in higher education has been implemented in most higher education systems around the world over the past few decades. EQA and IQA play a crucial role in monitoring, managing and enhancing the quality of academic programs (Pham et al., 2022). Quality assurance-related activities have become deeply ingrained over time, yet this fact seems to be underestimated, along with its impact on quality, regardless of how quality is defined (Seyfried & Pohlenz, 2018).

To ensure the quality of higher education, it is essential to continuously evaluate the quality of educational programs, faculty and staff, and to grant accreditation to ensure compliance with written and approved standards. Accreditation aims to control the quality of educational institutions and verify organizational processes to ensure adherence to minimum standards and indicators within an institution (Abdanipour et al., 2022). Quality assurance is recognized by organizations within the higher education quality assurance system. In addition to national responsibilities, national quality assurance agencies play a key role (Hou et al., 2021). Quality assurance in higher education has been a critical strategic issue worldwide in recent decades. Numerous quality assurance mechanisms, including accreditation, evaluation, audits, peer reviews and benchmarking, have been implemented in many countries (My Nguyen et al., 2021). When developing a quality assurance system, the first step is to define the concept of quality; however, the 'fitness for purpose' approach to quality is accepted by most quality assurance agencies. 'Fitness for purpose' views quality as meeting the requirements, needs or expectations of

Table 1. Quality dimensions in higher education.

Dimensions	Characteristics
Tangibles	- Sufficient equipment/facilities - Modern equipment/facilities - Ease of access - Visually appealing environment - Support services (accommodation, sports, etc.)
Competence	- Sufficient (academic) staff - Theoretical knowledge, qualifications - Practical knowledge - Up to date - Teaching expertise, communication
Attitude	- Understanding students' needs - Willingness to help - Availability for guidance and advice - Giving personal attention - Emotional, courtesy
Content	- Relevance of curriculum to future jobs - Effectiveness - Containing primary knowledge/skills - Completeness, use of computers - Communication skills and team working
Delivery	- Flexibility of knowledge, being cross-disciplinary - Effective presentation - Sequencing, timeliness - Consistency/fairness of examinations - Feedback from students
Reliability	- Encouraging students - Trustworthiness - Giving valid awards - Keeping promises, matching goals - Handling complaints, solving problems

Source: Mishra (2007).

customers. In higher education, ‘fitness for purpose’ is understood as an institution’s ability to fulfill its mission or a program’s ability to achieve its objectives (Kettunen & Kantola, 2011).

Quality assurance has always been an important topic, and higher education institutions have a responsibility to positively impact society through high-quality education, research, innovation, community engagement, outreach programs and community services. Issues related to the quality of an institution include research, teaching, organizational strategy and services (Ellis, 1993). Quality assurance is one of the quality management approaches rooted in mainstream business theory from the 1990s, and it has gradually been applied to the field of higher education in recent years (Ellis, 1993). Based on mainstream theoretical foundations, quality assurance in higher education consists of certain key elements as follows (Hafeez et al., 2022):

- The institution’s IQA system;
- The EQA system, including external evaluations consisting of policies, procedures and evaluation tools and
- A system of external quality assessment organizations.

Bibliometric review of the publications in the database

Data mining in bibliometrics has the potential to provide insights into the development of publications in a given field, helping researchers identify the strengths and weaknesses of institutions and individual authors in citation issues, potential areas of research collaboration and the bibliometric methods that have been used to map the strategic management of publications at both national and international levels (Lewis & Alpi, 2017). This method allows researchers to draw upon the aggregated bibliometric data generated by other scientists working in the field. This data can be synthesized and analyzed to provide insights into the structure, social networks and emerging trends of the research topic (Zupic & Čater, 2015). Bibliometric analysis enables researchers to examine information from databases regarding various types of publications (such as journal articles, books, book chapters and conference proceedings), the language of publication, the content of the publications, authorship, publication models, distribution of subject categories, distribution of author keywords, countries of publication and the most frequently cited articles (Chiu & Ho, 2007). The bibliometric method is used to quantitatively assess the productivity of scientists. By extracting descriptive data and networks from bibliographic literature, one can conduct citation analysis to measure the most frequently cited reports, co-citations, and to describe the total number of co-occurrences of an author’s works within the network structure (Dervis, 2019).

In the fields of bibliometric measurement and scientometrics, the idea of constructing scientific maps based on bibliographic data has attracted researchers for several decades. Various types of maps have been studied, which illustrate relationships between, for example, authors, documents, journals or keywords. These maps are often constructed based on citation data, co-citation data, bibliographic linkage data or on data regarding the co-occurrence of keywords within the literature. There are several different techniques that can be used to construct bibliometric maps (van Eck & Waltman, 2010). In scientific research and bibliometrics, there is a strong emphasis on analyzing research networks (such as documents, keywords, authors or journals) with the aim of providing insights into the structure of a scientific research collaboration network. These techniques address questions such as: (1) What are the main topics or key research areas in a specific scientific field? (2) How are these topics or areas related to each other? (3) How has a specific scientific field developed over time? (Waltman & Noyons, 2018).

In the fields of bibliometrics and scientometrics, the idea of mapping science based on bibliographic information has garnered significant attention from researchers over the past few decades. Various forms of visual representation have been developed to illustrate the relationships between authors, documents, journals or keywords, often generated based on citation data, co-citation data, bibliographic linkage or the co-occurrence of keywords within the literature (van Eck & Waltman, 2010). Reviewing research findings from previous publications is crucial for identifying gaps in the literature, thereby promoting a specific research trend that is currently of interest (Waltman & Noyons 2018). There are three bibliometric analysis methods concerning previous publications: (1) qualitative structured literature review; (2) quantitative analysis methods and (3) scientific mapping—based on quantitative bibliometric

analysis—with an increasing emphasis on mapping the structure and development across various scientific fields and disciplines (Zupic & Čater, 2015). The introduction and development of bibliometrics assist researchers in systematically analyzing relevant publications and gathering useful information about research trends and collaboration among scientists worldwide (Bales et al., 2020). Bibliometric analysis is a research technique that employs quantitative and statistical methods to model the distribution of scientific works on a specific topic over a defined period. It can help researchers track publications while providing valuable information to the academic community, such as identifying researchers, organizations or references relevant to a research topic in order to analyze relationships and collaborations within the research field (Martí-Parreño et al., 2016). Bibliometrics has become an essential tool for analyzing and evaluating the performance of scientists, the partnerships between higher education institutions, the impact of national science funding on research and development activities, as well as educational outcomes, along with many other applications (Moral-Muñoz et al., 2020). Bibliometric analysis can be created using various techniques (van Eck & Waltman, 2010). The bibliometric analysis process in a scientific field consists of five main steps (Pham-Duc et al., 2020): (1) Define the research design, (2) collect data, (3) analyze data, (4) visualize data and (5) interpret results. To successfully conduct bibliometric analyses, it is important to prepare data that is most relevant to the scope of the research field. Publication data is typically extracted from databases of leading publishers such as PubMed, EMBASE, SpringerLink, Web of Science (WoS), Scopus, Google Scholar (GS), Microsoft Academic (MA) and Dimensions, among others. Bibliometric evaluation can be supported by scientific mapping, which represents the relationships between various factors (authors, institutions, countries, etc.) (Moral-Muñoz et al., 2020). In bibliometric research, researchers often focus on issues related to documents, keywords, authors or journals, including (1) What are the main topics or research areas in a specific scientific field? (2) How are these topics or areas connected? (3) How can the development of a scientific field over time be represented? (Waltman & Noyons 2018). The most suitable software for bibliometric analysis to create scientific maps includes Bibexcel, Biblioshiny, BiblioMaps, CiteSpace, CitNetExplorer, SciMAT, Sci2 Tool and VOSviewer (Moral-Muñoz et al., 2020), among others. Bibliometric evaluation provides scientists with a comprehensive overview of scientific research in a specific field, with various scientific data available over any time frame, ranging from 5 to 10 or 20 years, depending on the researcher's preferences (Bales et al., 2020).

