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Higher Education Research & Development

ISSN: 0729-4360 (Print) 1469-8366 (Online) Journal homepage: www.tandfonline.com/journals/cher20

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To cite this article: Salih Bardakci, Yasemin Yelbay Yilmaz & M. Dilek Avsaroglu (2024) Global diffusion of quality assurance research in higher education: a study on collaboration and concepts, Higher Education Research & Development, 43:3, 657-672, DOI: 10.1080/07294360.2023.2253157

To link to this article: https://doi.org/10.1080/07294360.2023.2253157

HIGHER EDUCATION RESEARCH & DEVELOPMENT
2024, VOL. 43, NO. 3, 657–672
https://doi.org/10.1080/07294360.2023.2253157

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Global diffusion of quality assurance research in higher education: a study on collaboration and concepts

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ABSTRACT

Research on quality assurance in higher education has been expanding globally; however, there is still scope for exploring the depth of diffusion to evaluate its impact. To this end, collaboration structures between countries and common concepts in scientific texts were examined in this study. The bibliographic mapping method was employed to analyse data that was derived from the Web of Science. 'Higher education' and 'Quality Assurance' were the keywords searched and bibliographical data of 3080 scientific texts were extracted. Analyses on co-authorship and co-occurrence were made through the VOSviewer software tool. According to the results, research on quality assurance in higher education spread in half of the countries in the world as of 2021. Research intensity and collaboration relationships reveal that quality assurance research is spreading geographically in North America and Europe. In terms of concepts, although there has been an expansion over the years from a limited understanding of quality management to a more comprehensive perspective of quality assurance in education, it was seen that the central and static view of quality assurance is still solid.

ARTICLE HISTORY
Received 1 November 2022
Accepted 6 August 2023

KEYWORDS
Higher education; quality assurance; diffusion; bibliographic mapping

Introduction

Quality assurance (QA) as a term emerged in the 1940s as a result of concerns related to assuring product quality ranging from textile to health and military sectors as producers wanted to gain competitive advantage or make inferences about the quality of their goods (Cowden & Connor, 1945; Paterson, 1956; Rice, 1966). While the healthcare sector extensively studied QA in relation to education, QA studies in Higher Education (HE) accelerated towards the end of the decade (Donabedian, 1988; Thrash, 1979; Troutt, 1979). As the HE area focused on QA, different perceptions came forward on the terminology around it. Morton (1969) and Lessinger (1976) focused on the differentiation between quality control and quality assurance, and there seemed to be a tendency to regard quality as something to be assessed, monitored or controlled. Early studies reveal that there was some level of confusion about what QA entailed. Donabedian (1988, p. 184) stated that clearly by saying, 'the term "quality assurance" though firmly ensconced, is a misnomer; quality at best can be protected and enhanced, but not assured'. Towards

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the end of the decade, more studies were published on the definition of QA and more emphasis was made on the 'improvement' aspect of it rather than control. In their report, the WHO working group (1989) made a distinction between quality assessment and quality assurance by saying that assessing quality of care does not lead to QA unless it includes efforts for improvement. According to Vuori and Roger (1989), quality control suggested an image of someone watching from outside, perhaps without their consent. Quality assessment was more neutral but suggested a passive process, quality assurance met expectations because it highlighted improvement and implied that the observed points for improvement would be corrected. Also, continuing education institutions stumbled upon QA issues. Shackleton (1995) described how an institution in the UK worked on its QA framework and although there was still strong emphasis on pairing QA with the notion 'control', he stated that the college is the primary responsible body in quality, self-evaluation is the most important element of the framework, and a measure of externality is essential. When QA issues started to be discussed on a global scale, examples from many different HE systems were published. McInnis (1995) reported from the Australian and New Zealand context mentioning 'quality assurance mechanisms' and 'quality assurance processes' and referenced to the first attempt at rating QA mechanisms of universities. While HE systems were working on incorporating QA in their systems and reporting about its effects and results, QA as a concept was forming and reforming, and its definition was becoming clearer. The idea about quality being an end product was quickly being replaced by the idea that it was more of a process or a system, rather than a static concept.

While QA assurance and issues of accountability were taking off, there were also critics and cynics who showed some amount of resistance. McInnis et al. (1994) state that not all academics were excited about it and 49% rejected the statement that quality assurance mechanisms will ensure improvement to the HE system. Though with some obstacles, QA issues were moving steadily fast and new terms and ideas like 'student involvement' in QA processes were added to the network of QA ideas. This trend aligned to major ideas in the era, where outputs of the educational system such as quality and accountability became the focal points in place of inputs. The change in the discourse of academics was reflected in the understanding that HE must be conceptualized in terms of its relationship to quality, internationalization and learning. Correspondingly, while in the 1990s, the word quality was one of the top 50 mentioned words, and by the 2000s, the words quality, assurance, and accreditation were all among the top 50 words (Buckner, 2017). Hutchings et al. (2013) emphasized the interrelationship of these terms, stating that terms like assessment, accreditation, program review, performance funding, and so forth were the various quality assurance cousins of accountability.

