BIBLIOMETRIC ANALYSIS OF SERVICE QUALITY IN HIGHER EDUCATION INSTITUTIONS

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ABSTRACT

In the continually evolving realm of Higher Educations Institutions (HEIs), the pursuit for understanding and improving Service Quality (SERVQUAL) stands as a pivotal role. As institutions worldwide navigate diverse challenges and changing educational paradigms, the assessment of SERVQUAL becomes crucial for enhancing student experiences, institutional effectiveness, and global academic standing. This research embarks on a comprehensive exploration, spanning two decades and encompassing over 2,000 documents sourced from prominent journals and databases. The distribution of corresponding authors by country emphasizes the global collaboration in SERVQUAL research, with the United States, China, and the United Kingdom are leading. This comprehensive analysis provides a clear understanding of the bibliometric landscape of SERVQUAL in HEIs, offering valuable insights into the evolution of research, impactful sources, prolific authors, influential affiliations, and global research collaboration over the specified timeframe. Through meticulous bibliometric analysis and cutting-edge visualization tools, the study aims to unravel the intricate threads of SERVQUAL trends, identify influential sources and authors, and shed light on collaborative networks shaping the discourse. By delving into annual scientific production, citation patterns, and emerging thematic trends, this research seeks to contribute valuable insights to the ongoing dialogue on SERVQUAL in HEIs, offering a roadmap for informed decision-making and future research endeavors in this dynamic domain.

Keywords: SERVQUAL, HEIs Institutions (HEIs), Bibliometric Analysis, Student Satisfaction.

INTRODUCTION

The landscape of HEIs has undergone significant transformations in recent decades, driven by evolving societal needs, technological advancements, and a growing emphasis on quality and accountability [1]. One critical aspect that has gained considerable attention is the delivery of services within HEIs. SERVQUAL in HEIs has become a focal point for administrators, educators, and researchers as they seek to enhance the overall learning experience for students [2]. Understanding the nuances of SERVQUAL in this context is paramount, and bibliometric analysis serves as a powerful tool to explore and evaluate the scholarly contributions in this domain [3].

As the demand for HEIs continues to rise globally, institutions face heightened expectations to provide not only robust academic programs but also exceptional support services [4]. The concept of SERVQUAL extends beyond traditional measures of academic excellence and encompasses various elements, such as administrative efficiency, accessibility, interpersonal relationships, and overall student satisfaction. Exploring the body of literature through a bibliometric lens allows for a systematic examination of the research landscape [3], identifying key themes, influential authors, and emerging trends in the study of SERVQUAL in HEIs [5].

Human minds, as both recipients and providers of educational services, play a central role in shaping the dynamics of SERVQUAL within HEIs [6]. The psychological aspects of students' experiences, faculty engagement, and administrative decision-making contribute to the multifaceted nature of SERVQUAL [7]. This bibliometric analysis aims to delve into the scholarly

conversations surrounding the intersection of SERVQUAL in HEIs and the intricacies of the human mind [8]. By synthesizing and analyzing the existing literature, this study seeks to provide insights into the prevailing research themes, methodological approaches, and gaps in understanding how the human mind influences and is influenced by SERVQUAL in HEIs [9]. The evolving HEIs establishes the evolving nature of HEIs and the multifaceted changes it has undergone [10]. This involves acknowledging the societal, technological, and accountability-driven shifts that have propelled institutions to reevaluate their offerings [11]. The emphasis is on the critical role of service delivery within these institutions as a response to the increasing demand for quality education.

The bibliometric analysis delves into the importance of SERVQUAL within HEIs. It highlights the broader scope of SERVQUAL [12], extending beyond academic measures to encompass administrative efficiency, accessibility, interpersonal relationships, and overall student satisfaction [8] [13]. This sets the stage for understanding SERVQUAL as a holistic concept crucial for enhancing the overall educational experience. It also introduces bibliometric analysis as a pivotal method for studying the existing body of literature on SERVQUAL in HEIs [14]. It emphasizes the systematic nature of this approach, which allows for a structured examination of scholarly contributions. By employing bibliometric analysis, researchers can identify key themes, influential authors, and emerging trends in the field, providing a quantitative and qualitative overview of the scholarly landscape [15]. It also acknowledges the significance of human minds as both recipients and providers of educational services. This acknowledgment is crucial for understanding the psychological aspects of students' experiences, faculty engagement, and administrative decision-making, all of which contribute to the complex nature of SERVQUAL in HEIs [16].

RQ1: How has the annual scientific production in SERVQUAL research within HEIs evolved over the period from 2000 to 2023?

RQ2: What insights can be gained from the citation analysis of SERVQUAL research in HEIs and what are the most relevant and frequently cited sources in the field of SERVQUAL in HEIs?

RQ3: Who are the most impactful authors, their affiliation with institutions in SERVQUAL research in HEIs?

RQ4: How does the scientific production vary across different countries and regions in the field of SERVQUAL in HEIs?

RQ5: What are the most cited countries, key thematic elements and areas of emphasis in literature on SERVQUAL in HEIs?

RQ6: How do the identified clusters of research topics and what pattern emerges from collaboration map in SERVQUAL in HEIs reflect the diversity and richness of scholarly work?

1. Literature Review

These challenges included balancing the concerns of library staff and users, maintaining service quality, and transitioning to digital collections and online resources [17]. Despite the difficulties, the pandemic also presented opportunities for academic libraries to enhance their digitalization efforts and prepare for future developments in service provision. A key takeaway from the literature is the importance of human-centric approaches in managing libraries during crises, highlighting the need for effective communication, empathy, and flexibility among library staff [18].

Lean management [19] practices have gained recognition in the context of Higher Education Institutions (HEIs), with a focus on improving organizational performance. Research has shown that practices such as leadership support, employee involvement, and focus on internal customers, long-term thinking, community service value, waste elimination, and continuous improvement positively influence organizational performance in HEIs [20]. These findings underscore the importance of human factors, such as leadership and employee engagement, in implementing Lean practices in HEIs. Furthermore, the study emphasizes the need for HEI leaders and managers to promote better management practices that align with Lean principles to enhance organizational performance and service quality [21].

Service Quality (SQ) in higher education is influenced by various factors, including job involvement (JI), job satisfaction (JS), and organizational commitment (OC) of employees [21, 22] . A study conducted in developing countries highlights the significance of integrating a mediating and moderating model to improve SQ through JI, JS,

and OC. The findings suggest that JS positively impacts OC and SQ, with OC partially mediating the effect of JS on SQ. Additionally, JI plays a moderating role in the JS-OC and SQ relationship. This study underscores the importance of employee perceptions and attitudes in enhancing SQ in higher education contexts, emphasizing the need for institutions to focus on employee well-being and engagement to improve service quality.

Effective feedback is crucial in pre-service teacher training, particularly in developing complex skills such as diagnostic reasoning [23]. A study on pre-service teachers' diagnostic reasoning in simulated teaching environments found that automatic adaptive feedback, based on artificial neural networks, positively influenced the quality of justifications in written assignments. The study highlights the potential of adaptive feedback systems to provide scalable and process-oriented feedback to improve learning outcomes in teacher training programs. Furthermore, the study emphasizes the role of technology in enhancing feedback mechanisms and improving the quality of teacher training programs [24].

Teacher biases based on students' socioeconomic status (SES) and ethnicity can significantly impact educational outcomes [25]. A study in the United Kingdom found that teachers' knowledge about students' SES influenced their judgments about the quality of their work and future potential. Teachers tended to perceive students from lower SES backgrounds as inferior, highlighting unconscious biases that may contribute to educational disparities. The study emphasizes the importance of addressing teacher biases and promoting equity-enhancing teaching practices to improve educational outcomes for all students.

