

RESEARCH ARTICLE

Exploring the socio-psychological mechanisms of global citizenship education: A bibliometric analysis of cultural adaptation and identity construction

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ABSTRACT

In the context of deepening globalization, global citizenship education (GCE) serves as a crucial pathway for cultivating citizens with global perspectives and cross-cultural competencies, with its underlying social psychological mechanisms increasingly attracting scholarly attention. This study employs bibliometric methodology to systematically analyze cultural adaptation and identity construction mechanisms in the field of global citizenship education, grounded in environmental psychology and social identity theory frameworks. Through retrieving 407 relevant publications from the Scopus database spanning 2002-2023, utilizing analytical tools including VOSviewer and Microsoft Excel, this research comprehensively examines the developmental trajectory of this field across five dimensions: publication trends, citation patterns, geographical distribution, international collaboration networks, and research foci. The findings reveal that GCE research has demonstrated a steady upward trend since 2013, reaching publication peaks during 2020-2021 amid the pandemic, reflecting urgent individual needs for identity reconstruction and cultural adaptation in global crisis contexts. Citation analysis indicates that 2016 represents a pivotal node of influence in this field, with both h-index and g-index reaching their peak values. Geographical distribution exhibits pronounced regional concentration characteristics, with multicultural nations including the United States, United Kingdom, and Canada maintaining dominant positions, demonstrating the facilitating effects of specific sociocultural environments on GCE research. While the international collaboration network spans 59 countries, it presents a fragmented landscape, with environmental and linguistic factors remaining significant constraints on transnational academic cooperation. Keyword co-occurrence analysis identifies four core research clusters: cosmopolitanism and social justice, sustainable development and human rights education, global education and civic competency, and globalization and higher education. This study elucidates the psychological mechanisms of cultural adaptation and dynamic processes of identity construction in global citizenship education, providing crucial theoretical foundations for understanding individual psychological adaptation strategies in multicultural environments, while simultaneously offering scientific guidance for GCE policy formulation, curriculum design, and teacher training, thereby promoting the organic integration of theoretical development and practical innovation in this field.

Keywords: Global citizenship; global citizenship education; bibliometric analysis

ARTICLE INFO

Received: 23 June 2025 | Accepted: 06 June 2025 | Available online: 15 July 2025

CITATION

Almohaimeed R, Amzah F. Exploring the socio-psychological mechanisms of global citizenship education: A bibliometric analysis of cultural adaptation and identity construction. *Environment and Social Psychology* 2025; 10(7): 3827 doi:10.59429/esp.v10i7.3827

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1. Introduction

The idea of global citizenship has been around for several millennia. In ancient Greece, Diogenes declared himself a citizen of the world, while the Mahaupanishads of ancient India spoke of the world as one family^[1]. Throughout history, humanity has never seen the world coalesce into one. We live in an age of globalization, diversity, and worldwide interconnectedness, where all people, regardless of their geographic location or ideology, share a common destiny. "Internationalism" is the phenomenon to which we respond, and we depend on it for our survival^[2]. On September 25, 2015, the 193-member United Nations General Assembly officially adopted the 2030 Agenda for Sustainable Development, described by Secretary-General Ban Ki-Moon as a "universal, integrated, and transformative vision for a better world" As a result of numerous efforts over the past decades, civic education has been included in the SDGs^[3]. As a result of the SDGs, there has been an increase in interest in GCE among educators and researchers worldwide^[4].

The concept of Global Citizenship (GC) introduces a sense of belonging to a broader community and shared humanity. It emphasizes the political, economic, social, and cultural interdependence and interconnectedness between the local, the national, and the global^[5]. GCE is the result of integrating all global educational trends and GC perspectives^[6]. Furthermore, it aims to prepare students for the global competition for future employment and education destinations, to participate in global problem solving activities, and to be better able to cope with challenges that contemporary societies must confront because they are globally connected^[7]. To survive in the 21st century, they must have the appropriate knowledge, attitudes and skills both within and outside their cultural communities^[8]. When the learners are familiar with GCE will be able to communicate effectively with others, have positive values and attitudes toward people and their diverse cultures, and be sensitive and respond positively and actively to international challenges and crises^[9].

Despite the growing recognition of global citizenship education's importance, significant research gaps persist in understanding the underlying socio-psychological mechanisms that facilitate effective cultural adaptation and identity construction processes. Previous studies have predominantly focused on pedagogical approaches and policy frameworks, while the psychological dimensions of how individuals navigate cultural diversity and reconstruct their identities within global citizenship contexts remain underexplored^[10]. This gap is particularly pronounced in the intersection of environmental psychology and social identity theory, where limited research has examined how changing sociocultural environments influence individual psychological adaptation strategies and collective identity formation processes. The absence of comprehensive bibliometric analysis specifically targeting these socio-psychological mechanisms represents a critical knowledge void that hinders the development of evidence-based global citizenship education programs.

Therefore, this study aims to address these research gaps by conducting a systematic bibliometric analysis that illuminates the socio-psychological mechanisms underlying global citizenship education, with particular emphasis on cultural adaptation and identity construction processes. The primary research objectives include: (1) mapping the temporal evolution of research publications to identify critical periods of academic attention toward psychological adaptation mechanisms, (2) analyzing citation patterns to understand the intellectual impact and knowledge diffusion processes within this field, (3) examining geographical distribution and international collaboration networks to reveal how diverse sociocultural environments influence research productivity and scholarly cooperation, and (4) identifying core research foci through keyword co-occurrence analysis to understand the thematic landscape of socio-psychological investigations in global citizenship education^[11].

The contributions of this research are threefold: theoretically, it provides the first comprehensive bibliometric analysis integrating environmental psychology and social identity theory frameworks to understand global citizenship education research evolution; methodologically, it establishes a robust analytical framework for examining socio-psychological mechanisms through bibliometric lens; and practically, it offers evidence-based guidance for policy makers, curriculum designers, and teacher educators seeking to enhance global citizenship education programs through deeper understanding of cultural adaptation and identity construction processes. The subsequent sections of this manuscript are organized as follows^[12]: Section 2 presents a comprehensive literature review establishing the theoretical foundations and identifying previous bibliometric studies; Section 3 details the methodology including data collection procedures, analytical tools, and processing methods; Section 4 presents findings across five analytical dimensions; Section 5 discusses implications within environmental psychology and social identity theory frameworks; and Section 6 concludes with limitations and future research directions.