Materials and methods

Identifying the search query in the Scopus database

Using predefined commands in the Scopus database, a search query was created from keywords related to the study of quality assurance in higher education, including 'quality assurance', 'higher education' and 'university'. Additionally, based on the research time frame (2003–2023), the field of study (social sciences), the language of the published works being English and the exclusion of less relevant keywords, the following query string was used to search for data in Scopus:

```
(TITLE-ABS-KEY (quality AND assurance) AND TITLE-ABS-KEY (higher AND education) OR TITLE-ABS-KEY (university)) AND PUBYEAR > 2002 AND PUBYEAR < 2024 AND (LIMIT-TO (SUBJAREA , "SOCI")) AND (LIMIT-TO (DOCTYPE , "ar")) AND (LIMIT-TO (LANGUAGE , "English")) AND (LIMIT-TO (EXACTKEYWORD , "Quality Assurance") OR LIMIT-TO (EXACTKEYWORD , "Higher Education")) AND (LIMIT-TO (SRCTYPE , "j")) AND (LIMIT-TO (PUBSTAGE , "final"))
```

Data collection and processing

The process of data processing was carried out in four steps:

Step 1: scanning data in the Scopus database

The search query established in Step 1 was used to scan the Scopus database, resulting in 967 raw articles containing primary or related keywords such as 'quality assurance', 'higher education', 'university', 'quality', 'assurance', 'lecturer' and 'student'.

Step 2: data cleaning

This step was performed manually by reading the articles to ensure the data collected was relevant to the study. The process consisted of two phases: (1) quick reading of titles and abstracts: articles containing only single keywords were removed, leaving those with both keywords 'quality assurance' and 'higher education', or 'quality assurance' and 'university' and eliminating duplicates, spelling errors or overly broad keywords and (2) reading the full article content: articles containing both relevant keywords were reviewed, and those unrelated to higher education quality assurance were removed, while articles that aligned with the research content were retained.

After completing these two phases, 292 articles were removed from the initial dataset, and the final dataset consisted of 675 articles on higher education quality assurance with relevant information.

Step 3: extracting cleaned data

The cleaned data was extracted from the Scopus database in .csv file format. Each article in the dataset contains the following information: title, author(s), publisher, year of publication, author's affiliation, author's country, research funding sources, citation index, etc.

Step 4: data analysis using VOSviewer and Biblioshiny software

The dataset was imported into two bibliometric analysis software tools, VOSviewer and Biblioshiny, for analysis and the extraction of research results.

Results

Overview of articles in Scopus on quality assurance in higher education

An overview of the publication database on quality assurance in education is presented in [Table 2](#).

[Table 2](#) shows that a total of 675 articles related to quality assurance in higher education worldwide have been published from 268 sources indexed by Scopus. From 2003 to 2023, among the 675 articles, there were a total of 1537 authors, including 207 self-publishing authors (accounting for 13.46%) and 228 articles authored and published by a single author (accounting for 33.77%). At the time of data collection, the total number of citations for the 675 articles was 23,540, with an average of 14.75 citations per document for the analyzed publications. The average number of coauthors per document was 2.49. The statistics indicate that quality assurance in higher education has garnered interest from scientists compared to other fields; however, there are still significant limitations regarding the relatively modest number of published articles compared to other educational fields such as pedagogy, the application of information technology in teaching and digital technology. This is reasonable since quality assurance is currently developing in the field of higher education, while issues related to quality assurance in

Table 2. Data overview.

Main information about data	
Timespan	2003:2023
Sources (journals, books, etc.)	268
Documents	675
Annual growth rate %	12.2
Document average age	7.84
Average citations per doc	14.75
References	23,540
Document contents	
Keywords plus (ID)	933
Author's keywords (DE)	1647
Authors	
Authors	1537
Authors of single-authored docs	207
Authors collaboration	
Single-authored docs	228
Coauthors per doc	2.49
International coauthorships %	17.63
Document types	
Article	675

Source: Analysis results obtained from Biblioshiny software.

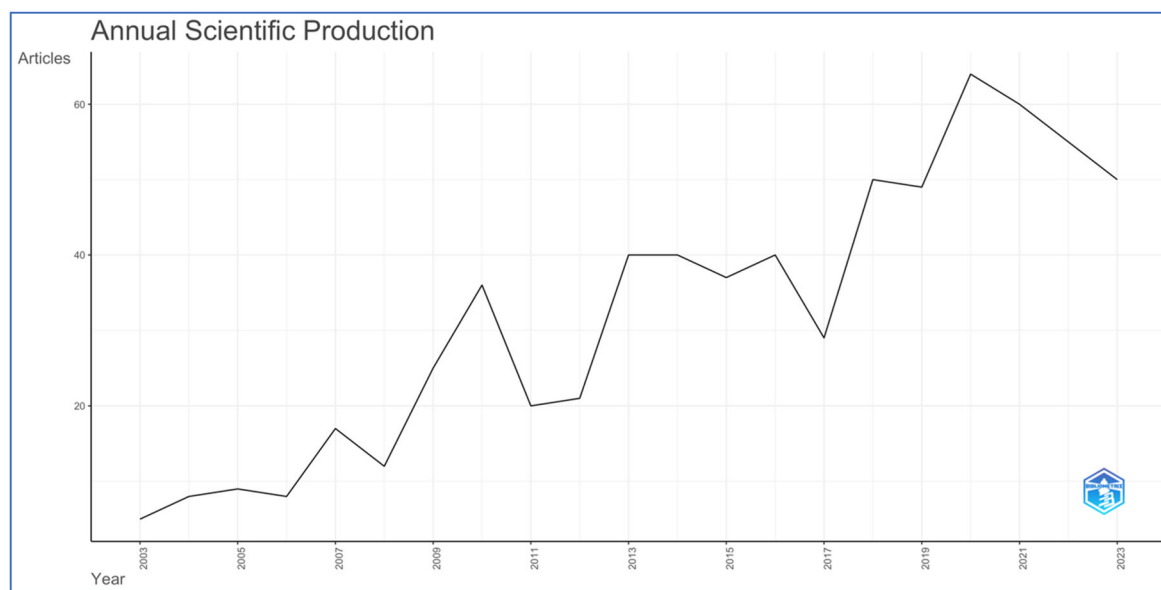


Figure 1. Number of published articles on quality assurance in higher education by year. *Source:* Analysis results obtained with Biblioshiny software.

secondary and vocational education have received little attention, despite other studies encompassing all educational levels. Furthermore, the history of quality assurance has only begun since the 1990s, and it has not yet been 40 years since then (Ellis, 1993). Thus, the total of 675 research articles in this field is entirely appropriate in the context of studying quality assurance in higher education, which began more than 30 years ago (Freeman, 1993).