With the establishment of the European Higher Education Area and its emphasis on structural reforms and shared tools, the Bologna Process and the European Standards and Guidelines for Quality Assurance, European HE institutions started to collaborate on the establishment of comprehensive quality assurance systems. QA became a driving force for HE institutions all over the world and a body of publications on the implementations of QA processes continued to grow. The reasons for the inclination of HE towards QA concerns can be listed as the increasing demand for tertiary education, diversity of HE institutions, decreased public resources, internationalization, student and staff mobility, the diversified educational environments, service to society concerns, and

university rankings (Lemaitre & Karakhanyan, 2020). Another force that accelerated the adoption of QA is given in Sallis (2005), who stated that total quality management in the education sector is a necessity arising due to professional, competitive and moral imperatives. As a result of all these factors, accreditation agencies emerged, and they started to move accreditation procedures from program level to the institution as a whole. European and Latin American countries began establishing accreditation agencies in the 1980s and 1990s with the USA being an exception as the oldest QA system in the world, having emerged in the early 1900s (Haug, 2003; Lemaitre, 2011). As cooperation between these agencies increased, the need to establish umbrella organizations emerged, and organizations such as the International Network of Quality Assurance Agencies in Higher Education (INQAAHE) were established. The Bologna Declaration motivated national QA systems to adapt to international standards, considering student and faculty mobility. All of these served as catalyzers of cooperation with respect to QA issues as well as diffusion of QA culture across different HE systems becoming a research area on conceptualizations of QA and its reflections in quality culture. Billing (2004) provided international comparisons and concluded that external QA frameworks are transferable at the level of aims, principles, concepts, style and approach if attitude changing trainings are delivered. However, he also cautioned that applying the same type of QA system in countries with different cultures might be problematic. This had been discussed as early as the 1990s, for example the study by Van der Wende and Kouwenaar (1993), where they identified cultural differences affecting how quality and level are defined and the different opinions on which indicators should be used to measure quality.

The question whether cultural differences, within and outside HE, explain the different patterns of national QA frameworks emerged alongside the widening of QA studies throughout the world. As QA issues became internalized in HE systems, establishing a QA culture became a complex and continuously changing phenomenon that needed to be studied considering an array of culture-specific factors. These discussions led us to the inquiry of how the understanding of QA is diffusing into different HE cultures. In order to ensure reaching a comprehensive picture of this diffusion, the authors have approached the concept of diffusion in a bidirectional manner, focusing on who engages in collaboration and what they work on. A good source of data to address this is scientific research on QA in higher education as QA research bears important clues about who conducts quality assurance research in HE and on which keywords. In this study, the global diffusion of research on QA in higher education is examined in relation to the following research problems:

(1) What collaboration structures exist between countries in QA studies? How have these structures evolved over time?
(2) What is the co-occurrence relationship between the keywords of these studies? How have these keywords change over time?

Method

The method used in this research is bibliographic (science) mapping which aims to understand the nature and development of different disciplines by analyzing scientific

texts via various statistical methods (Morris & Van der Veer Martens, 2008; Pritchard, 1969).

Data was extracted from the Web of Science (WOS Core Collection) on 21 December 2021. For this purpose, 'higher education' and 'quality assurance' were selected as the search terms. Although other synonymous terms are also being used for quality assurance, particularly recently, the term 'quality assurance' was chosen because it is more inclusive of all the decades studied. The search area was chosen as 'topic' which included topic field title, abstract, author keywords. As a result, 3080 scientific texts were accessed. The bibliographic data were exported with the 'full record and cited references' content.

The scientific text types in the data set comprised articles (60.55%), proceedings (31.90%), book chapters (5.60%), editorial materials (1.24%), books (0.34%), book reviews (0.28%), meeting abstracts (0.06), and database reviews (0.03). The year span of studies was chosen as 1990–2021 because the earliest studies encountered through the WoS database were in 1990 (Figure 1).

VOSviewer 1.6.9 software tool (Van Eck & Waltman, 2018) was used in the analysis process. This software produces relationship maps and related output which show networks.

Co-authorship in terms of countries (the countries where the authors' institutions are located) and co-occurrence analyses (author keywords) were conducted based on research problems. Co-authorship is basically an analysis that deals with the collaborative relations between authors in multi-author studies (Peters & Van Raan, 1991; Stokes & Hartley, 1989). Co-occurrence is a type of analysis that reveals the most used keywords, the changes that occur in the keyword pattern over time, and co-occurrence relations (Callon et al., 1983; Van Eck & Waltman, 2018).