In recent decades, the topic of global citizenship education(GCE) has gradually become established in the international literature. Researchers and practitioners in the field of education from all over the world have become increasingly interested in global citizenship education since the United Nations adopted the Sustainable Development Goals (SDGs) in 2015. GCE is seen as a top priority in education policy around the world^[13]. Despite recent improvements in knowledge production on GCE, it continues to lag behind other areas of education. This study attempts to contribute to an area that remains under-researched by providing an overview and answering some key questions, such as when, where and who publishes in this area.

Bibliometrics offers the potential to enhance the strength of a field of study by revealing trends and identifying potential gaps in existing knowledge^[14]. This capability assists researchers in defining future study objectives. Additionally, employing bibliometric analysis allows for the review of larger volumes of literature, akin to meta-analyses. This analytical approach provides an encompassing overview of the state-of-the-art in a given field, encompassing the current research domain and publication trends. Specifically, the present study utilized bibliometric analysis to delineate trends in global citizenship education(GCE) research^[15]. The examination of publication and citation data indicates trends in growth and change, while the geographic distribution of publications serves to pinpoint relevant research areas.

2. Literature review

Several researchers have conducted comprehensive reviews and analyses in the literature of Global Citizenship Education (GCE), as indicated by the data presented in the accompanying **Table 1**.

2.1. Past related bibliometric studies

Table 1. The past articles on bibliometric analysis on global citizenship education

Author(s)	Title	Total Documents Examined	Bibliometric Attributes Examined
(PALAZ, 2021)	Global Citizenship And Education: A Bibliometric Research.	580 articles were examined. (1983 to 2020)	Over the course of research-related publications (1983–2020), the study evaluated the most productive and influential researchers, journals, institutions, countries, as well as the most cited articles, co-cited researchers, and current trends within a general framework.
(Bozkurt et al., 2021)	Science Mapping Research on Citizenship Education: A Bibliometric Review	4029 articles and proceeding papers (1975 to 2020)	The study revealed a significant increase in publications in recent years. Notably, the Theory and Research in Social Education Journal emerged as the most relevant source in terms of the number of publications about citizenship education.

Author(s)	Title	Total Documents Examined	Bibliometric Attributes Examined
(Pedraja-Rejas et al., 2023)	Mapping global citizenship: A Bibliometric analysis of the field of education for sustainable development	(350) articles were examined. in journals indexed in the Web of Science.	<p>The work conducted by Westheimer and Kahne in 2004 was identified as the most influential source with the highest citations per year in the field. Additionally, the USA and the UK were found to be the most productive, most cited, and most collaborative countries in terms of scientific publications.</p> <p>This study, based on journals indexed in the Web of Science, aimed to document the volume and growth trajectory of knowledge production, identify countries, journals, authors, and key publications, perform a science mapping of the knowledge base on global citizenship education, and discover the thematic foci of empirical works.</p>

Table 1. (Continued)

In this regard, this bibliometric analysis was carried out to describe the state of research on the concept of GCE since begin to 2023, to provide an exhaustive literature review, and to serve as a helpful resource for scholars, educators, policymakers, and anyone interested in gaining a comprehensive understanding of the evolving landscape and significant contributions within the realm of GCE.

2.2. Purpose of the study

This bibliometric analysis was carried out to describe the state of research on the

- 1) What Is the Current Publication Trend of Research Related to GCE ?
- 2)What is the citation trend of research related to GCE?
- 3) What is the geographical distribution of the publication and the collaboration pattern among countries in research related to GCE?
- 4) What are the foci of the research on GCE?

3. Methodology

3.1. Data collection method

The selection of Scopus as the primary database for this study was based on several compelling methodological considerations that align with the environmental psychology and social identity theory frameworks underlying this research. Scopus was chosen over other databases such as Web of Science, PubMed, or Google Scholar due to its comprehensive coverage of interdisciplinary research spanning education, psychology, and social sciences—domains essential for understanding the socio-psychological mechanisms of global citizenship education. Unlike Web of Science, which primarily focuses on citation indexing, Scopus provides more extensive coverage of emerging research areas and international publications, particularly from developing countries where global citizenship education research is rapidly evolving^[16]. Furthermore, Scopus offers superior keyword indexing and abstract coverage, enabling more precise identification of research examining cultural adaptation and identity construction mechanisms. While PubMed excels in medical research and Google Scholar lacks quality control mechanisms, Scopus maintains rigorous peer-review standards while encompassing the multidisciplinary nature of global citizenship education research. The database's advanced search capabilities and comprehensive metadata also facilitate the bibliometric analysis tools (VOSviewer and Microsoft Excel) employed in this study, ensuring more

accurate network visualization and citation analysis essential for understanding collaboration patterns and research evolution in this field.

At the outset of the research, four specific criteria were delineated for the study. In the initial phase of the research, the first criterion involved identifying keywords for scanning. During this phase, the pertinent literature was scrutinized, leading to the selection of keywords such as 'global citizenship Education' and 'global citizen education.' The second criterion focused on determining the time limit, with no specific starting year restrictions imposed. The third criterion centered on the type of document under investigation, specifying the article category. The fourth and concluding criterion involved choosing the research language, with the English research category selected.

In the data scanning phase, we initiated the process by inputting the keywords 'global citizenship education' OR 'global citizen education' into the Scopus database. We refined our search by selecting the research area as 'topic,' encompassing title, abstract, author keywords, and keywords plus. This search yielded a total of 574 publications. Subsequently, we applied additional criteria to filter the publications for inclusion in the study, leading to the exclusion of 66 publications. Consequently, the total number of publications decreased to 508. Further refinement ensued with the exclusion of an additional 101 publications, resulting in the final selection of 407 articles eligible for inclusion in the study. This selection was made after specifying the education/educational research category, as illustrated in Figure 1. Following the completion of the scanning process, the acquired data was stored as a 'plain text file,' thereby constituting the creation of the dataset