The number of published articles on quality assurance in higher education by year is illustrated in Figure 1. This indicates that research in this field has continuously developed, with significant growth observed during specific periods, notably in 2006; from 2008 to 2010 and from 2019 to 2020, with 2020 marking the highest number of publications (64 articles). However, there was a notable decline in the period from 2021 to 2023, where the number of articles decreased from 60 in 2021 to only 50 in 2023. Investigating the reasons for this trend reveals that, despite an increase in articles in the earlier years, the decline over the last three years can be attributed to the impact of the COVID-19 pandemic, which led universities to close and shift to online learning formats. Consequently, researchers have increasingly focused on teaching practices during the COVID-19 context rather than on quality assurance in education. During this period, there was only one article that examined the quality assurance of online teaching ('Quality Indicators and Models for Online Learning Quality Assurance in Higher Education' by Muhammad Hafeez, Shazia Naureen and Sohaib Sultan from Pakistan, published in 2022), with few other studies addressing quality assurance in teaching in the context of COVID-19 (Hafeez et al., 2022).

Contributions of countries to research on quality assurance in higher education

Results from VOSviewer indicate that 98 countries (or territories) have published research works on quality assurance in higher education, of which 43 countries have published five or more articles (see Figure 2). The remaining 55 countries include 9 countries with four publications, 9 countries with three publications, 17 countries with two publications and 20 countries with one publication.

The country with the highest contribution in this field is the United Kingdom, with 85 articles (accounting for 12.3% of the total surveyed articles) and also receiving the highest number of citations (1809 citations) (as presented in Table 3). These figures underscore the position of the United Kingdom as a global leader in the field of quality assurance in higher education, which aligns well with the current context of higher education in England (de Wit et al., 2023). Next, the United States ranks second with 59 articles (accounting for 8.7% of the total surveyed articles) and 986 citations. The US government consistently prioritizes quality assurance in higher education to enhance the quality of education,

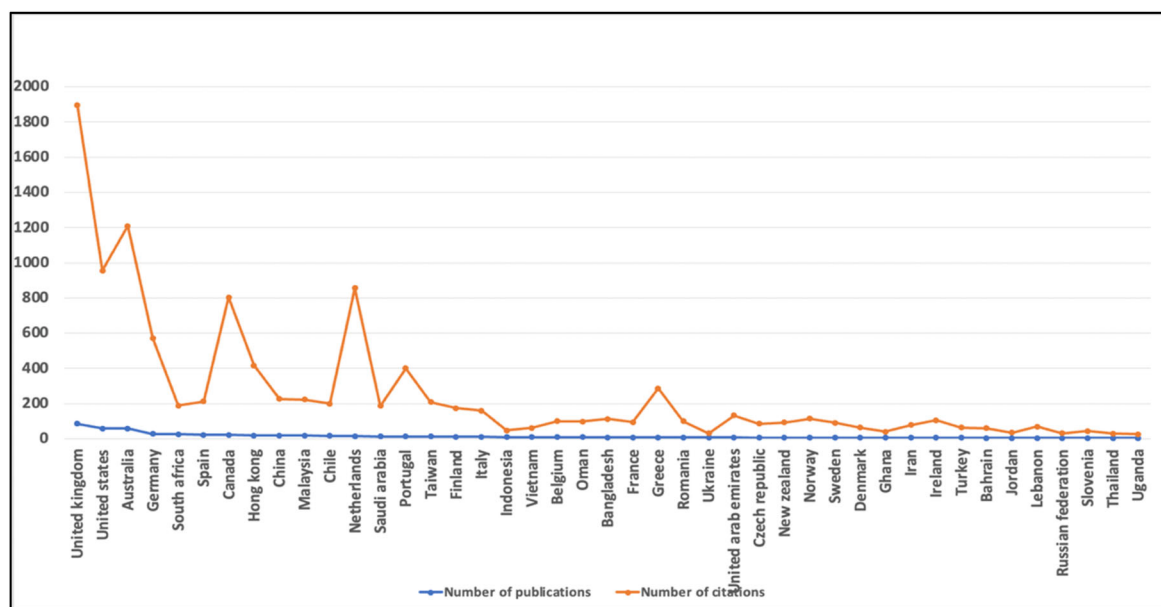


Figure 2. Countries with five or more published articles. *Source:* Analysis results obtained with VOSviewer software.

Table 3. List of 19 countries with 10 or more publications on quality assurance of higher education.

No.	Country	Number of publications	Number of citations
1	United Kingdom	85	1809
2	United States	59	896
3	Australia	58	1152
4	Germany	28	545
5	South Africa	27	162
6	Spain	23	189
7	Canada	22	782
8	Hong Kong	19	397
9	China	18	209
10	Malaysia	18	205
11	Chile	17	182
12	Netherlands	16	840
13	Saudi Arabia	14	173
14	Portugal	13	388
15	Taiwan	13	196
16	Finland	12	163
17	Italy	11	149
18	Indonesia	10	37
19	Vietnam	10	53

Source: Analysis results obtained with VOSviewer software.

maintaining its position as a global leader. This result aligns with observations in the literature regarding higher education in the United States (Sparks & Chang, 2021). However, the number of citations for articles from the United States is lower than that of Australia, which ranks third with 58 articles (8.6%) and 1,152 citations. Although the United States has one more published article, the citations for Australian articles exceed those from the United States.

In the top 19 countries with at least 10 published articles on quality assurance in higher education, in addition to the three leading countries—United Kingdom, United States and Australia—Germany (28 articles) and South Africa (27 articles) are also among the top five countries interested in this field. Additionally, five more countries rank in the top ten for research on quality assurance in education: Spain (23 articles), Canada (22 articles), Hong Kong (19 articles), China (18 articles) and Malaysia (18 articles). Following these, the top 20 includes nine other countries as shown in Table 3. This outcome can be attributed to these nations being among the leaders in higher education globally, with advanced and modern higher education systems, as well as a large number of international programs and

students (Ota, 2018), These are countries that excel in the internationalization of higher education, consistently prioritizing educational quality to ensure that their higher education systems hold a significant position and ranking in the international arena (Thi Thu Le et al., 2024).