Governance failures in Higher Education Institutions (HEIs) are attributed to the dominance of predatory officials and business groups in institutional governance. These failures have led to a relative marginalization of elements supporting improved research, teaching, and community service. The study argues that governance reform in HEIs is possible when reformist elements gain control and drive change from the top down.

2. Research Methodology:

This study has employed Scopus, a comprehensive abstract and indexing database that includes full-text links. More than 15000 peer-reviewed journals, such as those from Emerald, Elsevier, Springer and Taylor & Francis are covered by Scopus. In this study, only Scopus is used because it is difficult to synchronize bibliometric data obtained from two or more databases, reducing the likelihood of robust bibliometric analysis. Using Scopus is a better way to evaluate research results due to its integrated interface and comprehensive coverage. Moreover, bibliometric analyses frequently use one database, which is acceptable and common practice. Furthermore, other databases would not adequately cover narrower study fields, such as the literature on QA in HEIs; Scopus is more suited for doing so. The Scopus database widely includes social sciences research as its major strength.

The study successfully achieved its objectives by leveraging valuable tool, R-package with biblioshiny. The R-package is a robust tool uses for statistical calculation and visualization software package. The study employed the bibliometric method to analyze a substantial collection of peer-reviewed publications, aiming to assess the quality and trends within a specified timeframe. Through scientific identification, comprehensive statistics, and systematic literature collation, researchers gain the ability to swiftly interpret a large volume of documents and extract essential information. It's noteworthy that bibliometric utilizes co-citation and co-occurrence analysis as crucial approaches.

A total of 2131 documents were identified from the time span of from 2000 to 2023 as related to SERVQUAL in HEIs institutions (HEIs). Despite the findings revealing the evolution of the concept in HEIs since 1985, only three articles were published up to 1992. Notably, there was a discernible increase in the discussion of SERVQUAL QA in HEIs starting in 1993. Consequently, the study focused on the last three decades, covering the period from 2000 to 2023. Following the refinement of the search criteria to include only English-language publications and limit the timeframe to three decades, the count stood at 2131 documents.

3. Data analysis with key results:

In conducting a research article focused on SERVQUAL in HEIs spanning from the year 2000 to 2023, a thorough examination of 2,131 documents from diverse sources, including journals and books, was undertaken. The data encompasses a wide array

of topics and insights, with an average document age of 6.95 years and. Each document, on average, has been cited 16.64 times, indicating a notable impact on the academic discourse. The extensive reference base, totaling 78,880 citations, underscores the depth and breadth of the literature reviewed. The collaborative nature of the research is evident in the involvement of 6,233 authors, with 331 individuals contributing as sole authors. International collaboration is robust, constituting 17.03% of co-authorships. The document types are diverse, with 1,616 articles, 439 conference papers, and 76 review articles, offering a comprehensive exploration of SERVQUAL in HEIs. The inclusion of 6,476 Keywords Plus and 5,090 author-specified keywords further enriches the understanding of the research landscape. This collective information paints a detailed and nuanced picture of the state of SERVQUAL in HEIs over the specified timeframe, offering valuable insights for academic discourse and future research endeavors.

a. Annual Scientific Production

Over the two-decade span from 2000 to 2023, an extensive analysis as mentioned in Table 1 articles related to SERVQUAL in HEIs reveals a dynamic and evolving landscape. Commencing with a modest count of 9 articles in 2000, the yearly output steadily increased, reaching peaks in 2019 with 170 articles, and again in 2021 with 194 articles. Notable spikes in research output occurred in 2010, 2016, 2018, and 2020, reflecting heightened scholarly interest and engagement. The year 2016, in particular, saw a substantial surge with 121 articles, marking a significant turning point. The trend indicates a sustained commitment to exploring SERVQUAL within HEIs institutions, mirroring the sector's growing significance. The consistent upward trajectory in research output underscores the enduring relevance and importance of investigating SERVQUAL in the HEIs domain over the specified timeframe.

Year Wise Publications
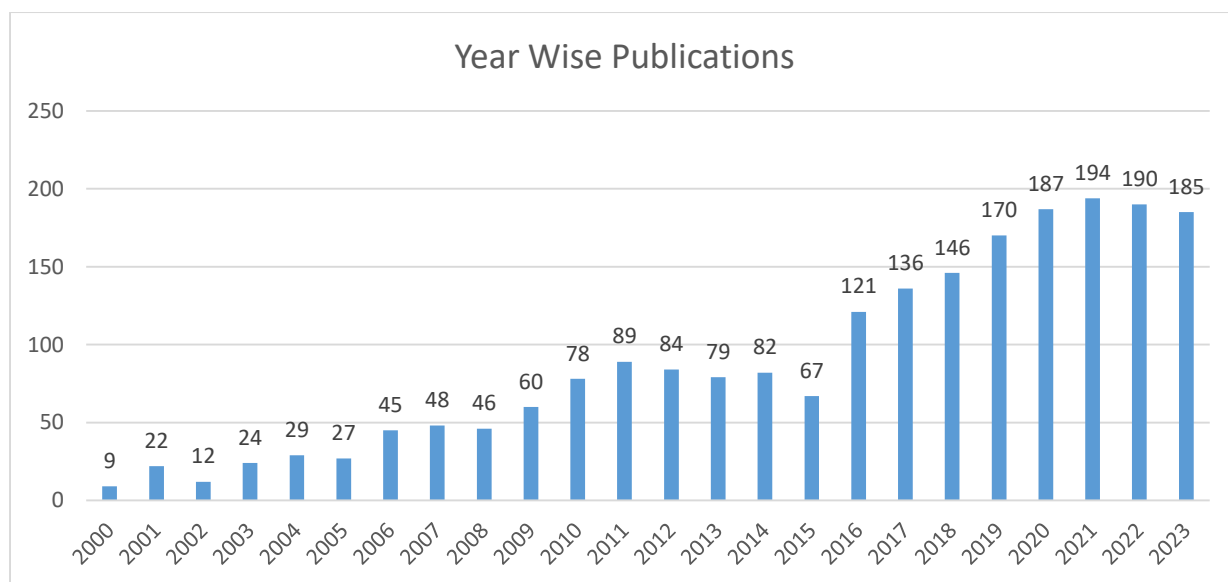
b. Annual Citation Per Year

The data reveals compelling insights into the impact and citation patterns of articles over the years. The mean total citations per article (MeanTCperArt) showcase variations, ranging from a substantial 52.67 in 2000 to a minimal 1.15 in 2023. The average number of citations per year (MeanTCperYear) provides an ind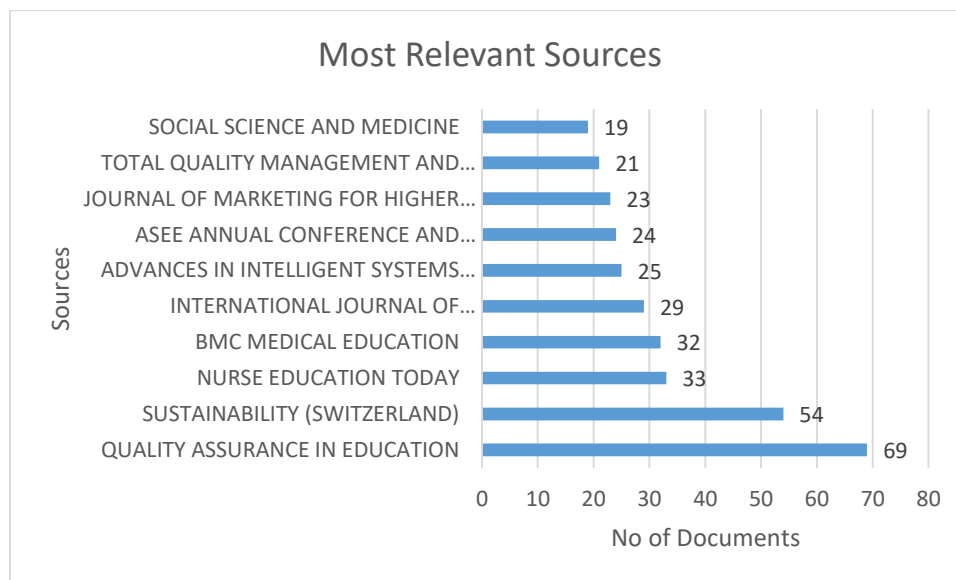ication of the sustained influence of articles over time. Particularly, 2005 stands out with an impressive 3.25 citations per year, underscoring the lasting impact of articles published during that period. This comprehensive examination of citation metrics offers a nuanced understanding of the enduring influence and temporal relevance of SERVQUAL research in HEIs.