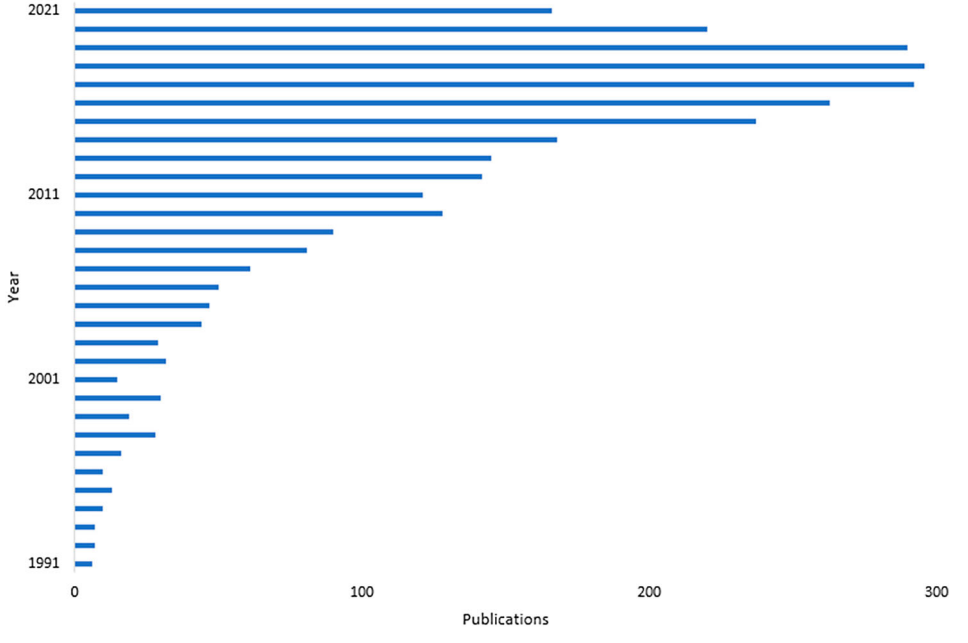

Figure 1. Number of publications in years.

Table 1. Analyses and their descriptives.

Analyses	Data type	Counting method	Unit of analysis	Results	Cut-off points (for the map)	Selected terms (for the map)
Co-authorship	Bibliographic data	Full counting	Countries	113	Minimum number of documents of a country = 2	84
Co-occurrence	Bibliographic data	Full counting	Author Keywords	2587	Minimum number of occurrences of a keyword = 3	175

In the full counting method used for both of the analyses in this study, each term (author country/keyword) searched during the analysis process is equal and has a value of 1 and it is not proportional to parameters such as the number of authors (Van Eck & Waltman, 2018). The analyses carried out, the type of data used, the counting method and the number of terms reached in each analysis are given in Table 1.

A very important problem in bibliographic mapping is to create the selection criteria, in other words, cut-off points for the maps to be produced, because if the cut-off points are not determined, extremely complex, incomprehensible maps can be encountered and while some terms overlap, some important terms are lost. In this regard, ensuring clarity and preserving as many details as possible were the basic criteria the researchers focused on. With this view, by trying different cut-off points, the researchers reached the most understandable maps that cover the most terms and relationship structures. The cut-off points and the number of terms selected are given in Table 1.

Table 1 show that 84 countries that have at least two publications entered the co-authorship map but the expanded table on country classifications is also given in Table 3. In the co-occurrence map, 175 keywords that were found in at least three different texts were included and the representation power of these words is quite high. Considering the total relationship strength of all keywords, it is seen that these keywords have 64.60% of the total relationship weight.

Results

Collaboration structures

Findings on co-authorship were examined from two perspectives: the rate of scientific text production and the strength of collaborative relations. The co-authorship map of

Table 2. Top ten countries that produce the most scientific texts.

	1990–2021	1990–1999	2000–2009	2010–2019	Pandemic period
1	USA	USA	USA	USA	USA
2	England	England	England	England	PRC
3	Germany	Australia	Germany	Germany	Australia
4	Australia	Germany	Australia	Australia	England
5	PRC	Poland	Romania	Canada	Germany
6	Canada	Canada	Netherlands	Spain	Japan
7	Spain	Lithuania	PRC	PRC	Netherlands
8	Netherlands	Scotland	South Africa	Netherlands	New Zealand
9	Romania	Italy	Canada	Taiwan	Norway
10	South Africa	Belgium	Spain	South Africa	Pakistan

Table 3. Global prevalence of QA research in higher education.