The network of research collaboration among scientists from different countries regarding higher education quality assurance worldwide is illustrated in Figure 3. Each country is represented by a differently colored node in the diagram, with the size of the node proportional to the number of published articles in this research area. The level of collaboration between countries is indicated by the thickness of the connecting lines between the nodes.

The countries with published articles are categorized into eight groups, each represented by a different color code. The first three groups include the United Kingdom (green), the United States (purple) and Australia (blue), which maintain strong collaborations with various other countries. The fourth group, represented by the color orange, reflects Germany's collaboration with other nations. Taiwan and several other countries (Thailand, France, Malaysia) form the fifth group, indicated by the brown color, while the sixth group (green) includes Finland and other countries such as Portugal, Ukraine and Spain. Similarly, the seventh group (light brown) and the eighth group (pink) encompass collaborations among other European nations, South Africa and other Asian countries (China, Indonesia, South Africa, etc.).

Based on the thickness of the connecting lines indicating the collaboration of countries in Figure 4, it is evident that the United Kingdom, the United States and Australia maintain the largest collaboration networks globally in the research on higher education quality assurance. The United Kingdom collaborates with 20 countries (represented by 20 connecting lines), with the strongest collaborations being with Taiwan and the Netherlands, followed by the United States, Germany and Australia. The United States collaborates with 14 countries (indicated by 14 connecting lines), notably not collaborating with Australia in this research area, but rather having strong collaborations with Canada, Germany and the United Kingdom. Australia collaborates with 12 other countries for this research (represented by 12 connecting lines), with the strongest collaborations being with Malaysia and the United Kingdom.

Interestingly, South Africa, which ranks fifth in the world for the number of published articles, collaborates with only four countries, specifically the United Kingdom, Canada and the Netherlands. Notably, some countries in the top 20 have limited collaboration, such as Vietnam, which only collaborates with Australia and New Zealand, without engaging with other countries in different continents, despite being among the top 20 countries with at least 10 published articles in this area (Figure 3).

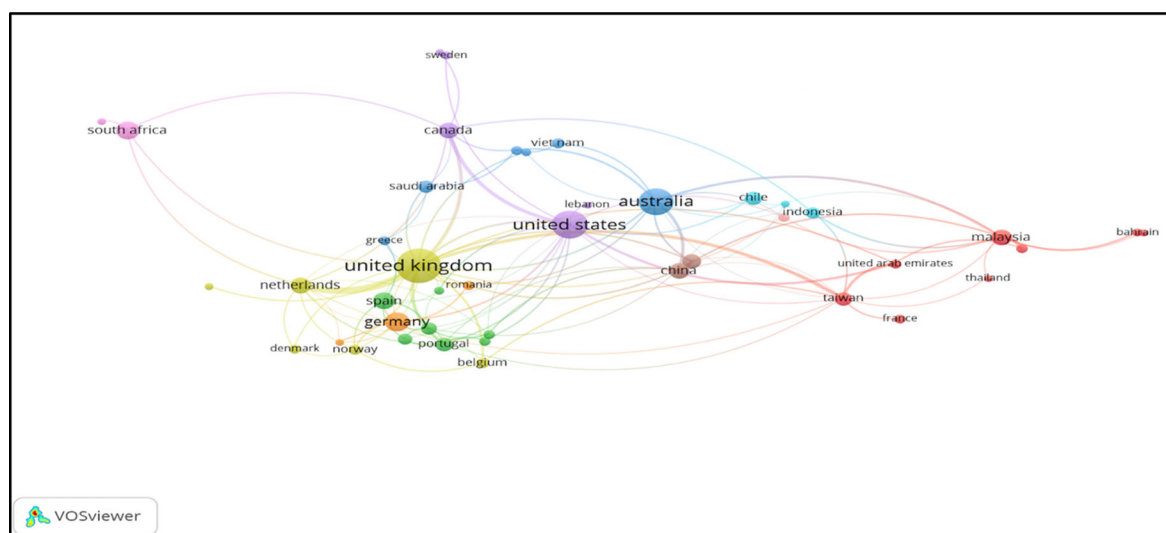


Figure 3. Visual representation of the countries' publications and collaborations. *Source:* Analysis results obtained with VOSviewer software.



Figure 4. Collaboration network of several countries with high publication output in the top five regarding higher education quality assurance. *Source:* Analysis results obtained with VOSviewer software.

Contributions of organizations to research on higher education quality assurance

From the analysis conducted using VOSviewer, it has been identified that there are 893 universities and colleges whose authors have participated in research related to higher education quality assurance (Figure 5).

Analysis of [Figure 5](#) shows that there are several clusters of keywords. A total of 893 primary and secondary keywords were divided into 41 clusters, with each color representing a different cluster:

- *Cluster 1 (green)*: This cluster includes 111 keywords related to the research trend of ensuring educational programs at universities. These keywords are connected by lines between circles of the same color (green), as shown on the horizontal timeline below, indicating the development phase of this research direction from 2014 to 2018, which represents a period of growth for this research area.
- *Cluster 2 (yellow)*: This cluster includes 104 keywords related to the research trend of ensuring educational policies at universities. As shown on the timeline in [Figure 5](#), organizations began to participate and increase their publications in this area over the past five years (2018–2023).

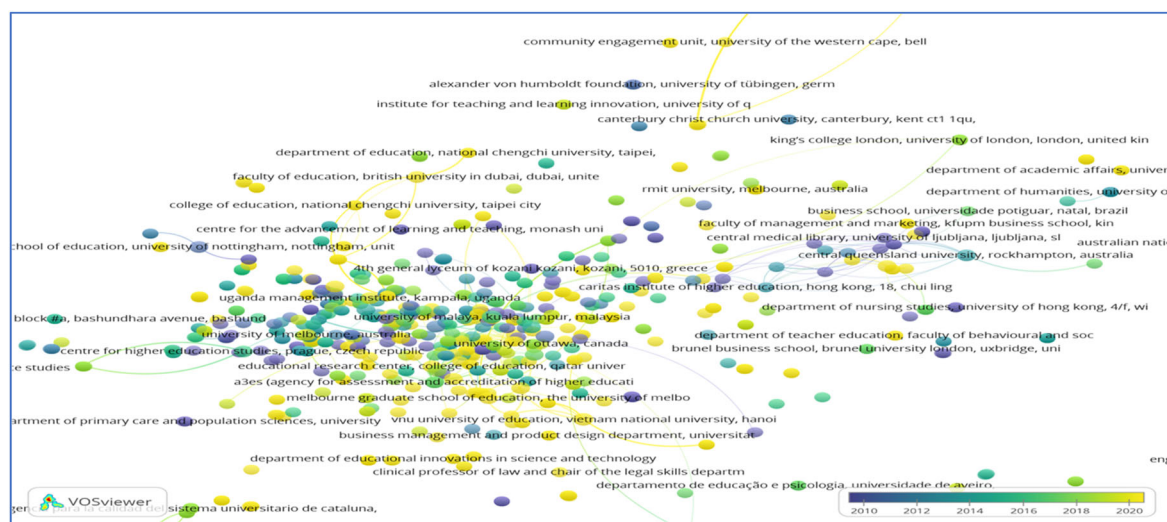


Figure 5. Organizations contributing to research in higher education quality assurance. *Source:* Analysis results obtained with VOSviewer software.

