Trends in Global Citizenship Education Research:
Bibliometric Mapping and Opportunities for Development

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Abstract
This research analyzes the development of Global Citizenship Education research through bibliometric mapping using VOSviewer. Articles were collected from the Google Scholar database using the Publish or Perish application to observe topic trends. This study analyzed the indexed database of Google Scholar for 10 years (2013-2023), resulting in 969 articles. The data analysis results indicate a significant decrease in the number of publications, decreasing from 131 in 2013 to 21 in 2023. However, in the VOSviewer analysis, it was found that there are 597 items, 12 clusters, 17,920 links, and a total link strength of 26,143. The complexity of these connections creates the potential for further development, offering opportunities for the exploration of new topics and research innovation. Despite a decline in interest in Global Citizenship Education, these findings show that the topic is still relevant and has significant connections for research innovation. While interest has decreased, Global Citizenship Education still has a significant and relevant impact in achieving sustainable development goals. Therefore, further research in this field is expected to continue supporting the attainment of sustainable development goals and contributing to addressing global issues. These findings indicate that there are still many research topics to be explored and developed, making this review a starting point for research in other related fields of study.

Keywords: Bibliometric, Computational Mapping Analysis, Global Citizenship Education

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Introduction

Global Citizenship Education (GCED) has become an important focus in global education literature due to its crucial role in preparing individuals to face the complex challenges of the 21st century. The concept of GCED aims to develop a deep understanding of global issues such as peace, social justice, human rights, and sustainable development (Ahmed, E. I., & Mohammed, A., 2022; Edwards Jr, D. B., et al., 2020; Amin, H., et al., 2023). Although the design of GCED is expected to substantially influence individuals' thinking and actions in a global context, its implementation often faces significant challenges, such as imbalances in the global curriculum, resource limitations, and differing approaches among countries (Franch, S., 2020; Akkari, A., & Maleq, K., 2020).

Global Citizenship Education (GCED) has gained significant recognition in global education policies. Data from a 2019 UNESCO survey showed that more than 90% of UN member states have formally integrated GCED into their school curricula (UNESCO, 2021). This reflects a broad awareness of the importance of preparing the younger generation with a deep understanding of crucial global issues. The decision to include GCED in the school curriculum is an important step in promoting values such as peace, social justice, human rights, and sustainable development among students. It also demonstrates a global commitment to ensuring that education not only prepares students academically but also equips them to actively participate in responding to and solving increasingly complex global problems.

Despite the widespread adoption of GCED, its implementation varies among countries. The success of GCED implementation is often influenced by supportive national education policies, the availability of adequate educational resources, and local understanding of the importance of GCED in their cultural context (UNESCO, 2021; Kidd, J., 2023). Countries with clear education policies and strong support for GCED tend to have better implementation rates, while countries with resource challenges or cultural differences may face barriers to effectively integrating GCED into their curricula. Although the adoption of Global Citizenship Education (GCED) has been widespread worldwide, its implementation varies between countries. Key factors influencing the success of GCED implementation include national education policies, the availability of educational resources, and local understanding of the importance of GCED in their cultural context. Countries with clear education policies and strong support for GCED tend to have better implementation rates (Al'Abri, K. M., et al., 2022). These countries have thoroughly integrated GCED into their school curricula and allocated adequate resources for teacher training and the development of GCED materials. On the other hand, countries with resource challenges or differences in cultural understanding often face barriers in effectively implementing GCED. These may include difficulties in providing adequate educational infrastructure or adapting the GCED curriculum to diverse local values. Therefore, to enhance the global effectiveness of GCED, it is essential to recognize and address existing challenges and adopt flexible approaches tailored to the educational needs and contexts of each country.