Year	MeanTCperArt	N	MeanTCperYear	Year	MeanTCperArt	N	MeanTCperYear
2000	52.67	9	2.19	2012	23.87	84	1.99
2001	24.23	22	1.05	2013	22.61	79	2.06
2002	30.92	12	1.41	2014	16.55	82	1.66
2003	33.71	24	1.61	2015	16.99	67	1.89
2004	39.93	29	2	2016	17.84	121	2.23
2005	61.74	27	3.25	2017	14.57	136	2.08
2006	39.51	45	2.19	2018	13.99	146	2.33
2007	47.98	48	2.82	2019	11.35	170	2.27
2008	30.43	46	1.9	2020	12.13	187	3.03
2009	36.4	60	2.43	2021	7.72	194	2.57
2010	28.41	78	2.03	2022	2.92	190	1.46
2011	18.4	89	1.42	2023	1.15	185	1.15

c. Most Relevant Sources

This data sheds light on the most influential and frequently referenced sources within the academic landscape. Notably, "Quality Assurance in Education" emerges as a significant contributor with 69 articles, indicating its pivotal role in shaping discussions on SERVQUAL. Following closely is "Sustainability (Switzerland)" with 54 articles, highlighting the intersection of sustainability principles with HEIs SERVQUAL. "Nurse Education Today" and "BMC Medical Education" are prominent sources in the health education realm, contributing 33 and 32 articles, respectively. "International Journal of Educational Management" holds a noteworthy position with 29 articles, emphasizing its role as a valuable resource in the field. Other impactful sources include "Advances in Intelligent Systems and Computing" (25 articles), "ASEE Annual Conference and Exposition, Conference Proceedings" (24 articles), and "Journal of Marketing for HEIs" (23 articles). The inclusion of "Total Quality Management and Business Excellence" (21 articles) underscores the intersection of quality management principles with HEIs practices. Finally, "Social Science and Medicine" contributes 19 articles, offering a multidisciplinary perspective on SERVQUAL in HEIs. This analysis reveals a rich tapestry of sources, each playing a distinctive role in shaping the discourse and understanding of SERVQUAL within the HEIs domain.

Most Relevant Sources

Sources	No of Documents
SOCIAL SCIENCE AND MEDICINE	19
TOTAL QUALITY MANAGEMENT AND…	21
JOURNAL OF MARKETING FOR HIGHER…	23
ASEE ANNUAL CONFERENCE AND…	24
ADVANCES IN INTELLIGENT SYSTEMS…	25
INTERNATIONAL JOURNAL OF…	29
BMC MEDICAL EDUCATION	32
NURSE EDUCATION TODAY	33
SUSTAINABILITY (SWITZERLAND)	54
QUALITY ASSURANCE IN EDUCATION	69

The impact of the most relevant sources becomes evident when considering the H-index and G-index. "Quality Assurance in Education" stands out with a substantial H-index of 32 and a G-index of 61, underscoring its significant influence and extensive citation network. The "International Journal of Educational Management" follows closely with an H-index of 16 and a G-index of 27, reflecting a noteworthy impact in the academic community. "Nurse Education Today" and "Total Quality Management and Business Excellence" both exhibit strong influence, boasting H-indices of 15 and G-indices of 23 and 21, respectively. "BMC Medical Education" and "Journal of Marketing for HEIs" share similar H-indices of 14, emphasizing their considerable impact on SERVQUAL research. "Social Science and Medicine" contributes significantly with an H-index of 13 and a G-index of 19, adding a multidisciplinary perspective to the discourse. These metrics collectively highlight the scholarly impact and influence of these sources in shaping the understanding and discourse on SERVQUAL in HEIs.

d. Most Relevant Authors

The impact of influential authors becomes apparent through both the number of articles authored and the fractionalized contribution to the literature. Kumar S and Zhang Y emerge as prolific contributors, each with seven articles, with Kumar S exhibiting a fractionalized impact of 2.06 and Zhang Y at 2.65. Li J, Li L, and Li Y collectively contribute eighteen articles, each with distinct fractionalized impacts of 3.33, 2.48, and 1.63, respectively. Sultan P, Tarí JJ, Alves H, Antony J, and Davies J are other notable authors with significant contributions, each showcasing a fractionalized impact ranging from 1.31 to 4.5. These authors collectively shape the discourse on SERVQUAL in HEIs, their varying fractionalized impacts reflecting the diversity and depth of their individual contributions to the academic landscape.

Examining the authors' production over time provides valuable insights into the evolution of research contributions. Zhang Y, with publications spanning from 2007 to 2023, explores diverse topics, including teleworking during the COVID-19 pandemic, international students' perspectives, and SERVQUAL evaluations. Kumar S, contributing since 2014, delves into areas like nurse education, e-governance in teacher education, and the impact of virtual classroom training. Li Y, Li L, and Li J, collectively contributing since 2013, cover a wide range of subjects, including volunteer service and sustainable development, online education models, and educational foreign exchange policies in China. Sultan P, Tarí JJ, and Alves H, with works dating back to 2007, investigate themes such as the impact of SERVQUAL on university brand performance, self-assessment approaches in HEIs, and student co-creation in HEIs. This comprehensive analysis illuminates the diverse research landscape within SERVQUAL in HEIs, showcasing the multifaceted contributions of these authors across a range of pertinent themes and time periods.