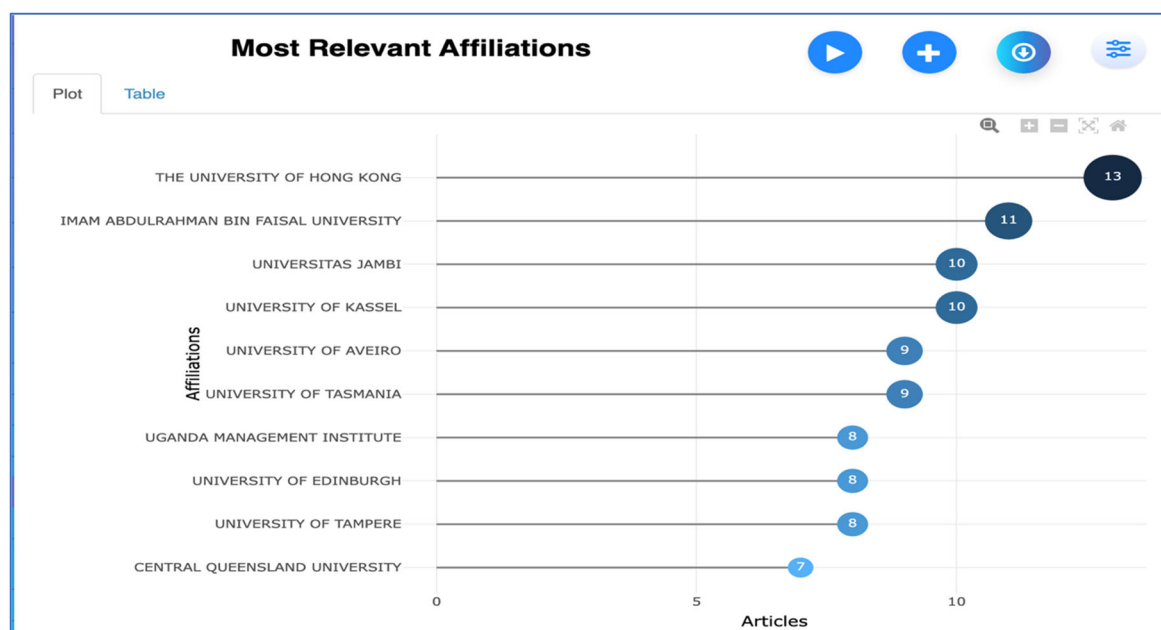


Figure 6. Top 10 organizations with the most publications in higher education quality assurance *Source:* Analysis results obtained with Biblioshiny software.

- *Cluster 3 (purple):* This cluster consists of 60 keywords related to the research direction of ensuring quality in higher education institutions, with significant research conducted during the period from 2010 to 2014.

The remaining clusters typically contain fewer than 50 keywords and focus on issues related to quality assurance in public universities, private universities and the internationalization of education, among others.

The analysis conducted using Biblioshiny software indicates the results presented in Figure 6, which identifies the top 10 organizations with the highest number of publications in this field. The University of Hong Kong leads with 13 publications (Hong Kong), followed by Imam Abdulrahman Bin Faisal University (11 publications) from Saudi Arabia and Universitas Jambi (10 publications) from Indonesia. The University of Kassel also has 10 publications and is based in Germany. Two universities published

nine articles: the University of Aveiro from Portugal and the University of Tasmania from Australia. Additionally, three institutions—Uganda Management Institute, which is a university in Uganda (an African country), the University of Edinburgh from the United Kingdom and the University of Tampere from Finland—ranked in the top three with eight publications each. The remaining universities in the fourth tier published seven articles and are located in Australia, Portugal, Malaysia and Germany.

Thus, the issue of quality assurance in higher education began in European and American countries in the 1990s, leading to the establishment of quality assurance systems and networks that have attracted the interest of many nations and universities worldwide, as illustrated in Figure 5. This aligns with existing research on quality assurance networks (Kettunen & Kantola, 2011). However, the analysis of the top 10 universities with the most research on quality assurance in higher education does not include the names of leading universities from the United States, the United Kingdom and other European countries. The analysis results indicate that universities in Asia, particularly in Hong Kong, Indonesia, Malaysia and Saudi Arabia, show a significant interest in quality assurance. This is followed by Australia and several European countries such as Germany, Finland and Portugal. The findings are quite consistent with reality, as Asia has shown a strong commitment to quality assurance, establishing the ASEAN University Network—Quality Assurance since 2004 (Hou et al., 2021). Therefore, the significant interest of universities in Asia in researching this area is entirely appropriate.

Contributions of journals and publishers to articles on quality assurance in higher education

There are 268 journals that have published research on quality assurance in higher education (HEQA), primarily from the United States, Europe and Asia. Among these, 25 leading journals that publish in this field are presented in Table 4.

A detailed analysis of the top 10 journals with the greatest contributions to research on quality assurance in higher education is presented in Figure 7. Leading the list is the journal *Quality in Higher Education*, which published 78 articles (accounting for 11.5% of the total publications). The second-ranked journal, *Quality Assurance in Education*, published 67 articles (9.9% of the total). These results are entirely consistent, as these two journals focus extensively on quality assurance in education and higher education, making the high number of published articles aligned with the trend of authors submitting their scientific research for publication. The third-ranked journal, *Studies in Higher Education*, published over 20 articles, while the remaining seven journals published between 9 and 18 articles. The other

Table 4. Journals and publishing houses with the greatest publications on HEQA in Asia.

No.	Sources	Articles	Percentage
1.	Quality in Higher Education	78	11.6
2.	Quality Assurance in Education	67	9.93
3.	Studies in Higher Education	21	3.11
4.	Higher Education	18	2.67
5.	Higher Education Policy	16	2.37
6.	European Journal of Higher Education	15	2.22
7.	Sustainability (Switzerland)	14	2.07
8.	Journal of Higher Education Policy and Management	11	1.63
9.	International Journal of Educational Management	9	1.33
10.	International Journal of Management in Education	9	1.33
11.	World Transactions on Engineering and Technology Education	8	1.19
12.	Higher Education Research and Development	7	1.04
13.	Assessment and Evaluation in Higher Education	6	0.89
14.	Mediterranean Journal of Social Sciences	6	0.89
15.	European Journal of Education	5	0.74
16.	International Journal of Engineering Education	5	0.74
17.	Sage Open	5	0.74
18.	American Journal of Pharmaceutical Education	4	0.59
19.	British Journal of Educational Technology	4	0.59
20.	Bulletin of Latin American Research	4	0.59
21.	Education Sciences	4	0.59
22.	Evaluation and Program Planning	4	0.59
23.	International Journal of Emerging Technologies in Learning	4	0.59
24.	International Journal of Sustainability in Higher Education	4	0.59
25.	Journal of Further and Higher Education	4	0.59

Source: Analysis results obtained with Biblioshiny software.