Moreover, the importance of GCED is not limited to formal education aspects. GCED also plays a crucial role in shaping attitudes, values, and skills necessary for active participation in an increasingly interconnected global society (Sumida, S., 2022; Al'Abri, K., 2024; Milana, M., & Tarozzi, M., 2020). Educational strategies that incorporate local culture and social contexts are also needed to ensure that GCED can significantly influence individuals' behaviors and attitudes in supporting global goals such as sustainable development and world

peace. The importance of Global Citizenship Education (GCED) is not limited to formal educational aspects, but also has a significant impact on shaping relevant attitudes, values, and skills for active participation in an increasingly interconnected global society. GCED serves as a bridge to develop a deep understanding of global issues such as sustainable development, world peace, and social justice. Through this education, individuals not only gain knowledge but also acquire interpersonal skills and sensitivity to the complexities of global issues. GCED strategies that are sensitive to local culture and social contexts are key to ensuring that its values and goals are effectively accepted and implemented in culturally diverse societies. By influencing individual behaviors and attitudes, GCED has great potential to contribute positively to achieving global goals such as sustainable development and world peace.

Thus, although GCED has made progress in being adopted globally, challenges in its implementation highlight the need for cross-sector collaboration and innovation in education to ensure that GCED not only becomes part of the curriculum but also transforms the way individuals think and act in facing the complex challenges of the 21st century.

Methodology

The methodology employed in this research adopts a bibliometric approach to analyze trends and patterns in the literature on Global Citizenship Education (GCED). The bibliometric approach was chosen because it is capable of providing comprehensive insights into the development and structure of research in this field using data from the Google Scholar database. First, we used the Publish or Perish application to collect GCED-related articles from the Google Scholar database. These articles were analyzed for the past ten years, from 2013 to 2023, to identify publication trends and changes in research focus.

Next, the bibliometric data was processed using VOSviewer software to perform network and cluster analysis. VOSviewer was used to visualize the network between articles based on keyword, citation, or co-authorship relationships. This analysis helped to identify dominant topic clusters in the GCED literature, as well as understand the complex relationships and connections between topics. The data collected from the bibliometric analysis was then analyzed descriptively and interpretively to describe the evolution of GCED in the academic literature, highlight key trends, patterns of inter-topic relationships, and potential directions for future research. By using this methodology, this paper is expected to make a significant contribution to understanding the development of GCED from a bibliometric perspective, as well as provide guidance for researchers and education practitioners in planning and developing further studies on global citizenship.

Findings

The findings of the bibliometric analysis revealed intriguing trends over a 10-year period (2013-2023) using the Google Scholar database, where this study successfully collected 969 indexed articles. Analysis data showed a significant decline in the number of publications from 131 articles in 2013 to only 21 articles in 2023. Nevertheless, the analysis using VOSviewer revealed that there were 597 entities or elements connected in the network, divided into 12 different groups or clusters. The total number of inter-entity links reached 17,920, with a total link strength of 26,143. These findings demonstrate the complexity of inter-topic relationships in research on Global Citizenship Education, offering deep insights

into the structure and evolution of knowledge in this field over the past decade. These findings are visualized in Table 1 below:

Year	Publication
2013	131
2014	118
2015	124
2016	137
2017	114
2018	113
2019	73
2020	69
2021	36
2022	33
2023	21
Total	969

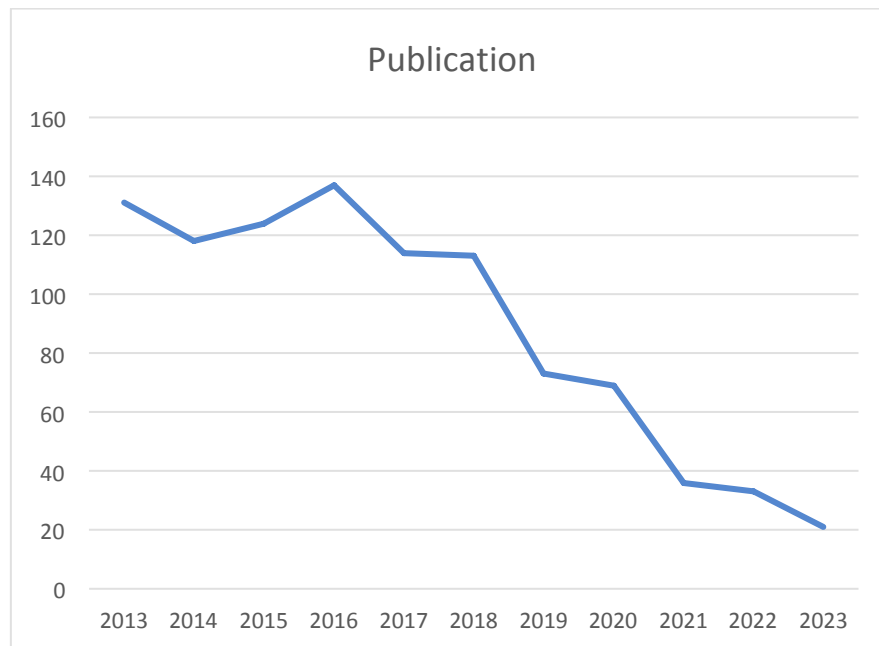Tabel 1. Research developments with the keyword Global Citizenship Education