Authors' Production over Time
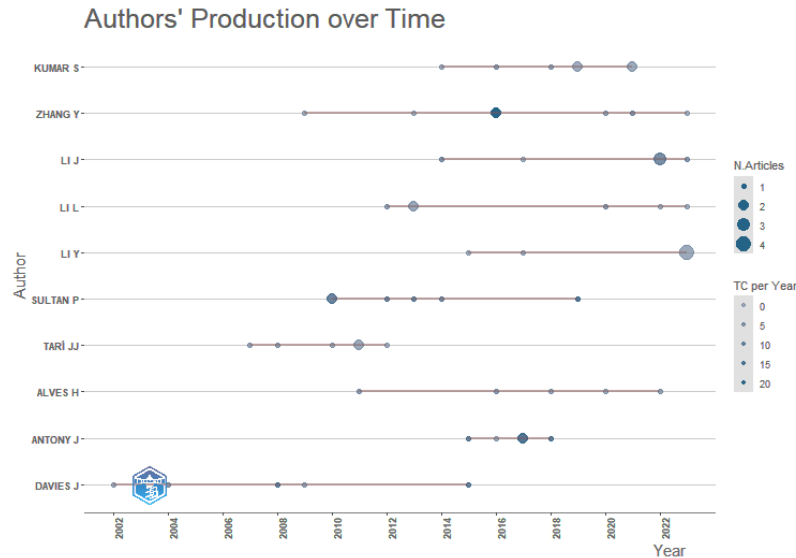
The local impact of authors is evident through the H-index and G-index. Sultan P, Davies J, Gruber T, Sahney S, Voss R, Wong HY, and Yeo RK exhibit a local impact with both H-index and G-index values set at 5 or 6. These authors have made substantial contributions, as reflected in their indices, signifying a notable influence within their specific academic or research community. Alves H, Antony J, and Gupta A, while slightly lower in the H-index, still maintain a significant G-index of 5, indicating a robust impact in terms of citations and research productivity. These local impact metrics offer a glimpse into the resonance and recognition of these authors within the localized academic context of SERVQUAL in HEIs.

e. Most Relevant Affiliations

The affiliations of authors play a crucial role in shaping the discourse within the academic landscape. Universiti Teknologi Malaysia emerges as a prominent contributor with 28 articles, reflecting its substantial impact and active involvement in research on SERVQUAL in HEIs. The Johns Hopkins Bloomberg School of Public Health, with 22 articles, showcases its significant role in integrating public health perspectives into the discourse. The University of Minnesota, Kermanshah University of Medical Sciences, University of Beira Interior, University of California, and University of Malaya, each contributing 18 articles, highlight diverse global perspectives on SERVQUAL. Affiliations like Universiti Pendidikan Sultan Idris, Deakin University, Duke University, Qatar University, The University of Queensland, Universiti Teknologi MARA, and the University of Zagreb, with 16 articles each, collectively demonstrate a rich and varied international collaboration in exploring SERVQUAL in HEIs. These affiliations collectively form a tapestry of academic institutions contributing significantly to the understanding and development of SERVQUAL research in the HEIs domain.
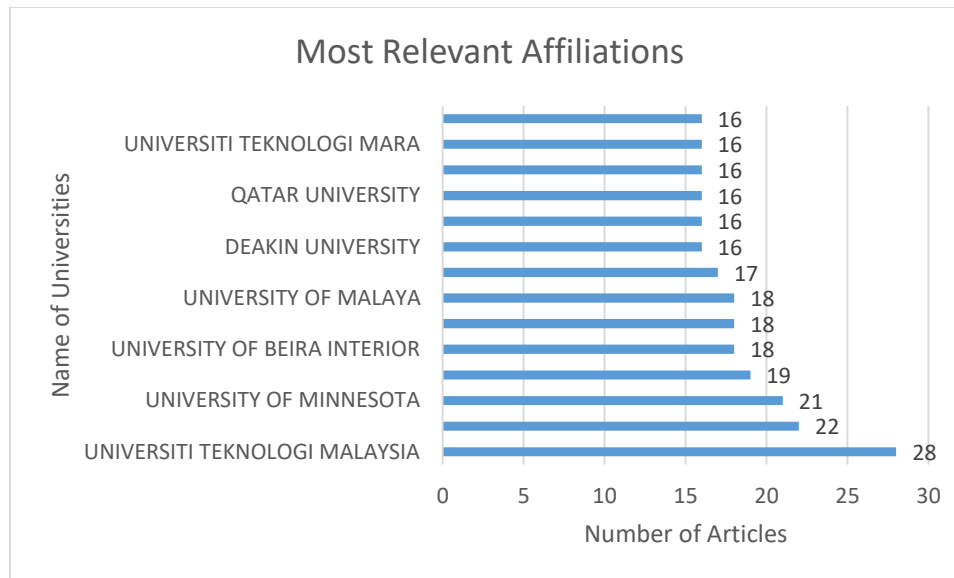
In the bibliometric analysis of SERVQUAL in HEIs, examining the production of relevant affiliations over time provides valuable insights into the evolution of their research contributions. The University of Minnesota, with a consistent output of 18 articles in 2022 and an increase to 21 articles in 2023, demonstrates a sustained commitment to advancing knowledge in the field. Similarly, the University of California maintains a steady contribution with 18 articles in 2023, showcasing ongoing research endeavors. The Johns Hopkins Bloomberg School of Public Health exhibits a continuous and substantial research output, increasing from 16 articles in 2015 to a consistent 22 articles per year from 2018 to 2023, emphasizing its enduring influence and dedication to SERVQUAL research.

University Teknologi Malaysia displays a notable upward trajectory, from 18 articles in 2018 to a substantial 28 articles in 2022 and 2023, underscoring its increasing prominence in shaping the discourse on SERVQUAL in HEIs. The University of Beira Interior maintains a stable research output of 17 to 18 articles annually from 2020 to 2023, while the University of Malaya consistently contributes 17 to 18 articles in 2022 and 2023. Kermanshah University of Medical Sciences demonstrates a sustained commitment with 19 articles in 2022 and 2023, reflecting its enduring impact on the research landscape. These patterns highlight the dynamic and evolving nature of research contributions from these affiliations, offering a comprehensive view of their engagement and influence over time.

### f. Corresponding Authors Countries

The distribution of corresponding authors by country sheds light on the global landscape of research contributions. The United States takes a prominent role with 231 articles, showcasing a significant and central presence in the scholarly discourse on SERVQUAL in HEIs. China follows closely with 121 articles, reflecting its growing influence and substantial engagement in this field. The United Kingdom, with 100 articles, maintains a robust position as a key contributor, showcasing a longstanding commitment to research in SERVQUAL.

India, Australia, and Malaysia emerge as notable contributors with 87, 70, and 65 articles, respectively, highlighting the diversity of perspectives from these countries. Indonesia and Spain, each with 53 articles, underscore the collaborative efforts and shared interests in the global exploration of SERVQUAL in HEIs. Brazil, Italy, and South Africa contribute 30, 29, and 28 articles, respectively, showcasing their significant impact on the research landscape.

Turkey, Canada, and Portugal each contribute 28, 25, and 25 articles, respectively, reflecting their substantial roles in advancing knowledge in SERVQUAL. Saudi Arabia, with 25 articles, demonstrates a noteworthy engagement,

particularly with a balanced distribution between single-country publications (SCP) and multi-country publications (MCP). Germany, Iran, and Pakistan each contribute 22, 21, and 21 articles, respectively, indicating a meaningful presence in the global discourse.

Ukraine, with 15 articles, showcases a notable contribution despite a lower overall count, emphasizing its unique impact. The data overall depicts a rich and diverse global collaboration in understanding and advancing the field of SERVQUAL in HEIs.