	1990–2021	1990–1999	2000–2009	2010–2019	Pandemic period
East Asia & Pacific	**IW:** 16.29% **RD:** 34.21%	*Australia, PRC, New Zealand, Philippines, Taiwan, Thailand* **IW:** 19.04% **RD:** 15.79%	*Australia, PRC, Indonesia, Japan, South Korea, Malaysia, New Zealand, Singapore, Taiwan, Thailand* **IW:** 13.90% **RD:** 26.31%	*Australia, PRC, Indonesia, Japan, South Korea, Malaysia, Mongolia, New Zealand, Philippines, Singapore, Taiwan, Thailand* **IW:** 15.64% **RD:** 31.58%	*Australia, PRC, Indonesia, Japan, South Korea, Malaysia, New Zealand, Taiwan, Thailand, Vietnam* **IW:** 25.50% **RD:** 26.32%
Europe & Central Asia	IW: **51.40%** RD: **75.41%**	*Belgium, Estonia, France, Germany, Italy, Lithuania, Luxembourg, Netherlands, Poland, Romania, Sweden, Switzerland, England, North Ireland, Scotland* IW:**41.67%** RD: **25.00%**	*Austria, Belgium, Bulgaria, Croatia, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Lithuania, Luxembourg, Netherlands, Norway, Poland, Portugal Romania, Russia, Slovenia, Spain, Sweden, Switzerland, Turkey, England, Scotland, Wales* IW:**58.92%** RD: **48.33%**	*Armenia, Austria, Belgium, Bosnia & Hercegovina, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Italy, Kazakhstan, Kosovo, Kyrgyzstan, Latvia, Lithuania, Netherlands, Norway, Poland, Portugal, Romania, Russia, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine, England, Scotland, Wales, Uzbekistan, North Ireland* IW: **51.36%** RD: **70.49%**	*Austria, Azerbaijan, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Netherlands, North Macedonia, Norway, Romania, Slovenia, Spain, Turkey, England, Scotland, Wales, Croatia* IW: **33.56%** RD: **40.00%**
Latin America & Caribbean	IW: **4.75%** RD: **30.95%**	*Chile, Mexico* IW: **2.38%** RD: **4.76%**	*Argentina, Bolivia, Brazil, Chile, Colombia, Cuba, Jamaica, Mexico, Nicaragua* IW: **3.94%** RD: **21.43%**	*Argentina, Brazil, Chile, Colombia, Cuba, Ecuador, Mexico, Peru, Uruguay* IW: **5.31%** RD: **21.43%**	*Brazil, Chile, Colombia, Ecuador, Peru, Trinidad and Tobago* IW: **6.04%** RD: **14.28%**
Middle East & North Africa	IW: **3.54%** RD: **66.67%**	*Kuwait, U Arab Emirates* IW: **2.38%** RD: **9.52%**	*Algeria, Bahrain, Egypt, Jordan, Iran, Israel, Saudi Arabia, U Arab Emirates, Oman* IW: **2.49%** RD: **42.85%**	*Algeria, Bahrain, Jordan, Kuwait, Qatar, Saudi Arabia, Iran, Iraq, Israel, Lebanon, Malta, Oman, U Arab Emirates* IW: **3.87%** RD: 6**1.91%**	*Qatar, Saudi Arabia, Egypt, Iran, Iraq, Israel, Lebanon* IW: **6.04%** RD: **33.33%**
North America	IW:**17.53%** RD: **100%**	*USA, Canada* IW: **34.52%** RD: **100%**	*USA, Canada* IW: **17.94%** RD: **100%**	*USA, Canada* IW: **16.50%** RD: **100%**	*USA, Canada* IW: **13.42%** RD: **100%**
South Asia	IW: **2.62%** RD: **75%**		*India, Nepal* IW: **1.87%** RD: **25.00%**	*Bangladesh, India, Pakistan* IW: **2.30%** RD: **37.50%**	*Afghanistan, Bangladesh India, Nepal, Pakistan, Sri Lanka* IW: **8.05%** RD: **75%**
Sub-Saharan Africa	IW: **4.25%** RD: **27.08%**		*South Africa, Zimbabwe* IW: **3.32%** RD: **4.17%**	*Botswana, Ethiopia, Ghana, Kenya, Mauritius, Mozambique, Namibia, Nigeria, South Africa, Sudan, Tanzania, Uganda, Zimbabwe* IW:5**.02%** RD: **27.08%**	*Botswana, Ethiopia, Ghana, South Africa, Tanzania, Zimbabwe* IW: **6.04%** RD: **12.5%**
Global diffusiveness	**51.13%**	**13.12%**	**29.09%**	**43.18%**	**27.60%**

In this classification, Scotland, Wales, England and North Ireland were listed separately in accordance with the WOS classification, instead of the UK in the World Bank Country and Lending Groups. While evaluating the North American continent, Bermuda, which is located in this continent, was not considered in this classification.