Figure 1. Research developments with the keyword Global citizenship education

Research on "Global Citizenship Education" (GCED) exhibited an intriguing trend during the period 2013-2023. In 2013, the number of publications reached 131 articles and experienced slight fluctuations before peaking at 137 articles in 2016. However, a significant decline followed. From 114 articles in 2017, the number of publications continued to decline to only 21 articles in 2023, reflecting a drastic decrease over the decade. The average number of publications per year during this period was around 96.9 articles. The most significant decline occurred between 2018 and 2019, from 113 to 73 articles. Despite the decline in the number of publications, the analysis using VOSviewer revealed 597 entities connected within the research network, divided into 12 clusters, with a total of 17,920 inter-entity links and a link strength of 26,143. This indicates that the complexity and interconnectedness of topics in GCED research remains strong and evolving, even amidst the decline in the number of

publications. Table 2 below presents the top 10 articles based on the highest number of citations per year.

Cites	Authors	Title	Year
1381	Bozkurt, A., et al.	A global outlook to the interruption of education due to COVID-19 pandemic: Navigating in a time of uncertainty and crisis	2020
1276	Lozano, R., et al.	Declarations for sustainability in higher education: becoming better leaders, through addressing the university system	2013
1257	Serdyukov, P.	Innovation in education: what works, what doesn't, and what to do about it?	2017
1178	Dwivedi, YK., et al.	Impact of COVID-19 pandemic on information management research and practice: Transforming education, work and life	2020
965	Lozano, R., et al.	A review of commitment and implementation of sustainable development in higher education: results from a worldwide survey	2015
657	Morgan, H.	Best practices for implementing remote learning during a pandemic	2020
631	Oxley, L. & Morris, P.	Global citizenship: A typology for distinguishing its multiple conceptions	2013
628	Caena, F. & Redecker, C.	Aligning teacher competence frameworks to 21st century challenges: The case for the European Digital Competence Framework for Educators (Digcompedu)	2019
607	Wals, AEJ.	Sustainability in higher education in the context of the UN DESD: a review of learning and institutionalization processes	2014
607	Anguelovski, I., et al.	Equity impacts of urban land use planning for climate adaptation: Critical perspectives from the global north and south	2016

Table 2. Best articles based on the highest number of citations, January 2024

The first article, "A global outlook to the interruption of education due to COVID-19 pandemic: Navigating in a time of uncertainty and crisis" by Bozkurt et al. (2020), highlighting the impact of the COVID-19 pandemic on global education, emphasizes the differences between emergency education and pre-planned distance education. This research shows that social injustice and digital inequality have increased during the pandemic. The second article, "Declarations for sustainability in higher education: becoming better leaders,

through addressing the university system" by Lozano et al. (2013), analyzed eleven declarations for Education for Sustainable Development (ESD) and emphasized the importance of collaboration, transdisciplinarity, and the integration of SD into the institutional framework of universities. The third article, "Innovation in education: what works, what doesn't, and what to do about it?" by Serdyukov (2017), reviews educational innovation in the United States and identifies barriers and ways to improve innovation-based transformation in the education system. The fourth article, "Impact of COVID-19 pandemic on information management research and practice: Transforming education, work and life" by Dwivedi et al. (2020), explored the impact of the pandemic on information management and practices by gathering perspectives from 12 experts, covering topics such as online learning and digital strategy. The fifth article, "A review of commitment and implementation of sustainable development in higher education: results from a worldwide survey" by Lozano et al. (2015), analyzed the commitment and implementation of sustainable development in higher education institutions around the world and found that efforts were often segmented, with academic leadership commitment being the main factor in implementation.