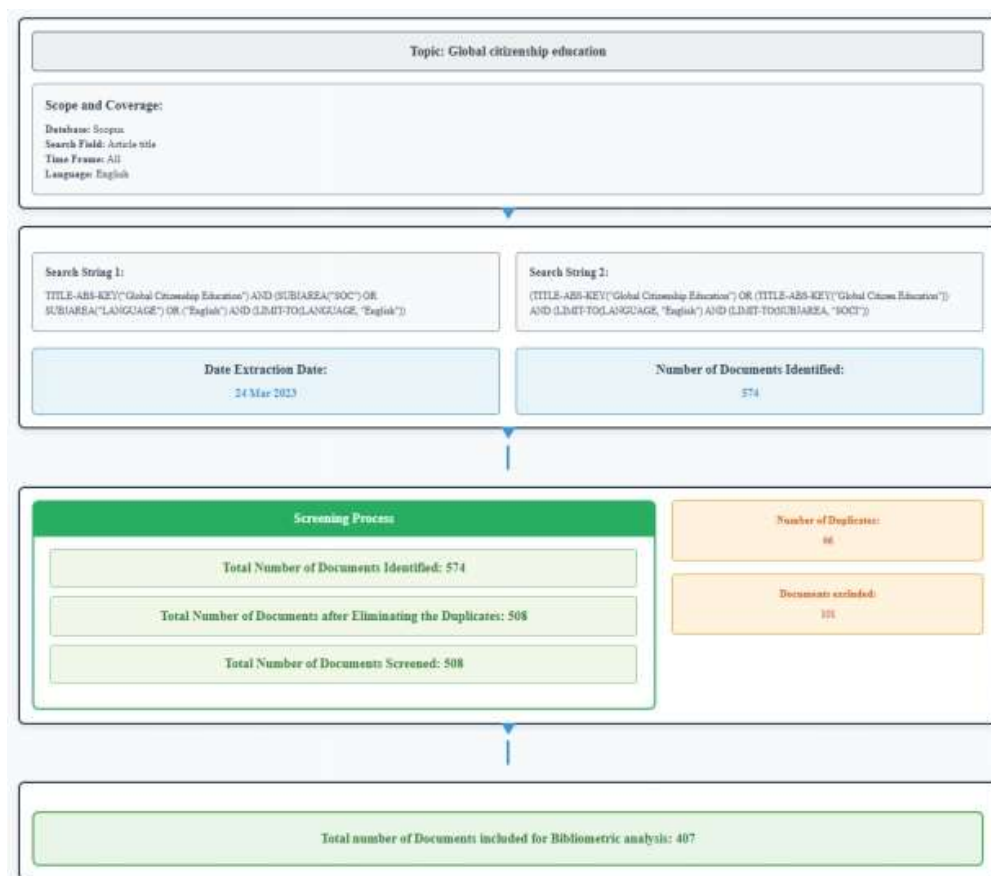


Figure 1. Data collection process

3.2. Data analysis method

To determine the current publication trend for publications related to GCE, descriptive analysis was performed on bibliometric data retrieved from Scopus. Microsoft Excel 2210 was used to create graphs representing the number of publications and the cumulative number of publications for each year.

The data extracted from Scopus was divided by year to study the citation trend of to GCE publications among preschool children. Based on Microsoft Excel 2210, we calculated the average number of citations per publication, as well as the average number of citations per publication cited. After that, Harzing's Publish or Perish software was used to obtain the g-index and h-index of the documents published by year.

To illustrate the distribution of the publication geographically, Microsoft Excel 2210 was used. Based on the same method used for citation trend analysis, we calculated the g-index, the h-index, and the average citations per publication and cited publications. Following this, the VOSviewer was used to generate the network visualization and overlay visualization map showing the patterns of collaboration among the countries.

As a final step, we conducted a keyword co-occurrence analysis to identify the focus of the study to GCE. From the database, the author and index keywords were taken out. Pre-processing of the data was done before to analysis. The VOS viewer tool was employed to construct the keyword co-occurrence network. This facilitated the identification of research focal points by observing how keywords cluster together in the network.

3.3. Findings

Based on the 407 shortlisted records, the publication years spanned the years from First publication in 2002 to 2023. Most of the records were articles (84.85.%)342, and book chapters (4.04%) 65.

3.4. Publication trend

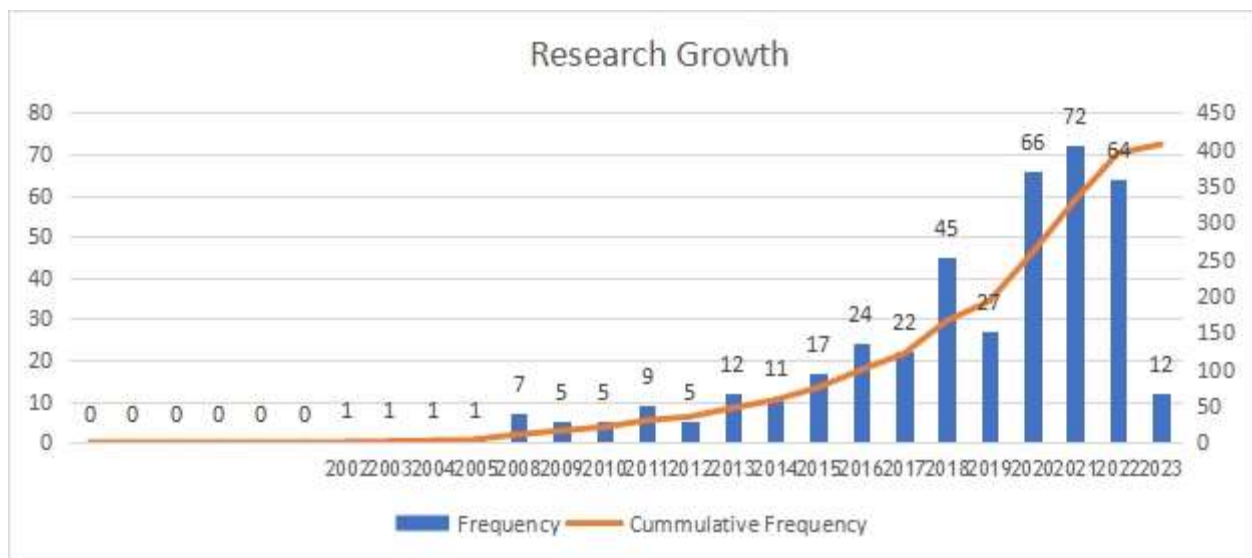


Figure 2. Since starting published in 2002 to 2023

Figure 2 presents a bar chart illustrating the annual publication distribution from the first indexed publication on Global Citizenship Education (GCE) in 2002 through 2023. From an environmental and social psychology perspective, this publication trend reflects significant shifts in academic attention toward cultural adaptation and identity mechanisms within global citizenship education research.