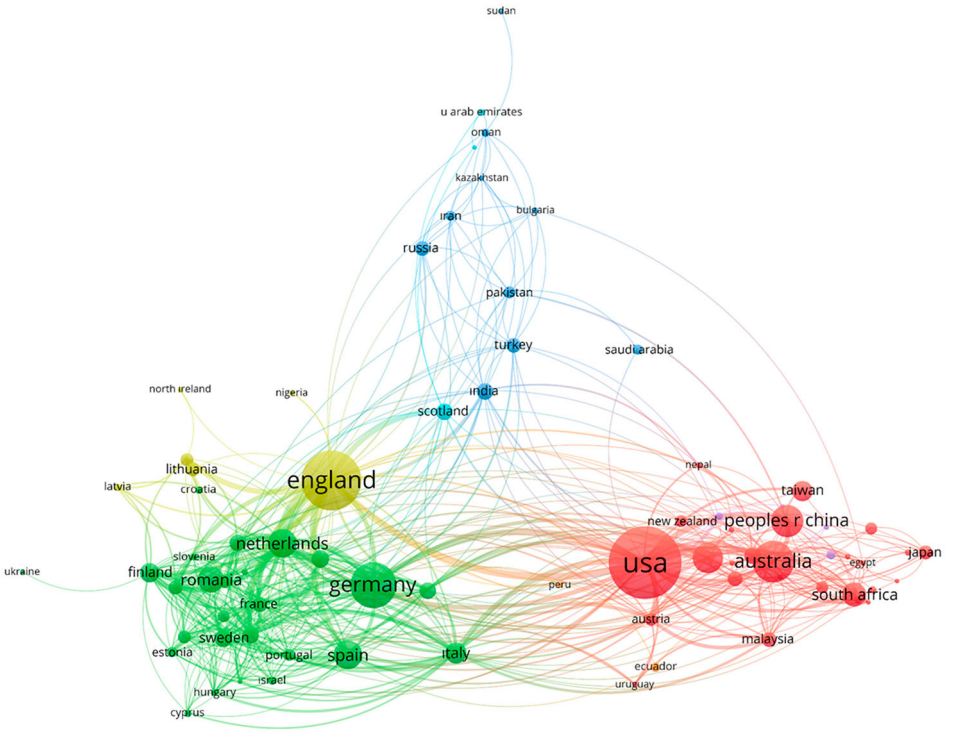

Figure 2. Co-authorship map.

the countries' production of scientific texts is presented in Figure 2. The size of the nodes in the map represents the density (multiplicity) of the publications from that country, and the thickness of the lines represents the strength of the collaborative relations between countries.

The top three countries with the highest number of publications are the USA, England and Germany. In Table 2, the countries with the highest publication rates in 10-year periods are presented.

Table 2 shows that while there is a certain amount of consistency within the top three countries over the period of 1990–2021 regarding the density of publications, there is a higher amount of change in countries at the bottom of the list, entering or dropping off the list.

With the 2000s, it is understood that the diversity of countries and the global geographical distribution have increased significantly. While scientific texts from 29 countries were encountered in the 1990s, this number increased to 64 in the 2000s and to 95 in the 2010s.

Table 3 shows this expansion observed in the study together with the geographical distribution utilizing The World Bank Country and Lending Groups Classification (2022). Authors of this study developed two parameters to better understand the distribution by country given in Table 3. The first is the intra-period publication weight (IW), which expresses the ratio of the number of publications from a geographical region to the total number of publications in the examined 10-year period, and the second is the

regional diffusiveness (RD), which expresses the ratio of the number of countries publishing from a geographical region to the total number of countries in that region.

Table 3 shows that the global diffusiveness of QA research was around 51% among the world's countries. In other words, researchers from 51% countries in the world have been involved in scientific studies in this field. This global diffusiveness was 13% in the 1990s, it reached 29% in the 2000s and 43% in the 2010s and even during the pandemic period, it remained at the level of 27%, pointing to the increase in the global importance given to QA in higher education. Regarding RD, North American countries worked in this area in all ten-year periods. There is also a significant spread within the European and Central Asian countries. In 2010, the prevalence of QA research in the countries of this region was 70%, with 42 countries involved. RD is relatively low in Sub-Saharan Africa, Latin America and the Caribbean, East Asia and the Pacific, and South Asia regions. However, a significant increase in diffusion was seen during the pandemic period in the South Asian region.

As for publication rates, it was found that Europe and Central Asia made the highest contribution in almost every 10-year period. Publications from this region constitute 51% of the total publications, followed by North America and East Asia and the Pacific. Regions that contribute the least are South Asia, Middle East and North Africa, Sub-Saharan Africa and Latin America and the Caribbean. The results reveal that research is increasing according to the socioeconomic development level of countries and regions, both in terms of research intensity and RD.

In regard to the co-authorship map to develop collaborative relations, it is found that the countries with the highest co-authorship relations were England, the USA, Netherlands, Germany, and Belgium. Countries with the strongest collaborative relations were England-Netherlands, Netherlands-Belgium, England-the USA, the USA-People's Republic of China (PRC), and the USA-Germany. This shows that collaborative relations were the strongest in North America and Northern Europe. Considering the co-authorship holistically, it is observed that the contributions to the map from different parts of the world increased with the 2010s, and therefore, global academic collaboration in the field has developed in time. These relatively new contributions reveal that countries that started academic collaborations in 2010 are mostly in the category of developing countries and they tend to cooperate with developed countries such as the USA, England, Germany, PRC and Australia rather than cooperating among themselves. This points out that the understanding of QA in the literature and therefore, the prevailing view in the global HE ecosystem is expanding on the axis of these countries.

Co-occurrence relationships

The co-occurrence relationships are discussed in terms of the most common keywords, their co-occurrence and the disciplines they belong to. The co-occurrence map is presented in Figure 3.

The most frequently encountered keywords between 1990 and 2021 and in 10-year periods are presented comparatively in Table 4.