SCP: Single Country Publications, MCP: Multiple Country Publications
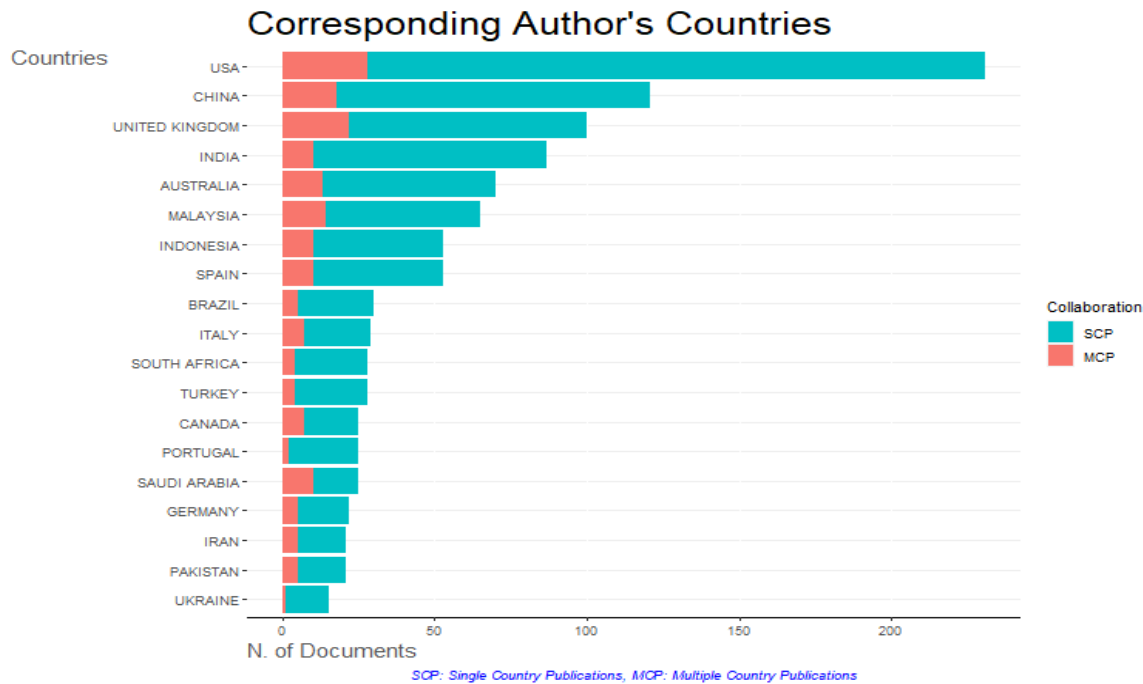
g. Country Scientific Production:

The SERVQUAL in HEIs reveals a diverse global landscape of scientific production, with notable contributions from various regions. The United States stands out as a prolific hub of research activity in this field, producing a substantial number of scholarly articles, totaling 1235. The United Kingdom follows closely with 466 articles, reflecting a significant and robust engagement in the exploration of SERVQUAL within HEIs institutions. China, with 445 articles, demonstrates its growing influence and active participation in shaping the discourse on SERVQUAL in HEIs.

In Southeast Asia, Malaysia emerges as a noteworthy contributor, producing 382 articles that highlight its commitment to advancing knowledge in the realm of SERVQUAL in HEIs. India, another key player in the region, has contributed 287 articles, showcasing a substantial volume of research output. Indonesia, with 279 articles, underscores the collaborative efforts and shared interests in

addressing SERVQUAL challenges within HEIs institutions.

Australia, with 252 articles, has made a considerable impact on the global landscape of SERVQUAL research in HEIs. The European perspective is well-represented, with Spain producing 220 articles, Germany contributing 126 articles, and Italy generating 103 articles. These European countries exhibit a diverse range of research interests and approaches in examining SERVQUAL within HEIs.

Moving to the Southern Hemisphere, Brazil emerges with 124 articles, adding a South American perspective to the global discourse on SERVQUAL in HEIs. South Africa, with 122 articles, contributes significantly to the scholarly output, emphasizing the importance of addressing SERVQUAL issues in the African context.

Canada, Ukraine, and Italy, with 118, 110, and 103 articles, respectively, showcase their active participation in the global exploration of SERVQUAL within HEIs institutions. The overall

distribution of scientific production across these regions underscores the widespread interest and commitment to advancing understanding and practices related to SERVQUAL in the HEIs sector.

Each region brings unique perspectives, challenges, and contributions to the collective body of knowledge, enriching the global discourse on SERVQUAL in HEIs

## Country Scientific Production
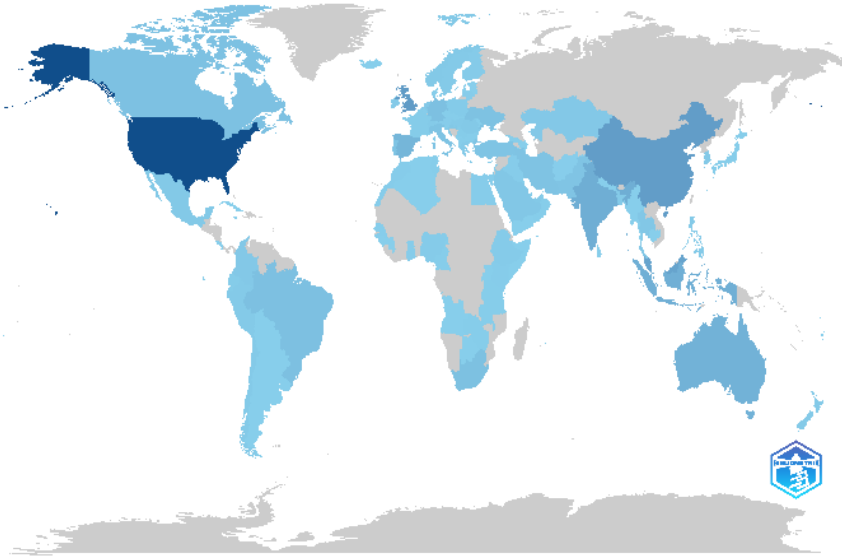
h. Most Cited Countries:

The bibliometric analysis of SERVQUAL in HEIs, as reflected in the data on total citations and average article citations, unveils distinctive patterns across different countries. The United States emerges as a dominant force with a substantial total citation count of 4791 and an average of 20.7 citations per article, indicating a robust impact and widespread recognition of American contributions to the scholarly discourse in this field. Following closely, the United Kingdom demonstrates a compelling presence, garnering 2804 citations with an impressive average of 28 citations per article, emphasizing the high regard for British research in SERVQUAL within HEIs.

Australia, with 2740 citations and an average of 39.1 citations per article, showcases a significant impact, suggesting that research originating from Australia is not only highly cited but also well-regarded within the academic community. In India, with 1463 citations and an average of 16.8 citations per article, there is a solid and noteworthy presence, contributing substantially to the global body of knowledge in SERVQUAL within HEIs.

Malaysia's contributions are reflected in 1272 citations with an average of 19.6 citations per article, illustrating a balanced impact and indicating that Malaysian research holds both influence and citation recognition. Pakistan stands out with an exceptional average of 48.4 citations per article, even though the total citation count is 1016, signaling that Pakistani contributions are not only impactful but also attract considerable attention within academic circles.

Spain, with 831 citations and an average of 15.7 citations per article, demonstrates a meaningful impact, contributing significantly to the global conversation on SERVQUAL in HEIs. China, with 796 citations and an average of 6.6 citations per article, showcases a unique pattern, suggesting that while the total citation count is substantial, individual articles might have a lower average impact.

Turkey, with 672 citations and an average of 24 citations per article, indicates a solid impact, reflecting the significance of Turkish research in the realm of SERVQUAL within HEIs. Portugal, with 627 citations and an average of 25.1 citations per article, highlights a notable impact, underscoring the influence of Portuguese contributions in this field.