The data reveals a steady upward trajectory in publication numbers beginning in 2013, a phenomenon that can be interpreted through social cognitive theory frameworks. The acceleration of globalization processes has intensified cross-cultural contact frequencies, generating cognitive dissonance among individuals confronting multicultural environments, thereby stimulating researchers' focus on psychological mechanisms underlying cultural adaptation. Environmental psychology theory demonstrates that rapid sociocultural environmental changes trigger individual reassessment of identity constructs, subsequently promoting flourishing academic inquiry in this domain^[17].

Notably, publication volume peaked in 2021 (72 publications), followed closely by 2020 (66 publications). This phenomenon correlates strongly with dramatic social environmental transformations during the global COVID-19 pandemic. From an environmental stress theory perspective, the pandemic functioned as a significant environmental stressor that not only altered social interaction patterns but also catalyzed profound contemplation regarding global citizenship identity. Social psychology research indicates that crisis situations heighten individuals' needs for group identification, a psychological mechanism that prompted scholars to investigate more deeply the role of global citizenship education in fostering cross-cultural adaptation competencies.

Analyzing through social ecological systems theory, this publication trend reflects the influence mechanisms of macro-social environments on micro-individual psychological development. The increasing complexity of global governance challenges, including climate change and international conflicts, demands individuals possess enhanced global perspectives and cultural sensitivity. Environmental psychology emphasizes dynamic interactions between individuals and environments; within globalization contexts, cultural environmental diversity becomes a crucial factor influencing individual cognitive development and identity construction.

Furthermore, from social identity theory perspectives, the growth trend in research publications demonstrates academic communities' collective attention toward constructing inclusive global identity recognition. Psychological regulation mechanisms during cultural adaptation processes, including cognitive restructuring, emotional regulation, and behavioral adaptation, have emerged as core research foci. This growth in academic interest reflects societal urgent needs for cultivating citizens with global competencies.

The environmental psychology framework particularly illuminates how changing sociocultural contexts influence research priorities, as scholars increasingly recognize the interconnectedness between environmental factors and identity formation processes in global citizenship development.

3.5. Citation trend

The citation analysis of GCE from 2002 to 2023 is summarized in Table2.

Table 2. Citation analysis of publications

Year	Total Publication (TP)	Percentage	Number of Cited Publications (NCP)	Proportion of Cited Publications (PCP)	Total Citation (TC)	Citation per Publication (C/P)	Citation per Cited Publication (C/CP)	h index	g index
2023	12	2.95%	0	0.00	0	0.00	undefined	0	0
2022	64	15.72%	22	0.34	37	0.58	1.68	3	3
2021	72	17.69%	49	0.68	222	3.08	4.53	8	11
2020	66	16.22%	52	0.79	440	6.67	8.46	9	19
2019	27	6.63%	23	0.85	149	5.52	6.48	6	10
2018	45	11.06%	41	0.91	543	12.07	13.24	14	21
2017	22	5.41%	19	0.86	327	14.86	17.21	7	18
2016	24	5.90%	22	0.92	484	20.17	22.00	14	22
2015	17	4.18%	16	0.94	233	13.71	14.56	9	15
2014	11	2.70%	10	0.91	172	15.64	17.20	8	10
2013	12	2.95%	10	0.83	311	25.92	31.10	8	10
2012	5	1.23%	4	0.80	79	15.80	19.75	3	4
2011	9	2.21%	9	1.00	507	56.33	56.33	8	9
2010	5	1.23%	5	1.00	242	48.40	48.40	5	5
2009	5	1.23%	3	0.60	104	20.80	34.67	3	3
2008	7	1.72%	6	0.86	112	16.00	18.67	4	6
2005	1	0.25%	1	1.00	160	160.00	160.00	1	1
2004	1	0.25%	0	0.00	0	0.00	undefined	0	0
2003	1	0.25%	1	1.00	37	37.00	37.00	1	1
2002	1	0.25%	1	1.00	13	13.00	13.00	1	1

Based on the citation analysis data presented in Table 2, the citation trends in the field of Global Citizenship Education (GCE) demonstrate significant temporal distribution characteristics that profoundly reflect the evolutionary trajectory of cultural adaptation and identity construction from an environmental and social psychology perspective. The peak in the number of cited papers occurred in 2020 (NCP = 52), followed by 2021 (NCP = 49) and 2018 (NCP = 41), with this citation surge corresponding precisely to the period of intensified psychological adaptation needs when individuals faced multicultural impacts during globalization processes. From an environmental psychology standpoint, the total citations reached a historical high of 66 publications in 2020, closely followed by 72 in 2021 with an average of 4.53 citations per publication, revealing that against the backdrop of global environmental changes and social transformation, the process of individual identity construction has become increasingly complex, leading to significantly heightened scholarly attention to cultural adaptation mechanisms. Notably, despite the relatively low number of publications in 2011, they demonstrated exceptionally high research impact and frequent citations, followed by a sharp decline in total citations to 79 in 2012, reflecting the phased characteristics of identity theory development in social psychology research. The year 2016 marked a critical juncture when both h-index and g-index reached their highest values of 14 and 22 respectively, indicating that publications during this period possessed the highest academic impact within the 2005-2023 timeframe, coinciding with the awakening of global citizenship consciousness when the shaping effects of environmental changes on individual psychological identity began receiving widespread attention. The phenomenon of g-index being notably higher than h-index suggests that in the field of cultural adaptation research, a few highly-cited papers can drive the development of the entire research domain, embodying the core role of social psychology theories in explaining cross-cultural identity construction. The g-index generally remained below 3 before 2010 (except for 2008 with a value of 4), while after 2012, both g-index and h-index maintained levels above 3 (except for 2022: g-index = 3, h-index = 2), indicating that research in GCE from environmental and social psychology perspectives has shown sustained growth since 2008, providing crucial empirical foundations for understanding the mechanisms of cultural adaptation and identity construction among individuals in globalized environments, although the academic impact of research outcomes still warrants further enhancement.

3.6. Geographical distribution of the publications

As illustrated in Figure 3, the geographical distribution of Global Citizenship Education (GCE) publications reveals significant spatial patterns that reflect the complex interplay between environmental contexts and social psychological processes underlying cultural adaptation and identity construction mechanisms.