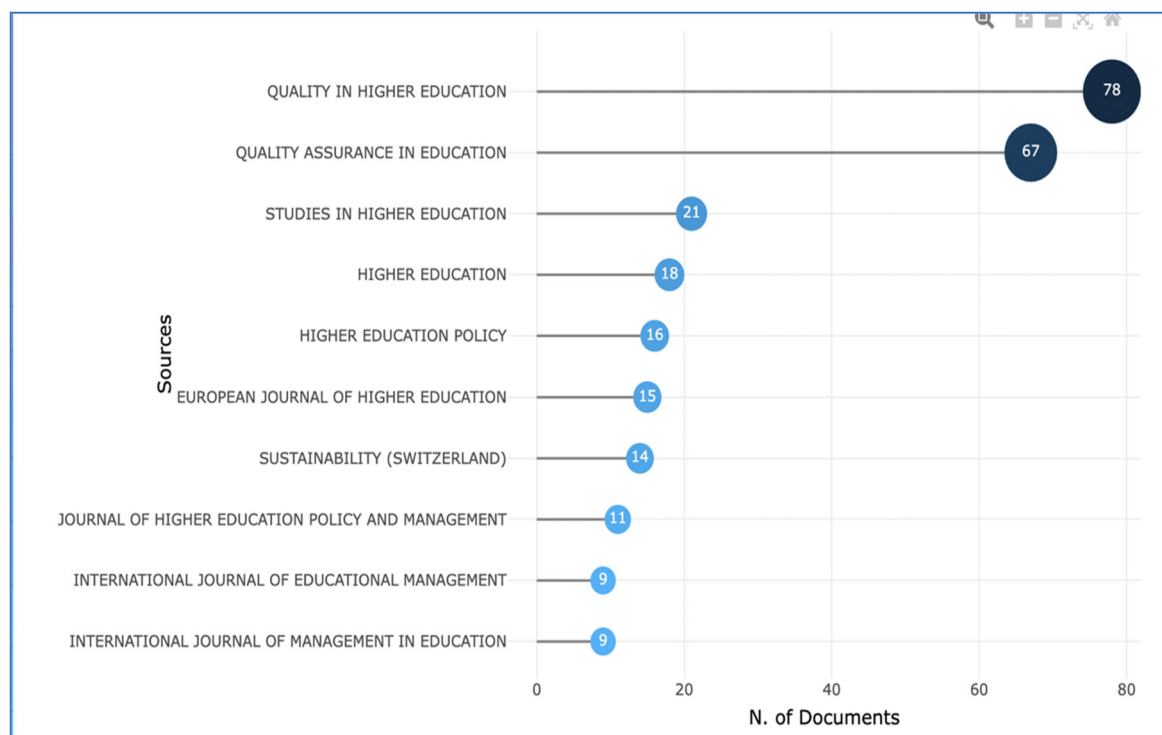


Figure 7. Top 10 journal with the greatest contributions to research on quality assurance in higher education. *Source:* Analysis results obtained with Biblioshiny software.

organizations published fewer than 10 articles, specifically, there are 8 journals that published 10 or more articles, 9 journals that published between 5 and 9 articles, 10 journals that published 4 articles, 24 journals that published 3 articles and all other journals published between 1 and 2 articles. This indicates that there is a growing global interest in the field of quality assurance in higher education.

The leading journals publishing in the field of quality assurance in higher education also possess very high academic impact factors. The three journals *Quality in Higher Education*, *Quality Assurance in Education* and *Studies in Higher Education* are among those with high H-index scores in the list of journals publishing in this area (Figure 8). This analysis can assist researchers in identifying reputable journals and publishers to disseminate their research findings on quality assurance in education.

Contributions of authors in research on quality assurance in higher education

Table 5 presents a list of 15 authors who have published three or more articles on quality assurance in higher education. The author with the highest number of publications is Jeroen Huisman (Ghent University, Ghent, Belgium) with six articles and is also the most cited author, with a total of 191 citations for these publications. The second-ranked author is Alberto Amaral, affiliated with the Centre for Research in Higher Education Policies in Matosinhos, Portugal, with five articles and a total of 83 citations, placing him fourth in citation count. Following him are three authors who have each published four articles: Seyfried Markus from the University of Potsdam, Potsdam, Germany. Although he has only published four articles, he has a notably high citation count of 134, which ranks him second among cited authors, just after the second author in citation count. The remaining 14 authors in the top list—those who have published three articles on this research topic—come from various countries in Asia, Australia and Europe. Among them is Bjørn Stensaker, who works at the University of Oslo, Blindern, Oslo, Norway. Despite having only three publications, he boasts a total of 49 citations, ranking him second in citation count among this group. The analysis indicates that Stensaker's three significant works—'An in-depth study on the impact of external quality assurance', 'Bologna: Realising old or new ideals of quality' and 'The role of peer review in Norwegian quality assurance: Potential consequences for

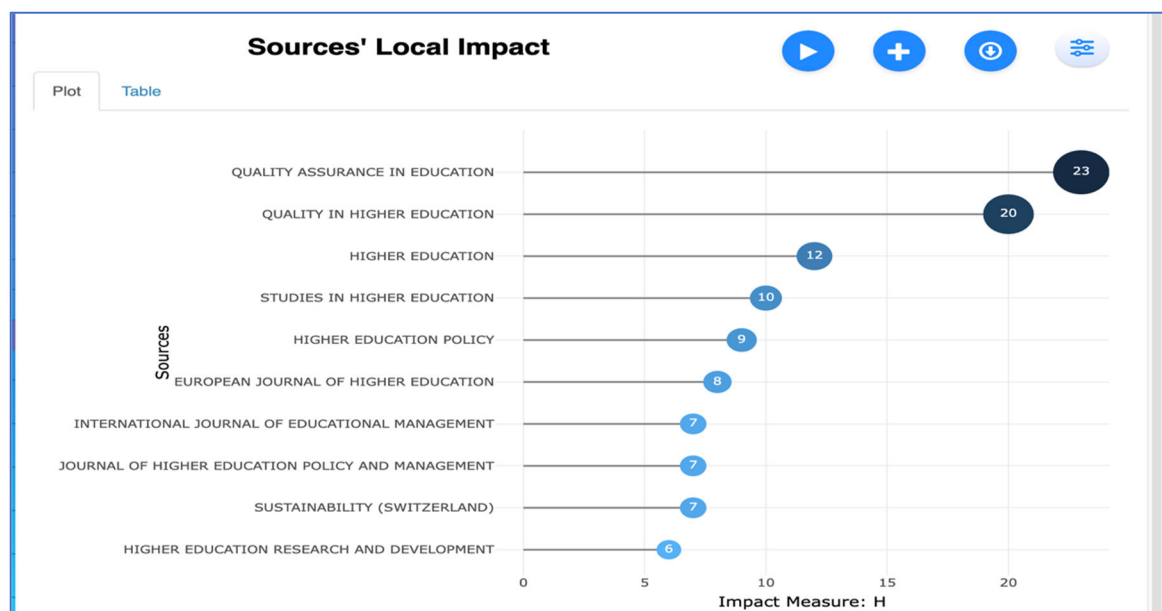


Figure 8. Top 10 organizations with the highest impact factors publishing on quality assurance in higher education. Source: Analysis results obtained with Biblioshiny software.