Table 4 exhibits that QA research is mainly examined within the framework of QA keywords. While research before the 2010s focuses more on quality management, a significant diversity has emerged in both educational concepts and QA approaches and

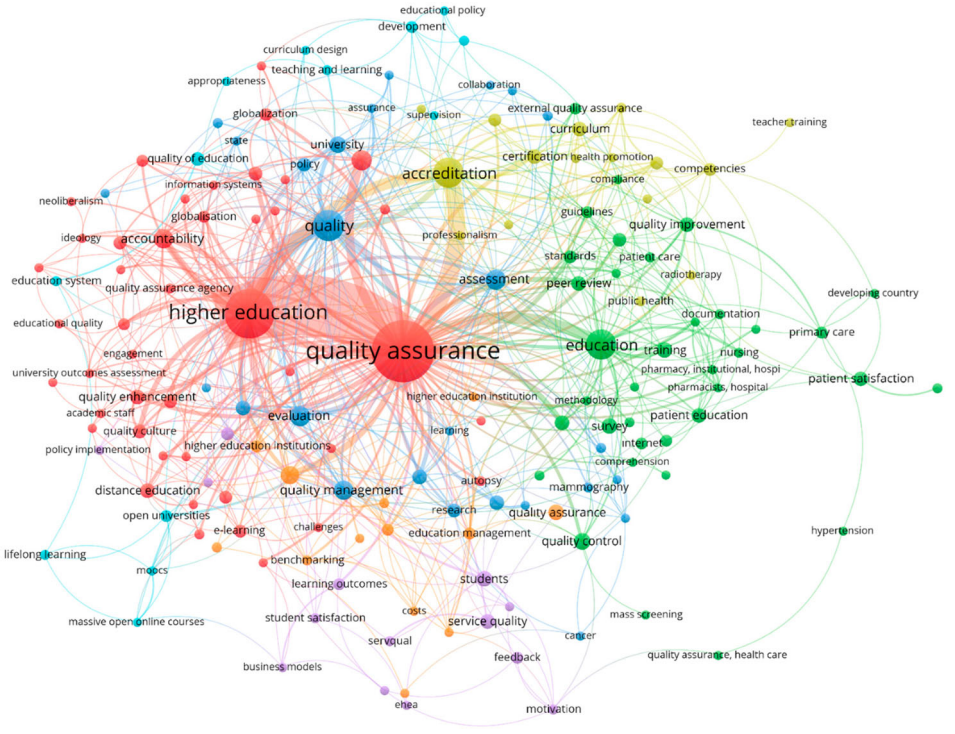

Figure 3. Co-occurrence map.

methods since the 2010s. Research in QA focused on around 81 keywords in the 1990s, 234 in the 2000s, and 624 in the 2010s. This expansion also indicates that relations have been established with more diverse scientific disciplines over the years.

In Table 5, this expansion is presented together with the disciplines. In this classification, the discipline to which each keyword is related was decided by the researchers both by looking into the conceptual meanings of the keywords and by examining the relationship structures on the co-occurrence map. In order to better understand and

Table 4. Top ten keywords.

	1990–2021	1990–1999	2000–2009	2010–2019	Pandemic period
1	Quality assurance	Quality assurance	Quality assurance	Quality assurance	Quality assurance
2	Higher education	Education	Higher education	Higher education	Higher education
3	Quality	Hospital	Education	Quality	Accreditation
4	Accreditation	Quality control	Accreditation	Accreditation	Quality
5	Education	Performance indicators	Evaluation	Education	Education
6	Assessment	Higher education	Quality	Universities	Challenges
7	Bologna process	Accountability	Quality management	Assessment	Covid-19
8	Evaluation	University outcomes assessment	Accountability	Bologna process	Decision-making
9	Quality management	Training	Bologna process	Quality management	External quality assurance
10	Accountability	Safety	Universities	Survey	Internal quality assurance

interpret this table, an IW parameter, which expresses the ratio of the keyword density in a discipline to the total number of keywords encountered in that period, was used.

Table 5 shows that starting from the 2010s, keywords from the HE field reached a higher level in terms of both diversity and weight within the period. Also, with the 2010s, QA research broadened its interest to include concepts from the fields of business and management, and engineering.

In the co-occurrence map, the top five keyword pairs having the strongest relationship were found to be quality assurance-higher education, followed by quality assurance-accreditation, higher education-quality, quality assurance-education, higher education-accreditation.

Discussion

Concepts of sustainability and academic excellence came to the fore in the 90s and 2000s in the HE field and it has become open to worldwide collaboration (Buckner, 2017). International organizations, networks and agencies also contributed significantly to the removal of borders and the expansion, circulation and access (Zapp et al., 2021). However, it should not be overlooked that the HE perspective of developed countries is at the center of all this expansion. The results regarding the large quantity and continuity of the US-originating research revealed in the study provide evidence for the existence of such an effect in terms of QA in higher education.

The expansion of QA research in the last 20 years indicates that they are being used to chart a healthy course for the transformation in HE. Especially in times of crisis, this research was also triggered. The increase in the global geographical spread of research in this field during the pandemic period, and the concept of 'challenge' added to the co-occurrence map in this period support this idea.