Most Cited Countries
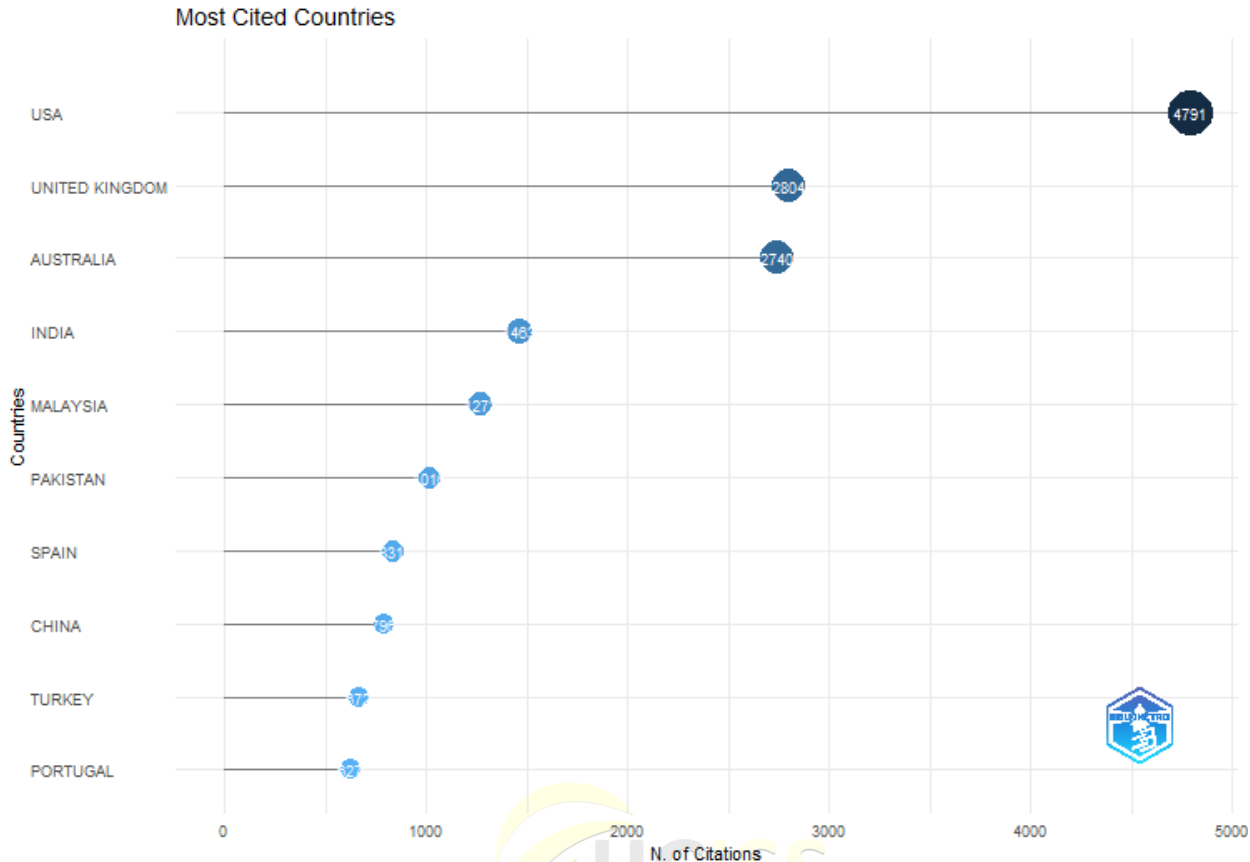
i. World Cloud:

The frequency distribution of terms in the bibliometric analysis of SERVQUAL in HEIs highlights key thematic elements and focuses within the scholarly discourse. "HEIs" emerges as the most frequently occurring term, appearing 748 times, indicating a primary emphasis on investigating and understanding aspects related to tertiary education. "SERVQUAL" follows closely, with 322 mentions, signifying a significant concentration on evaluating and enhancing the quality of services within HEIs institutions.

The term "education" itself holds prominence, with 132 mentions, suggesting a broader exploration of educational practices and systems beyond the specific context of HEIs. "Student satisfaction" and "quality" are recurrent themes, with 130 and 115 mentions, respectively, underscoring the scholarly interest in assessing the contentment of students and the overall quality standards in HEIs.

"E-learning" is a notable term, appearing 74 times, indicating a growing focus on digital learning modalities within HEIs research. "HEIs institutions" and "students" are each mentioned 72 times, reflecting a dual emphasis on the organizational structures and the individuals involved in HEIs processes.

The term "satisfaction" appears 64 times, suggesting a continuous exploration of the factors influencing the contentment of stakeholders within HEIs. "Servqual," a specific framework for assessing SERVQUAL, is mentioned 56 times, indicating its relevance and adoption within the analyzed literature. "Quality assurance" is a term mentioned 47 times, highlighting the scholarly attention towards establishing and maintaining quality standards in HEIs.

Overall, the frequency distribution of these terms provides valuable insights into the thematic landscape of the literature on SERVQUAL in HEIs, revealing a multifaceted exploration of factors such as educational quality, student satisfaction, and the evolving landscape of e-learning within the HEIs sector.

The frequency distribution of terms while doing bibliometric analysis of the SERVQUAL in HEIs unveils prominent thematic elements and areas of scholarly emphasis. "HEIs" stands out as the most frequently occurring term, appearing 748 times, indicating a substantial focus on research related to tertiary education. Following closely is "SERVQUAL" with 322 mentions, emphasizing the considerable attention given to evaluating and enhancing service standards within HEIs institutions.

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Moreover, the inclusion of "customer satisfaction" with 40 mentions reflects a nuanced exploration of satisfaction dynamics beyond the student population, potentially encompassing various stakeholders within HEIs. The term "COVID-19" appears 39 times, indicating a contemporary focus on the impact of the global pandemic on HEIs and SERVQUAL. "Quality management" is mentioned 36 times, signifying an additional layer of emphasis on systematic approaches to maintaining and improving quality standards.
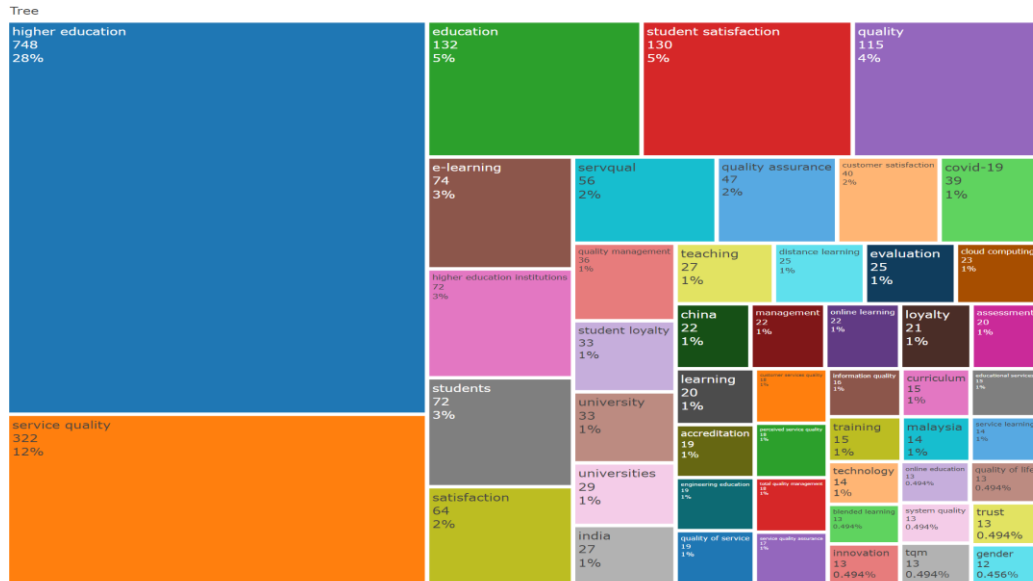
j.   Trending Topics:

The analysis of trends in the bibliometric data on SERVQUAL in HEIs unveils a dynamic research landscape. Notably, there is a significant surge in exploration around Customer Services Quality from 2008 to 2010, reflecting an intensified focus on customer-centric approaches in academia. Quality Assurance and Quality Management maintain enduring attention, indicating a steadfast commitment to upholding excellence in HEIs institutions. Topics like service quality assurance and Service quality show a consistent upward trajectory, emphasizing ongoing efforts to assess and assure service quality. Student Satisfaction becomes a dominant theme, particularly spiking from 2016 to 2019, highlighting a heightened awareness of student experiences. The rise of E-learning and Blended Learning signifies a paradigm shift towards digital and hybrid learning approaches. The inclusion of COVID-19 as a trend topic mirrors the rapid response to pandemic-induced challenges. Broader themes of HEIs and HEIs Institutions persist throughout, reflecting a continuous exploration of organizational dynamics. Information Technology and Cloud Computing gain prominence, aligning with the integration of technology in education. Themes like Sustainable Development and Developing Countries underscore a global perspective. The emergence of Deep Learning and the Technology Acceptance Model (TAM) in 2022-2023 signifies a growing focus on technological advancements in HEIs. Together, these trends depict a multifaceted and responsive research landscape in the realm of SERVQUAL in HEIs.
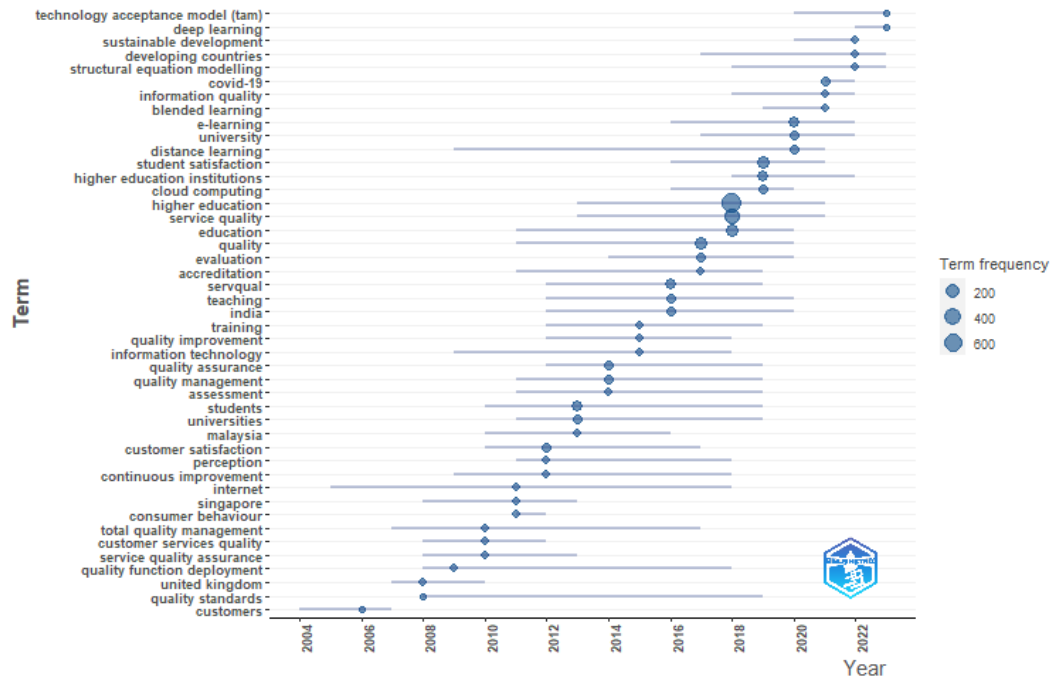
k.   Cluster Coupling Network:

The analysis of SERVQUAL in HEIs reveals distinct clusters of research topics that provide insights into the thematic landscape of scholarly work. The first cluster encompasses fundamental elements like HEIs, SERVQUAL, Student Satisfaction, HEIs Institutions, and related concepts like Servqual, Quality Assurance, and Customer Satisfaction. This cluster signifies a core focus on assessing and improving the quality of services in HEIs settings, with an emphasis on student experiences and institutional effectiveness.

The second cluster introduces a shift towards technological and contextual considerations, incorporating E-learning, COVID-19, Distance Learning, Online Learning, and Engineering Education. This cluster reflects the evolving landscape of education, especially in the context of the global pandemic, with an increased emphasis on online and distance learning modalities. Information Quality, Blended Learning, and Online Education highlight the importance of technology in shaping educational services and ensuring quality in diverse learning environments.

The third cluster features broader themes such as Education, Quality, University, Evaluation, Cloud Computing, Management, Accreditation, Assessment, Training, Service Learning, Technology, Innovation, and Teaching. This cluster suggests a comprehensive exploration of various dimensions related to education management, quality assessment, and the integration of innovative teaching and learning approaches. It reflects a more holistic perspective on the multifaceted aspects of HEIs.

The fourth cluster focuses on Learning, Curriculum, Teaching, and related concepts. This cluster underscores the pedagogical aspects of education, emphasizing curriculum design, teaching methodologies, and the learning experience. It highlights the ongoing efforts to enhance the educational curriculum and teaching practices to ensure quality learning outcomes.

In summary, these clusters illustrate the diversity and richness of research topics within the broader theme of SERVQUAL in HEIs. The clusters range from core elements of SERVQUAL and student experiences to technological advancements, broader educational considerations, and specific aspects of teaching and learning. Together, they provide a nuanced understanding of the multidimensional landscape of research in HEIs SERVQUAL.
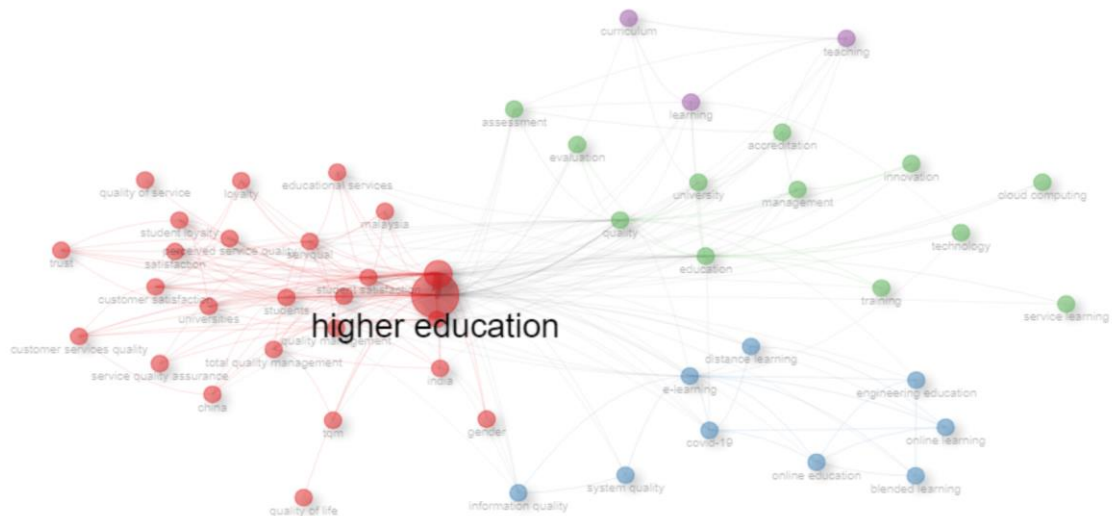
l.   Collaboration of Countries:

The collaboration world map unveils a global network of research interactions, reflecting the interconnected nature of scholarly contributions. The most frequent collaborations are observed between countries spanning continents, illustrating the international reach and impact of research endeavors. Notably, collaborative efforts between the USA and Canada are prominent, with 11 instances of joint research initiatives. This transcontinental partnership underscores the collaborative nature of research in North America, where expertise and insights are shared across borders.