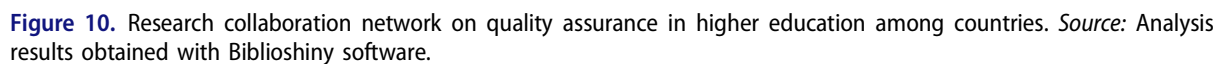
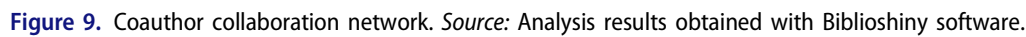
Table 5. List of 19 most prolific authors on quality assurance in higher education.

No.	Author	Institution	Number of publications	Number of citations
1.	Jeroen Huisman	Ghent University, Ghent, Belgium	6	191
2.	Alberto Amaral	Centre for Research in Higher Education Policies), Matosinhos, Portugal	5	83
3.	Christopher Hill	British University in Dubai, Dubai	4	55
4.	Hou, Angela Yung Chi	National Chengchi University, Taipei City, Taiwan	4	21
5.	Seyfried Markus	University of Potsdam, Potsdam, Germany	4	134
6.	Timo Ala-Vähälä	University of Jyväskylä, Jyväskylä, Finland	3	19
7.	Sónia Cardoso	CIPES, Centro de Investigação de Políticas do Ensino Superior, Portugal	3	50
8.	Lazarus Nabaho	Uganda Management Institute (UMI), Uganda	3	14
9.	Cuong Huu Nguyen	Van Lang University, Ho Chi Minh, Vietnam	3	12
10.	Pham, Huong Thi	University of Pedagogy, Ho Chi Minh, Vietnam	3	31
11.	Pedro Pineda	a German Centre for Higher Education Research and Science Studies, Hannover, Germany	3	19
12.	Maria João Rosa	Universidade de Aveiro and Centre for Research in Higher Education Policies, Portugal	3	25
13.	Mahsood Shah	Central Queensland University, Sydney, Australia	3	50
14.	Cristina Sin	CIPES (Centre for Research in Higher Education Policies), Matosinhos, Portugal	3	72
15.	Bjørn Stensaker	University of Oslo, Blindern, Oslo, Norway	3	149
16.	Orlanda Tavares	CIPES (Centre for Research in Higher Education Policies), Matosinhos, Portugal	3	72
17.	Algirdas V. Valiulis	Technical University Vilnius, Lithuania	3	7
18.	Amélia Veiga	Centre for Research and Intervention on Education (CIIE), University of Porto, Porto, Portugal	3	20
19.	Don F. Westerheijden	University of Twente, Enschede, Netherlands	3	72

Source: Analysis results obtained with VOSviewer software.

excellence and diversity'—are in-depth studies on quality assurance, thus justifying the relatively high citation rates.

In a pool of over 1537 authors, there are collaborative research groups focused on the issue of quality assurance in higher education. An analysis using the Biblioshiny software reveals six collaborative groups, as illustrated in Figure 9, consisting of 19 authors who work together in these research teams. Each author is represented by a node, with the size of the node proportional to the number of publications that author has produced, while the strength of collaboration between authors is depicted by the thickness of the connecting lines between the nodes. Figure 9 shows that there is one well-established collaboration group consisting of six authors working together (represented by the green group), a second group with five collaborating authors (represented by the brown group) and a third group comprising three collaborating authors (represented by the orange group). The remaining three groups



In addition to collaboration among individual researchers, it is also possible to analyze the collaboration between countries regarding quality assurance in higher education to determine which nations are working together to address shared research issues.

Each node in [Figure 10](#) represents a country within the research collaboration network, with each color representing a different collaborative group. There are five colors in [Figure 10](#), corresponding to five collaborative research groups. The largest group (green) illustrates the research collaboration between the United Kingdom and 11 other countries, with the node representing the United Kingdom being the largest, indicating that it has published the most articles. The second largest node is purple,

which includes the United States and eight associated countries primarily from the Americas (Canada, Brazil) and European countries such as Spain, Turkey and Italy. The third largest node consists of China, Malaysia and Australia, forming a collaborative group. The figure also demonstrates that countries, while collaborating within their groups, also engage in research collaborations outside of their groups, as indicated by the connecting lines between the nodes in Figure 10.

Analysis of keyword frequency in published articles on higher education quality assurance

Analysis of 675 articles using VOSviewer and Biblioshiny software revealed 933 keywords, which were categorized into different phases, with each phase represented by a different color in Figure 11. Each node represents a keyword, and the thickness of the links between the nodes (as shown in Figure 7) indicates the level of connection between the keywords, determined by the frequency of their co-occurrence in the 675 articles.

Figure 11 shows the linked keywords in research on higher education quality assurance during the period from 2012 to 2016 (with the keywords represented by purple nodes), including keywords such as audit, classification, competence, education, faculty, organization, quality assurance and quality control. This indicates that during this phase, researchers focused on overall quality assurance, quality control and ensuring organizational competence. In the second phase, from 2016 to 2019 (with keywords represented by green nodes), the main research keywords were blended learning, academics, formative assessment, higher education, management, quality assessment and quality management. This phase marked a focus on quality assessment and control, particularly related to blended learning, to ensure the quality of education provided by universities. In the next phase, from 2019 to the present (with keywords represented by yellow nodes), emerging keywords such as benchmarking, competencies, graduate attributes, learning system, curriculum and COVID-19 appeared. These studies reflect research during and after the COVID-19 pandemic, focusing on quality assurance issues in the context of online and blended learning, driven by the COVID-19 pandemic and the Fourth Industrial Revolution.

An analysis of research topics in the field of higher education quality assurance reveals four research themes, as presented in Figure 12. Specifically,

- *Niche themes* include topics such as sustainability, education policy and sustainable development.
- *Motor themes* cover research areas like quality control, education and human factors, which are related to issues such as healthcare quality, quality assurance and healthcare.
- *Basic themes* encompass three main issues: quality assurance and higher education.