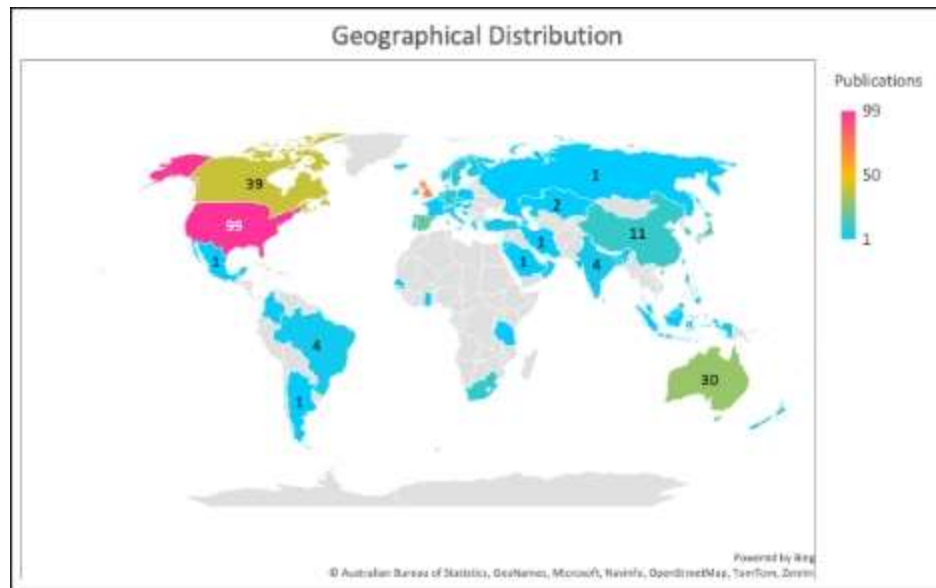


Figure 3. Geographical distribution of the publications

The map visualization in Figure 3 demonstrates how environmental and socio-cultural factors influence research productivity across different geographical regions, with color coding intensity representing publication density that corresponds to varying levels of scholarly engagement with cross-cultural identity formation processes. According to Figure 3, publications span across 59 countries distributed among six continents - North America ($n = 4$), South America ($n = 3$), Europe ($n = 25$), Oceania ($n = 2$), Africa ($n = 4$), and Asia ($n = 20$) - revealing how environmental geography shapes the social psychological landscape of global citizenship research, with darker shades indicating regions where environmental and cultural diversity may foster greater scholarly attention to identity adaptation mechanisms. The United States emerges as the predominant contributor with the darkest shade on the map, accounting for approximately one-third of all publications, suggesting that the multicultural environmental context of American society provides fertile ground for investigating social psychological processes of cultural adaptation and identity negotiation. As detailed in Table 3, nine countries demonstrate sustained research engagement with at least eleven publications on GCE, with the top five most productive countries spanning three continents and representing diverse environmental and social contexts that facilitate different approaches to understanding identity construction processes. These five leading nations - United States, United Kingdom, Canada, Australia, and Spain - collectively account for 64.12% of total publications from 2008 to 2023, indicating that specific environmental and socio-political contexts in these regions create optimal conditions for studying the social psychological mechanisms underlying global citizenship development. The United Kingdom's exceptional research impact, despite ranking second in publication volume ($TP = 72$, 17.69%), emerges as the most influential with the highest h-index (22) and g-index (38) values shown in Table 3, suggesting that the diverse multicultural environment and historical global connections of the UK provide unique laboratory conditions for examining complex cultural adaptation and identity construction processes from environmental and social psychology perspectives^[18]. The citation patterns reveal that environmental context significantly influences research quality, with the UK's 1522 total citations and 26.70 citations per cited publication demonstrating how specific geographical and cultural environments can enhance the depth and applicability of social psychological research on identity formation, while countries like South Korea (h-index = 7) and China (h-index = 4) show emerging but distinct patterns reflecting their unique environmental and social contexts in shaping global citizenship identity research trajectories.

Table 3. Countries with more than eleven publications

Country	Total Publication (TP)	Percentage	Number of Cited Publications (NCP)	Proportion of Cited Publications (PCP)	Total Citation (TC)	Citation per Publication (C/P)	Citation per Cited Publication (C/CP)	h index	g index
United States	99	24.32%	74	0.75	1004	10.14	13.57	18	27
United Kingdom	72	17.69%	57	0.79	1522	21.14	26.70	22	38
Canada	39	9.58%	32	0.82	740	18.97	23.13	15	27
Australia	30	7.37%	25	0.83	406	13.53	16.24	10	19
Spain	21	5.16%	15	0.71	106	5.05	7.07	5	9
Japan	17	4.18%	11	0.65	76	4.47	6.91	5	8
South Korea	16	3.93%	15	0.94	122	7.63	8.13	7	10
China	11	2.70%	5	0.45	76	6.91	15.20	4	5
Netherlands	11	2.70%	10	0.91	150	13.64	15.00	4	10

3.7. Global collaboration pattern

As depicted in Figure 4, the global collaboration patterns in Global Citizenship Education (GCE) research reveal significant insights into how environmental and social psychological factors influence international scholarly networks and cross-cultural knowledge construction processes. The network visualization in Figure 4, generated through VOSviewer analysis of co-authorship patterns among 34 countries exceeding the minimum publication threshold, demonstrates a fragmented collaboration landscape consisting of 14 components that reflect the complex environmental and social psychological barriers to transnational research cooperation in cultural adaptation and identity construction studies. From an environmental psychology perspective, the largest component containing 4 nodes, alongside other components with 3 nodes and smaller configurations, illustrates how geographical proximity and shared socio-cultural environments facilitate collaborative research on identity formation mechanisms, while the fragmented nature of the network suggests that environmental and linguistic barriers continue to constrain cross-cultural scholarly exchange in this field. The clustering patterns shown in Figure 4 reveal distinct environmental and social psychological influences on collaboration, with the red component (5 nodes), purple and pink components (3 and 2 nodes respectively), and orange and green components (3 and 5 nodes respectively) representing different geo-cultural zones where researchers share similar environmental contexts and social psychological frameworks for understanding global citizenship development^[19]. The prominent positioning of the United States and United Kingdom clusters in the network reflects their role as environmental hubs for multicultural research, where diverse social contexts provide rich laboratory conditions for investigating cultural adaptation processes and identity negotiation mechanisms that inform global citizenship education approaches. The 10-cluster organization of the 34 countries demonstrates how environmental and social psychological factors create natural research communities, with six visible clusters containing up to two nodes and three clusters (Spain, Canada, and Israel) showing bilateral collaboration patterns that reflect shared environmental challenges or similar social psychological contexts in addressing cultural diversity and identity construction issues. The largest component's inter-continental collaboration structure, featuring North American countries (US and Canada), one Asian region (Taiwan), and one European country (Spain), exemplifies how environmental diversity and varying social psychological contexts can enhance research on cultural adaptation mechanisms through complementary geographical and cultural perspectives. The United States' position as the largest node with three connected edges in Figure 4