Furthermore, the sixth article, "Best practices for implementing remote learning during a pandemic" by Morgan (2020), discusses best practices for implementing distance learning during a pandemic in schools in the United States and emphasizes the importance of equality in internet access and resources. The seventh article, "Global citizenship: A typology for distinguishing its multiple conceptions" by Oxley and Morris (2013), develops a typology for distinguishing various concepts of global citizenship (GC) and offers a new way to analyze educational policies and programs that promote GC. The eighth article, "Aligning teacher competency frameworks to 21st century challenges: The case for the European Digital Competence Framework for Educators (Digcompedu)" by Caena and Redecker (2019), highlights the importance of changing teacher competency profiles to face 21st century challenges by supporting development of teacher digital competence. The ninth article, "Sustainability in higher education in the context of the UN DESD: a review of learning and institutionalization processes" by Wals (2014), is based on a review of the UN's Decade of Education for Sustainable Development (UN DESD) and highlights processes of learning and change systemic actions carried out by higher education institutions to support sustainability. The tenth article, "Equity impacts of urban land use planning for climate adaptation: Critical perspectives from the global north and south" by Anguelovski et al. (2016), critique land use planning for climate adaptation in eight cities around the world and find that this planning can exacerbate social and spatial inequalities, as well as highlighting inequities in urban adaptation that affect poor communities. These articles collectively describe challenges and solutions in the fields of education, sustainability, and climate adaptation, providing deep insight into the complexity and dynamics of these topics. Then the 10 best articles based on Google Scholar ranking are also presented in table 3 below.

Cites	Authors	Title	Year
98	Estellés, M., et al.	Who needs global citizenship education? A review of the literature on teacher education	2021
409	Goren, H. & Yemini, M.	Global citizenship education redefined–A systematic review of empirical studies on global citizenship education	2017
61	Blackmore, C.	Towards a Pedagogical Framework for Global Citizenship Education.	2016
73	Horey, D., et al.	Global citizenship and higher education: A scoping review of the empirical evidence	2018
106	Goren, H. & Yemini, M.	Global citizenship education in context: Teacher perceptions at an international school and a local Israeli school	2016
1	Saleem, A., et al.	Global Citizenship Education: A New Approach to Global Citizenship Development	2022
20	Andrews, K. & Aydin, H.	Pre-service teachers' perceptions of global citizenship education in the social studies curriculum	2020
126	Torres, CA.	Global citizenship and global universities. The age of global interdependence and cosmopolitanism	2015
56	Brunell, LA.	Building global citizenship: Engaging global issues, practicing civic skills	2013
15	Kolleck, N. & Yemini, M.	Environment-related education topics within global citizenship education scholarship focused on teachers: A natural language processing analysis	2020

Table 3. Best articles based on Google Scholar Rank, January 2024

Articles related to global citizenship education (GCED) demonstrate a variety of approaches and focuses in studying and developing this concept. Estelles et al. (2021) highlight that discourse in the teacher education (TE) literature often depicts GCED as an idealistic and altruistic educational solution, but tends to ignore the underlying neoliberal context. Goren and Yemini (2017) conducted a systematic conceptual review of empirical studies on GCED over the past ten years, identifying dominant themes and suggesting a framework for future research development. Blackmore (2016) developed a pedagogical framework for GCED that includes critical thinking, dialogue, reflection, and responsible action, and demonstrated its application in research and evaluation of teaching processes.