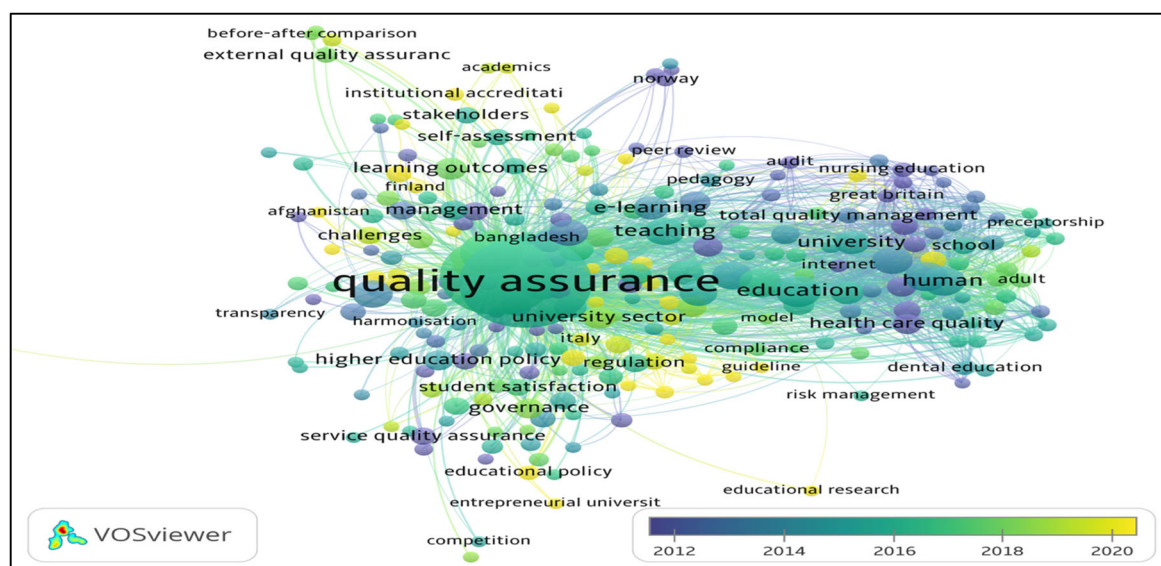


Figure 11. Visual representation of the most common keywords in the publications on quality assurance in higher education. Source: Analysis results obtained with VOSviewer software.

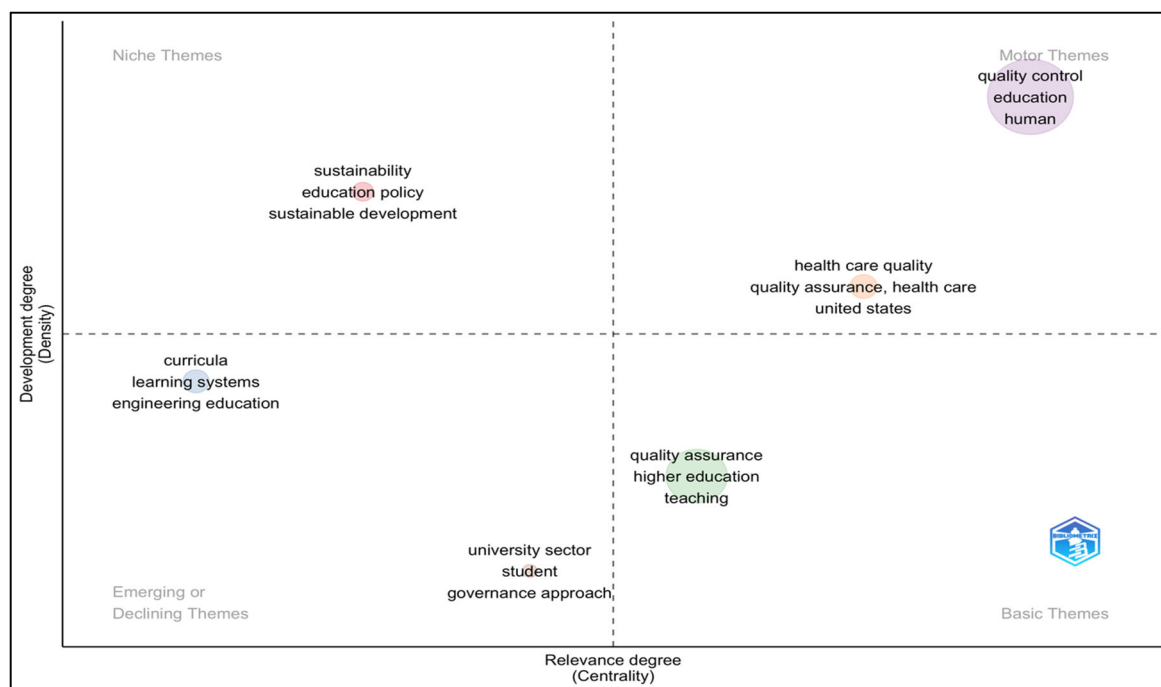


Figure 12. Thematic map. Source: Analysis results obtained with Biblioshiny software.



Figure 13. Trend topics. Source: Analysis results obtained with Biblioshiny software.

- *Emerging or declining themes* include curricular, learning systems and engineering education, with connections to issues like the university sector, students and governance approaches.

It can be observed that, originating from three main research themes—quality assurance, higher education and teaching—scholars in this field have been interested in branches such as sustainability, education policy and sustainable development. Emerging research directions during this period include curricular, learning systems and engineering education.

An analysis of Figure 13 on trending topics shows that starting from 2021 until now, and likely in the future, the two main research directions in higher education quality assurance will be (1) sustainable

development and (2) education policy. This is entirely consistent with the societal development context. Once the quality of educational programs, learning systems and teaching and learning governance approaches have been ensured, universities will be oriented toward sustainable development and the necessary policies for education must be secured. These two research directions will be the primary focuses in the future of higher education quality assurance.

Conclusion

Higher education quality assurance is not only a decisive factor in improving the quality and reputation of educational institutions, but it is also an important driver for the development of high-quality human resources, contributing to the comprehensive development of society and the global economy. Higher education quality assurance plays a core role in enhancing the competitiveness and sustainable development of nations in today's globalized context. Quality assurance systems help ensure that educational programs meet international standards, thereby increasing the reputation of educational institutions and enhancing students' ability to integrate into the global labor market. Promoting a culture of quality assurance in higher education also facilitates continuous improvement, fosters creativity and research and enhances the quality of teaching, learning and scientific research.

A bibliometric analysis using the Scopus database on higher education quality assurance yielded 675 original articles, involving 1537 authors. A total of 893 organizations, including universities and research institutes, and 268 journals contributed to this research. The analysis revealed that the top five countries with the highest number of published articles were the United Kingdom, the United States, Australia and Germany. There are 10 leading journals in this field, with *Quality in Higher Education* and *Quality Assurance in Education* standing out as the top two, accounting for a significant portion of the total publications. This indicates that higher education quality assurance has garnered global attention.

However, this study has some limitations. The analyzed articles were exclusively from the Scopus database and all were in English. Additionally, although the researchers made considerable efforts to exclude irrelevant articles during the research process, the manual method of directly reading a large number of articles may have led to the inclusion of some unrelated papers, potentially affecting the reliability of the study's results.

Disclosure statement

No potential conflict of interest was reported by the authors.

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