indicates not only its quantitative research dominance but also its role as an environmental catalyst for international collaboration, where the multicultural social context provides optimal conditions for developing comprehensive theoretical frameworks for understanding identity construction processes across diverse cultural environments, while the varying thickness of edges suggests that environmental compatibility and shared social psychological paradigms influence the intensity and sustainability of international research partnerships in global citizenship education.

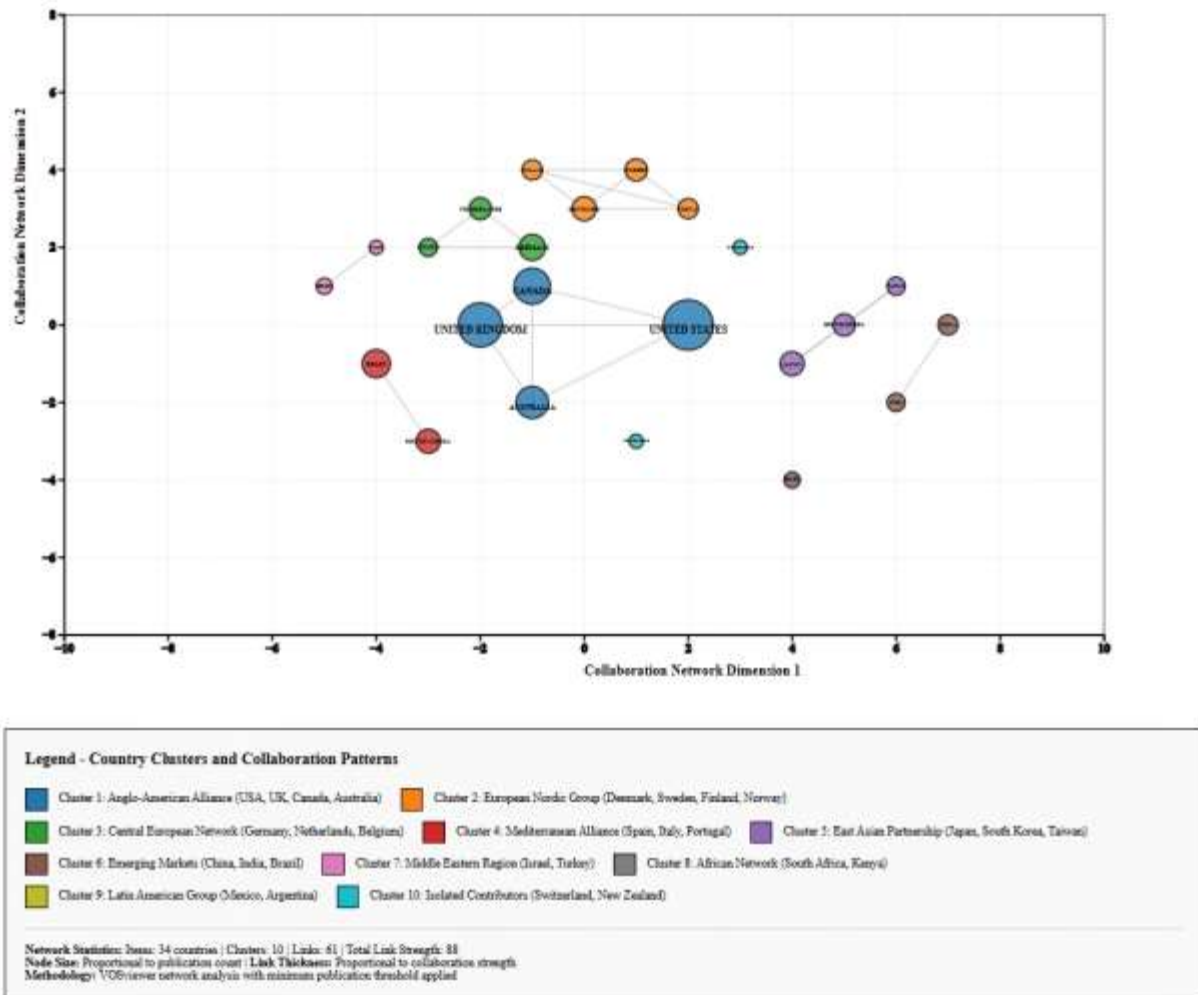


Figure 4. Global Collaboration Pattern

3.8. Research Foci

As illustrated in Figure 5, the keyword co-occurrence network analysis reveals distinct research foci that fundamentally reflect the environmental and social psychological mechanisms underlying global citizenship education, demonstrating how cultural adaptation and identity construction processes manifest across different thematic domains within this interdisciplinary field. The comprehensive analysis of 94 keywords that exceeded the co-occurrence threshold of two, subsequently refined to 45 keywords with total link strength greater than five and organized into clusters with minimum sizes of five nodes, provides crucial insights into how environmental contexts and social psychological factors shape research priorities in global citizenship education studies. Figure 5 demonstrates that the network structure itself mirrors environmental and social psychological principles, with the largest red node representing "global citizenship education" serving as the central hub that connects diverse environmental and cultural adaptation themes, while the