By 2021, half of the world were involved in QA research. Although the USA has the highest number of texts as a country, Europe and Central Asia make up the highest weight in total and also for 10-year periods. Co-authorship relations show that Northern European countries have a significant collaboration rate. The Bologna Process and related intercultural exchange should be emphasized as forming dynamics of the understanding of QA in higher education in European countries (Watson, 2009). The results indicate that global QA research has emerged in the axis of Europe. Hence, Europe is an important global actor in the diffusion of the QA culture. The fact that the other prominent actors are North America, East Asia and the Pacific regions also proves that the QA culture is spreading in the orbit of developed countries in the field of HE.

Regions that are relatively weak within the co-authorship map are South Asia, the Middle East and North Africa. An important parameter for regional partnership power is regional diffusion, that is, how many different countries contribute to the research in that region. Regional diffusion has increased tremendously since the 2010s in these regions which shows that QA studies have been widely produced. This expansion also indicates that QA culture has begun to spread in these regions. In Sub-Saharan Africa, Latin America and Caribbean regions, both the number of studies and regional diffusion are relatively low. Therefore, it can be concluded that QA culture is not yet widespread in these regions. The disparity in the regional diffusion of QA research strongly points to the heterogeneity in QA practices and culture in higher education

Table 5. Common concept pattern of QA research in higher education (For keywords appearing in three or more articles).

	1990–2021	1990–1999	2000–2009	2010–2019	Pandemic period
Higher education	Weight: **41.09%**	*Education, higher education, university outcomes assessment, training, administration, academic achievement* IW: **20.99%**	*Higher education, education, universities, distance education, policy, bologna process, globalization, training* IW:**25.06%**	*Higher education, education, universities, bologna process, certification, students, teaching, distance education, e-learning, higher education institutions, leadership, learning outcomes, open universities, competencies, credentialing, curriculum, feedback, globalization, higher education policy, management, online learning, policy, student, satisfaction, training, autonomy, development, education for sustainable development, education management, engagement, European higher education area, higher education institution, internationalization, managerialism, massive open online courses, motivation, policy change, practice, professional development, satisfaction, stakeholders, teaching and learning, validity, surveys* IW:**47.60**%	*Higher education, education, challenges, learning outcomes assessment, student participation, students, universities, surveys* IW:**44.44**%
Quality assurance	Weight: **48.39%**	*Quality assurance, quality control, performance indicators, accountability, safety, guidelines, evaluation* IW:**54.32%**	*Quality assurance, accreditation, evaluation, quality, quality management, accountability, quality control, assessment, peer review, regulation, screening, methodology, service quality, standards* IW:**55.98%**	*Quality assurance, quality, accreditation, assessment, quality management, evaluation, governance, quality enhancement, quality of education, accountability, quality improvement, peer review, quality assessment, quality culture, service quality, servqual, quality control, quality indicators, indicators* IW: **44.39%**	*Quality assurance, accreditation, quality, external quality assurance, internal quality assurance, quality culture, regulation* IW: **50.42%**
Medical & medical education	Weight: **8.80%**	*Hospitals, pharmacy, patient education, nursing, hospitals, medical education* IW: **20.99%**	*Health care, patient satisfaction, medical education, pharmacists, hospital, pharmacy, mammography, patient education* IW:**13.72%**	*Patient safety, patient education, medical education, patient care, primary care, autopsy, breast cancer, hypertension, nurse education, public health, radiation safety, resident education* IW:**7.05%**	
ICT	Weight: **0.57%**	*Internet,* IW:**3.70%**	*Internet,* IW: **1.28%**		
Business & management	Weight: **0.57%**			Business models, IW:**0.48%**	*Decision-making,* IW: **2.56%**
Engineering & eng. educ.	Weight: **0.29%**			*Engineering education,* IW:**0.48%**	
Covid 19	Weight: **0.29%**				*Covid 19,* IW: **2.56%**

around the world. However, it should not be forgotten that an indicator that should be considered in the abundance of publications in a region is the number of researchers in that region.

Results related to the keywords reveal that until the 2000s, QA was perceived as a fixed quality management systematic. Until this period, educational processes were considered to be more stationary and static. Therefore, QA was approached only in the form of guaranteeing the learning outcomes set forth by the programs, and in this context, components such as learning outcomes, program accreditation and in-service training were emphasized. Particularly with the 2010s, there was an expansion on the axis of concepts such as education policies, curriculum, innovative methods, mobility, students, stakeholders, satisfaction, globalization, online learning. It is understood that with this period, education processes were perceived as more dynamic within QA research, and they focused on creating a transformation in teaching-learning processes and the understanding of education rather than providing only the defined outcomes. This transformation that took place in the perspective of education processes in the 2010 period was also reflected in the concepts of QA, and the view of the existing quality management systematic was replaced by the improvement of QA understanding and practices. In this respect, concepts such as the quality of education, quality culture, quality improvement, and peer review are distinctive.

When the relations between the concepts are considered, it is understood that, despite the significant enrichment experienced over the years, a more centralized structure with certain paths and borders is preserved rather than a participatory and developmental nature in the relationship between HE and QA. However, concepts such as students, satisfaction, motivation, credential, competencies, teaching and learning, and curriculum design that entered the co-occurrence map in recent years but are not yet showing a strong relationship indicate that this mainstream is changing towards a more dynamic form.