Horey et al. (2018) explored the understanding and implementation of global citizenship in higher education through a scoping review of empirical studies, providing a theoretical framework to describe the contributions of global citizenship education. Goren and Yemini (2016) revealed differences in teachers' perceptions of GCED in international schools and local public schools in Israel, emphasizing the importance of school context and student background as well as the role of teacher agency. Saleem et al. (2022) highlight the importance of GCED as civic learning that enables individuals to participate in building a more peaceful and inclusive society, with a focus on elements such as peace education, human rights, and humanitarian norms.
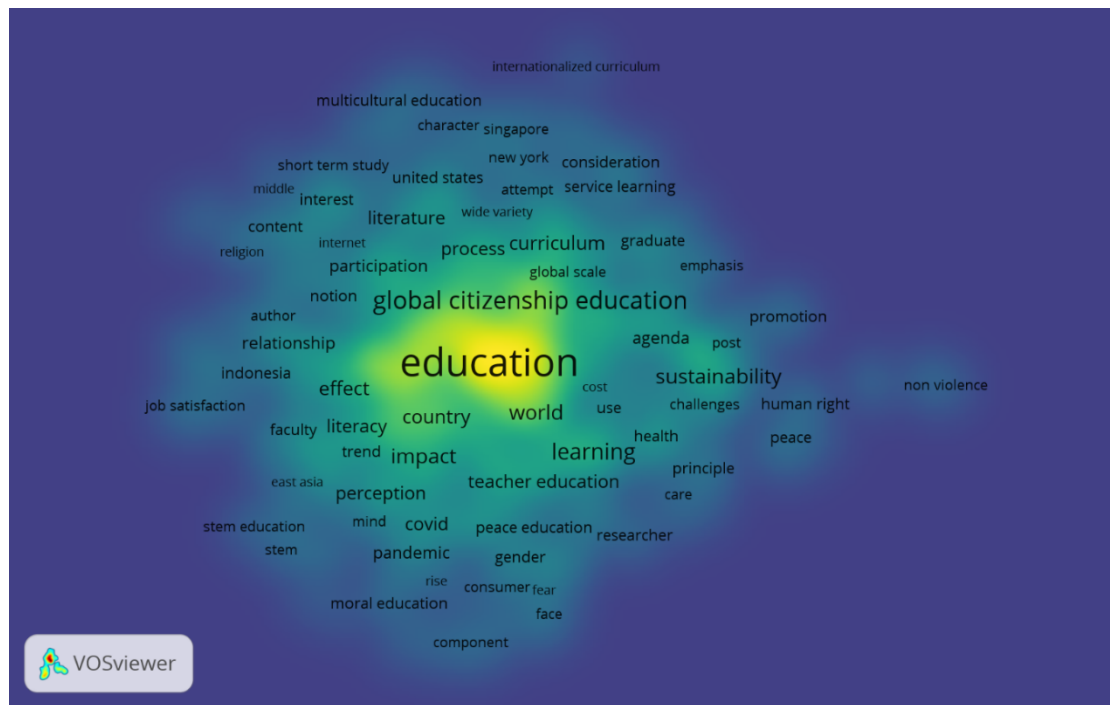
Andrews and Aydin (2020) explored prospective teachers' perceptions of GCED in the social studies curriculum, emphasizing that GCED should be integrated to increase cultural sensitivity and awareness of global issues among students. Torres (2015) highlights the role of global universities in the context of globalization and cosmopolitan citizenship, as well as their impact on global citizenship education. Brunell (2013) shows how international politics courses can foster global civic engagement through experiential learning, allowing students to participate in global movements and develop locally and globally relevant civic skills. Kolleck and Yemini (2020) analyzed the representation of environment-related education in GCED discourse using Natural Language Processing and Social Network Analysis, finding that these topics are increasingly prominent and influenced by the policies of intergovernmental organizations. Overall, these articles illustrate the complexities and dynamics in global citizenship education, providing in-depth insights into challenges, solutions, and future research directions.

VOSviewer's network visualization of trends in global citizenship education research shows several dominant clusters and key keywords that provide important insights (See figure 2). Red clusters highlight words such as "education," "global citizenship education," "impact," "effect," and "perception," indicating the research focus on the impact and perception of global citizenship education. Green clusters with words such as "sustainability", "human rights", "non-violence", and "peace" indicate a close relationship between global citizenship education and issues of sustainability, human rights and peace. The blue cluster that includes words such as "literacy", "faculty", "relationship", and "indonesia" emphasizes research on literacy, relationships between faculties or institutions, as well as a regional focus on Indonesia. Key keywords such as "education" indicate that educational topics in general are at the center of much research, with "global citizenship education" standing out as a particular focus. "Sustainability" was also an important theme, indicating that education for

sustainability was an integral part of the discussion. Other important topics include "teacher education" and "curriculum", indicating significant efforts in teacher training and the integration of global citizenship concepts in the curriculum. The relationship between "education" and "global citizenship education" emphasizes the exploration of how education can develop the concept of global citizenship, while the relationship between "sustainability" and "human rights" shows attention to the contribution of education to more sustainable and equitable development. Opportunities for further development are seen in integration with other social issues and a more holistic, multidisciplinary approach. Overall, this visualization shows that global citizenship education is a dynamic research area with many opportunities for further development.