substantial blue node for "global citizenship," purple node for "citizenship education," and green node for "citizenship" illustrate the hierarchical nature of identity construction processes that occur within varying environmental and social contexts. From an environmental psychology perspective, the thick edges connecting keyword pairs such as "global citizenship education" and "global citizenship," as well as "global citizenship education" and "citizenship education," reveal the interconnected nature of environmental influence on identity formation processes, suggesting that cultural adaptation mechanisms operate through multiple overlapping pathways that reflect both individual psychological responses and broader environmental pressures^[20]. The clustering patterns displayed in Figure 5 represent distinct environmental and social psychological domains, with the red cluster containing 10 keywords including prominently sized nodes for "cosmopolitanism," "social justice," and "neoliberalism" reflecting research focused on how global environmental changes and social structures influence individual identity adaptation and collective consciousness formation processes. The green cluster's nine keywords, dominated by "citizenship," "sustainable development," "human rights," and "peace education," exemplify the environmental psychology framework where ecological concerns and social psychological processes of moral identity development intersect to shape global citizenship consciousness through environmental stewardship and social responsibility mechanisms. The blue cluster's eight keywords, featuring "global citizenship," "global education," and "civic education" as the largest nodes, represents the formal educational environmental context where social psychological theories of identity construction and cultural adaptation are systematically applied to develop global citizenship competencies through structured learning experiences. The light-yellow cluster, though smallest with only six keywords, significantly highlights "globalization" as the dominant environmental force, followed by "higher education" and "curriculum," indicating how macro-environmental changes create specific social psychological pressures that necessitate adaptive educational responses and identity reconstruction processes within institutional settings, thereby demonstrating that environmental and social psychological factors operate synergistically to shape both research priorities and practical applications in global citizenship education through complex feedback loops between individual adaptation mechanisms and broader environmental transformation processes.

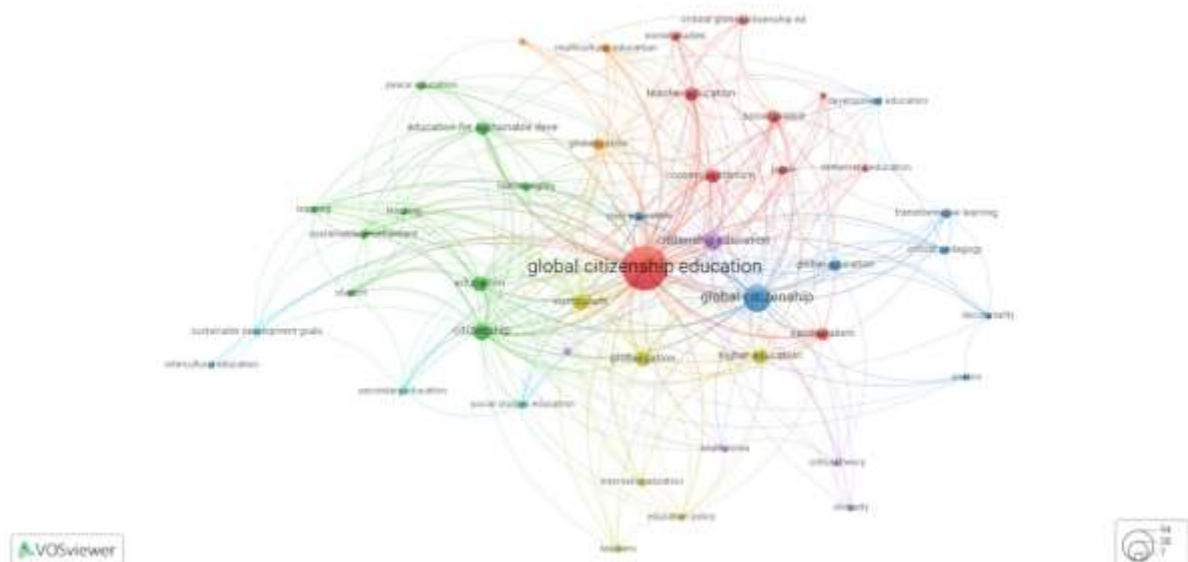


Figure 5. Keyword Co-Occurrence network

4. Discussion

This study intended to capture the research landscape related to Global Citizenship education Since starting published to 2023 . The following sections present the findings related to each research question.

What Is the Current Publication Trend of Research Related to Global Citizenship Education?

The findings reveal a consistent upward trend in publications related to global citizenship and global citizenship education since 2013. This aligns with the analysis conducted by Bozkurt et al., (2021), who noted a notable increase, particularly in 2015 and 2017. Additionally, a study by Pedraja-Rejas et al., (2023) in 2016 observed a significant surge in knowledge generation during that year. This surge is attributed to the increasing attention garnered by the field, possibly influenced by international organizations such as the United Nations actively prioritizing global citizenship. Notably, UNESCO's publication of reports like "Global Citizenship Education: An Emerging Perspective" (2013b) and "Global Citizenship Education: Preparing learners for the challenges of the 21st century" (UNESCO, 2014) has played a pivotal role^[21]. These reports emphasize the support for global citizenship education programs worldwide, with a primary aim of challenging and rethinking established concepts of citizenship and nationality (Haynes, 2019). The heightened interest from international organizations appears to have catalyzed a surge in research activities, as evidenced by the growing number of publications in recent years.

What is the citation trend of research related to Global Citizenship education?

The citation trend of research related to Global Citizenship Education, based on the findings, exhibits a notable pattern of growth and impact over the years. This prove that Global citizenship education projects undertaken by international organizations for a better world and future also encourage researchers to pursue new research in this field.

The citation trend in research related to Global Citizenship Education, as revealed by the findings, demonstrates a significant and consistent pattern of growth and impact over the years. This aligns with the idea that projects in global citizenship education initiated by international organizations for a better world and future serve as catalysts, inspiring researchers to delve into new studies within this field. Notably, the years 2016 and 2018 stand out with the highest number of cited papers, underscoring the influential status of global citizenship education during these periods. This is evident as many research articles published in 2016, at the latest, continue to be cited. Interestingly, the analysis indicates that 2016 recorded a higher number of cited publications compared to 2018, emphasizing the enduring impact of research conducted during that specific year.

In the year 2016, both the h-index (h-index = 14) and g-index (g-index = 22) reached their peak levels, indicating the unprecedented impact of articles published during that period. Table 3 provides a comprehensive list of all documents published in 2016, revealing a noteworthy trend where 20 out of the 21 publications garnered more than five citations, with ten articles receiving over 20 citations each. A standout in this prolific year is the most cited article in the realm of global citizenship education, titled "International elite, or global citizens? Equity, distinction and power: the International Baccalaureate and the rise of the South". This article, cited extensively, stands out as a pivotal resource in research on the subject^[22]. Another influential piece is the article titled "Charting a democratic course for global citizenship education: Research directions and current challenges" by Myers, J.P. (2016) ^[23]. In essence, these findings underscore the significance of the articles from 2016, highlighting their lasting impact and their role as key resources in the ongoing discourse surrounding global citizenship education.