Similarly, collaborations between the United Kingdom and Australia, as well as the USA and China, are highlighted with 10 instances each. These partnerships emphasize the global nature of HEIs research, with cross-continental collaborations

contributing to a more comprehensive understanding of SERVQUAL in diverse educational settings. In the Southeast Asian region, Malaysia and Indonesia engage in 8 collaborative efforts, reflecting a regional synergy in addressing shared challenges and advancing research in SERVQUAL within HEIs. The collaborations between the United Kingdom and various countries, including Germany, India, Saudi Arabia, and South Africa, showcase a diverse network of international research connections.

Furthermore, the collaborations between Spain and Italy demonstrate a regional partnership within Europe, emphasizing the significance of continental networks in HEIs research. The collaborative ties between the United Kingdom and multiple countries, such as Canada, China, Greece, Malaysia, Saudi Arabia, South Africa, and Switzerland, illustrate the UK's pivotal role as a hub for international research collaborations in the field.
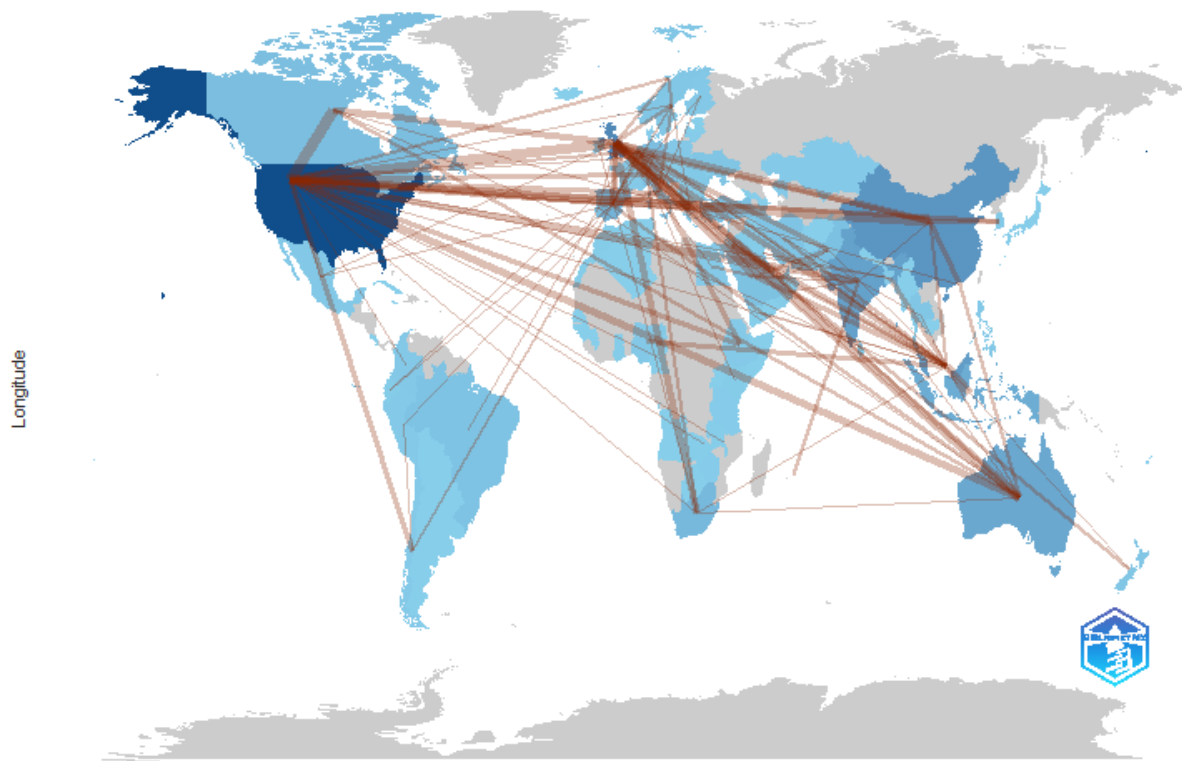
4. Discussion

The comprehensive analysis provides valuable insights into the evolving landscape of research over the past two decades (2000-2023). The study, conducted exclusively using the Scopus database, which encompasses over 15,000 peer-reviewed journals, demonstrates the depth and breadth of scholarly work in this domain. The decision to rely on Scopus is justified by its integrated interface, comprehensive coverage, and suitability for the narrower study fields, such as quality assurance (QA) in HEIs institutions (HEIs).

The application of bibliometric methods, leveraging tools like R-package supported statistical calculations and visualizations, adding rigor to the analysis. The analysis of 2,131 documents produced a nuanced understanding of SERVQUAL in HEIs. The annual scientific production trends indicated a consistent upward trajectory, underscoring the enduring relevance and importance of investigating SERVQUAL within HEIs. The citation analysis further revealed the impact and temporal relevance of articles, emphasizing specific years of heightened influence.

The identification of most relevant sources, authors, affiliations, and corresponding authors provided a glimpse into the key contributors shaping the discourse. The H-index and G-index metrics illustrated the scholarly impact of sources and authors, emphasizing their influence within the academic community. Affiliation analysis highlighted the diverse global landscape of research contributors, with certain institutions demonstrating sustained commitment and impact over time.

The distribution of corresponding authors by country showcased the global nature of research contributions, with the United States playing a central role. The analysis of scientific production across countries reaffirmed the widespread interest and commitment to advancing understanding and practices related to SERVQUAL in HEIs, with distinct contributions from various regions.

The word cloud and trending topics shed light on the thematic landscape of the literature, emphasizing core concepts such as "HEIs," "SERVQUAL," and "student satisfaction." Noteworthy trends included the surge in research around customer SERVQUAL, the enduring focus on quality assurance and management, and the

emergence of topics like E-learning and the impact of COVID-19.

The cluster analysis provided a structured view of research topics, ranging from core elements of SERVQUAL to technological considerations, broader educational themes, and specific aspects of teaching and learning. This multifaceted approach highlighted the richness and diversity of scholarly work within the broader theme of SERVQUAL in HEIs.

Finally, the collaboration network map illustrated the interconnected nature of global research efforts, with prominent collaborations between countries across continents. These collaborative endeavors underscored the international reach and impact of research initiatives, contributing to a more comprehensive understanding of SERVQUAL in diverse educational settings.

In essence, this bibliometric analysis serves as a valuable resource for scholars, policymakers, and practitioners in HEIs, offering a comprehensive overview of the current state of research on SERVQUAL. The findings provide a foundation for future investigations and underscore the importance of continued collaboration and exploration in this dynamic and critical field.

5. Conclusion:

In conclusion, this in-depth analysis of SERVQUAL in HEIs, based on a meticulous bibliometric study spanning two decades, reveals a rich and dynamic landscape of scholarly exploration. By delving into over 2,000 documents from diverse sources, the study not only traces the evolution of key themes but also underscores the global collaboration that defines contemporary research in this field. The findings, derived from Scopus, a robust database, offer a nuanced understanding of SERVQUAL trends, impactful sources, and influential contributors. The visualization tools employed, such as the R-package, not only facilitated data interpretation but also showcased the intricate connections within the scholarly discourse. The study's emphasis on annual scientific production, citation patterns, and thematic analysis contributes significantly to the ongoing dialogue on quality in HEIs. Ultimately, this comprehensive exploration serves as a valuable resource for academics, policymakers, and practitioners, providing insights that pave the way for future research endeavors and collaborative

initiatives aimed at enhancing SERVQUAL in HEIs institutions worldwide.

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