While the HE field is expanding at a global level, universities are entering into a relationship that turns towards more active and well-known actors and simulates their practices, which can be defined as isomorphism. This concept might be explained under three headings: taking institutional applications directly or simulating the existing structure (cultural-cognitive isomorphism); standardization and professional practices that result from membership in various quality agencies and institutions (normative isomorphism); and legal frameworks and accreditation requirements (regulatory isomorphism) (Zapp et al., 2021). In this context, it can be said that the number of collaborative networks and concepts, whose number has increased rapidly since the 2000s, have undergone a transformation and distribution among HE institutions at a global level, with a large-scale isomorphic effect. It might also be concluded that the effect of normative isomorphism has emerged as a natural result, especially with the expansion of the activity areas of international quality agencies. With the 2010s, the boom in concepts in the HE field reveals that higher education institutions are now moving towards a common discourse, again pointing to all of the three isomorphic effects. Researcher mobility programs and collaborations may have contributed to the development of the above-mentioned common discourse and to the inter-institutional diffusion of that discourse, learning methods, and the institutional ethos in general, and thus may have contributed to the conceptual increase in findings, namely inter-institutional diffusion.

The fact that the concept of accreditation has come up in every ten-year period since the 2000s might be explained by the existence of quality agencies which were established in almost every country. This in turn might have resulted in the diffusion of accreditation and related concepts across HE institutions. Although accreditation and quality standards are carried out by countries' own agencies, they are mostly affiliated to umbrella agencies, and national quality agencies which were catalysts in spreading a common discourse and culture. It seems difficult for today's HE institutions to remain indifferent to the following determination of Karakhanyan and Stensaker (2020, i):

> … one of the primary roles of quality assurance in tertiary education is ensuring relevance and credibility of tertiary education provisions to the ever-changing needs of the macro world of industry, politics and society at large, more and more governments are currently prioritizing quality assurance to drive the required changes in governance of higher education systems, mutual recognition across national borders, and accountability to the public in different parts of the World.

Additionally, it might be concluded that important influences such as the European Qualifications Network and the Bologna Process (Witte et al., 2008) had an undeniable effect on this normative isomorphism and the development of common discourses.

It can be said that these processes of emulation have changed and transformed HE institutions, and the effect we observed with the strengthening of collaborative research and the increase in conceptual diversity, leads to a diffusion at the global level. Looking prospectively, these indicate the necessity of more comprehensive research on whether this transformation remains superficial (façade), whether it penetrates the capillaries of institutions, and whether it ultimately creates a large-scale impact in terms of contribution to society.

Previous studies focus on considering local characteristics or needs, rather than global approaches, within the development of QA approaches. For example, Liu (2021), who deals with the effects of global rankings, which have been accepted as quality indicators in recent years, found that these contribute to the development of QA neither at the institutional nor at the system level. Liu (2021) also found that universities' being in the top rankings is a product of the interaction they developed with other HE institutions and external ranking schemes rather than QA systems. Similarly, Paradeise and Thoenig (2013), Klassen and Sá (2019), and Zapp et al. (2021) also reveal that the generally accepted quality understanding, standards and norms do not adequately represent the differences, problems and needs of universities and focus on more 'endemic' QA approaches where diversity is harmonized with global standards instead of the dominant rational understanding. It can be said that the expansion of conceptual structure on QA supports such a diversity. However, many relationships within this expansion are still weak, meaning stronger relationships need to be established between traditional, innovative and local QA concepts.

In conclusion, QA research in higher education has been changing and there is a significant cultural and conceptual expansion. However, from both perspectives, this appears to be centralized rather than participatory (de-centralized). When approached from the countries' perspective it can be concluded that HE and QA needs of cultures with developed or more established HE systems are different and these differences may not be sufficient to solve the problems of other cultures. In terms of concepts, it

is seen that the conceptualization that comes from the static quality understanding and focus on the best way to fulfil the functions of the defined components is still dominant. This understanding will limit the transformation capabilities of HE systems within the framework of their own needs.

Limitations

This study is a bibliometric research and includes QA research written in the English language in the Core Collection of the WoS database. Therefore, research outside this collection or those published in local languages were not covered. However, the data set is considered to be a good snapshot of the global situation in terms of both the number of texts and the regional diffusion that was accessed. Certainly, it is possible to analyze data obtained from different databases using the WOS Viewer. However, researchers have preferred to work with a single database to address duplication issues that may arise from articles scanned in multiple databases. Through this choice, the quality and reliability level of the scientific texts accessed is guaranteed.

The research comprises comparisons on a regional basis. The aim is to reveal the contribution of each region to global QA research and the diffusion of QA research – therefore, its culture – within those regions. Country-based analysis showed that countries such as India have remarkable publication numbers. However, for the purpose of this study, such specific cases are not discussed separately.

This research focuses on the big picture at a global scale. It is believed that future studies focusing on different databases, particularly research written in local languages, will enrich this picture with diversity.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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