Figure 2. Network visualization

The results of a network visualization from VOSviewer regarding research trends in global citizenship education during the period 2013 to 2023 show that the topics "education", "global citizenship education", "sustainability", and "learning" are very frequently discussed in the literature, with "education" being the word the most dominant key (See figure 3). The colors of the nodes indicate the temporal development of the keywords, where yellow indicates newer research and blue indicates older research. Important topics such as "sustainability", "global citizenship education", and "learning" which are colored green to yellow show increased attention in recent years. The relationship between "global citizenship education" with "sustainability" and "human rights" reflects the integration of global citizenship issues with sustainability and human rights. New topics such as "peace", "non-violence", "covid", "pandemic", and "job satisfaction" show increased interest and impact of the pandemic on research. Overall, this visualization confirms that global citizenship education research is a dynamic and growing field, with great opportunities for the exploration of new issues and multidisciplinary approaches that can provide more holistic and applicable insights in shaping inclusive and sustainable global citizenship.

Figure 3. Network visualization

Density visualization results from VOSviewer regarding global citizenship education research show that "education" is the keyword with the highest density, indicating the most frequently discussed topic. The keyword "global citizenship education" also shows high density, reflecting significant interest in this field (See figure 4). The aspects of "sustainability", "learning", and "impact" are an important focus, followed by "teacher education" and "country", which show attention to teacher education and the country context. Keywords such as "human rights", "peace", and "non-violence" have significant density, indicating attention to issues of human rights, peace and non-violence. The emergence of the keywords "pandemic" and "covid" shows renewed interest in the impact of the pandemic. Overall, this visualization reveals the diversity of research in global citizenship education, with a primary focus on the role of education in forming responsible global citizens who are responsive to developing global issues.

Figure 4. Density visualization

Based on visualizations from VOSviewer, research trends in global citizenship education show that the topics of "education" and "global citizenship education" dominate the literature, indicating a primary focus on education in general and global citizenship education in particular. This research also shows the close relationship between global citizenship education and issues of sustainability, human rights, and peace, which is reflected in keywords such as "sustainability", "human rights", and "peace". Increased attention to new issues such as the impact of the pandemic can be seen from the emergence of the keywords "covid", "pandemic", and "job satisfaction". In addition, teacher training and the integration of global citizenship concepts in the curriculum are important focuses, as indicated by the keywords "teacher education" and "curriculum". The research also covers aspects of literacy, relationships between institutions, and regional contexts, for example in the keyword clusters "literacy", "faculty", "relationship", and "indonesia". Overall, this visualization reveals that global citizenship education is a dynamic and growing field, with many opportunities for the exploration of new issues and a more holistic, multidisciplinary approach, aimed at forming global citizens who are responsible, inclusive, and responsive to issues. a global issue that continues to develop.

Conclusion

This research analyzes the development of Global Citizenship Education (GCED) research through bibliometric mapping using VOSviewer. Articles were collected from the Google Scholar database with the Publish or Perish application to observe topic trends. This research analyzed the Google Scholar database for 10 years (2013-2023), producing 969 articles. The results of data analysis show a significant decrease in the number of publications, from 131 in 2013 to 21 in 2023. However, analysis using VOSviewer revealed the existence of 597 items, 12 clusters, 17,920 links, and a total link strength of 26,143. The complexity of these connections suggests potential for further development, offering opportunities for exploration of new topics and research innovation. Although interest in Global Citizenship Education is declining, these findings demonstrate that this topic is still relevant and has significant

connections to research innovation. Thus, GCED still has a significant impact in achieving sustainable development goals. Therefore, it is hoped that further research in this area can continue to support the achievement of sustainable development goals and contribute to overcoming global issues. These findings show that there are still many research topics that can be explored and developed, making this review a starting point for research in other related fields.

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