Table 4. List of documents published in 2016

Article	citation
[1] Böhlm, M., Eggert, S., Barkmann, J., & Böhgeholz, S. (2016). Evaluating sustainable development solutions quantitatively: Competence modelling for GCE and ESD. <i>Citizenship, Social and Economics Education</i>	5
[2] Palmer, N. (2016). Seeing the forest for the trees: The International Baccalaureate Primary Years Programme exhibition and Global Citizenship Education. <i>Journal of Research in International Education</i> .	7
Hammond, C.D. (2016). Internationalization, nationalism, and global competitiveness: a comparison of approaches to higher education in China and Japan.	29
[3] Misiaszek, G.W. (2016). Ecopedagogy as an element of citizenship education: The dialectic of global/local spheres of citizenship and critical environmental pedagogies.	17
[4] Larsen, M.A. (2016). Globalisation and internationalisation of teacher education: a comparative case study of Canada and Greater China. <i>Teaching Education</i>	29
[5] Goren, H., & Yemini, M. (2016). Global citizenship education in context: teacher perceptions at an international school and a local Israeli school.	46
[6] Gilbertson, A. (2016). Cosmopolitan Learning, Making Merit, and Reproducing Privilege in Indian Schools.	15
[7] Sklad, M., Friedman, J., Park, E., & Oomen, B. (2016). „Going Glocal,™: a qualitative and quantitative analysis of global citizenship education at a Dutch liberal arts and sciences college.	25
[8] Sherman, P. (2016). Preparing social workers for global gaze: locating global citizenship within social work curricula. <i>Social Work Education</i> .	14
[9] Mikander, P. (2016). Globalization as continuing colonialism: Critical global citizenship education in an unequal world. <i>Journal of Social Science Education</i>	28
[10] Wang, C., & Hoffman, D.M. (2016). Are we the world? A critical reflection on selfhood in U.S. global citizenship education	27
[11] DiCicco, M.C. (2016). Global citizenship education within a context of accountability and 21st century skills: The case of olympus high school.	15
[12] Myers, J.P. (2016). Charting a democratic course for global citizenship education: Research directions and current challenges.	54
[13] Tichnor-Wagner, A., Parkhouse, H., Glazier, J., & Cain, J.M. (2016). Expanding approaches to teaching for diversity and justice in K-12 education: Fostering global citizenship across the content areas	30
[14] Bennett, L.B., Aguayo, R.C., & Field, S.L. (2016). At Home in the World: Supporting Children in Human Rights, Global Citizenship, and Digital Citizenship.	8
[15] Gaynor, N. (2016). Shopping to save the world? Reclaiming global citizenship within Irish universities. <i>Irish Journal of Sociology</i>	5
[16] Gardner-McTaggart, A. (2016). International elite, or global citizens? Equity, distinction and power: the International Baccalaureate and the rise of the South. <i>Globalisation, Societies and Education</i> ,	65
[17] Kopish, M.A. (2016). Preparing globally competent teacher candidates through cross-cultural experiential learning. <i>Journal of Social Studies Education Research</i> ,	26
[18] Krutka, D.G., & Carano, K.T. (2016). Videoconferencing for global citizenship education: Wise practices for social studies educators. <i>Journal of Social Studies Education Research</i>	19
[19] Leek, J. (2016). Global citizenship education in school curricula. A polish perspective. <i>Journal of Social Studies Education Research</i> ,	11
[20] Hermann, I., Meijer, K., & Koesveld, S. Van (2016). Global citizenship, tourism and consumerism: A narrative enquiry into the global consumer-citizen spectrum in students' study tour experiences.	4
[21] Rapoport, A. (2016). Challenges and opportunities: Resocialization as a framework for global citizenship education.	5

As per the research findings, the year with the highest number of articles does not necessarily correspond to the same level of citations. For instance, in both 2009 and 2010, the total publications were five each. However, the total citations in 2010 more than doubled that of 2009, with figures of 104 and 242,

respectively. This discrepancy underscores that the quantity of articles alone may not accurately reflect the impact or influence they have within the research domain.

What is the geographical distribution of the publication and the collaboration pattern among countries in research related to Global Citizenship education?

The primary contributors to publications in the field of global citizenship education include the United States, United Kingdom, Canada, Australia, and Spain, representing key regions in North America, Oceania, and Europe. Noteworthy among these, the United States and the UK have established themselves as the most prolific nations, collectively responsible for almost one-third of the total publications throughout the years. Furthermore, these countries lead in various metrics, such as total citations, average citations per cited publication, h-index, and g-index. This observation aligns seamlessly with existing records that underscore the United States and the UK's prominent roles at the forefront of the majority of research endeavors in this field. Meanwhile, Canada, Australia, and Spain distinguish themselves with exceptional performance, boasting the highest publication rates among the contributing countries.

The collaboration pattern further highlights the United States as the leading contributor to publications in global citizenship education. Not only does the U.S. produce the largest number of publications, but it also engages in collaborative efforts with various countries across different continents. This signifies the global reach and influence of U.S.-led research initiatives in the field. The collaborative nature of these efforts suggests a concerted and inclusive approach, fostering a diverse exchange of ideas and perspectives^[23]. Such international collaborations can contribute to a more comprehensive understanding of global citizenship education, incorporating insights from different cultural contexts and educational systems. Additionally, this collaborative pattern may contribute to the dissemination of knowledge and best practices on a global scale, ultimately promoting the advancement and impact of research in the field.

What are the foci of the research on Global Citizenship education?

The outcome of the co-keyword analysis highlights the prevalence of key terms such as "global citizenship education," "global citizenship," and "citizenship" as the most frequently utilized keywords. Additionally, the inclusion of words like 'cosmopolitanism,' 'social justice,' 'neoliberalism,' 'sustainable development,' 'human rights,' 'peace education,' 'civic education,' 'Globalization,' and 'higher education' captures the attention of researchers in the context of global citizenship.

This observation suggests a growing interconnectedness of the issue of global citizenship with diverse fields of education. The prominence of these keywords implies a broader and more nuanced exploration of global citizenship within the educational landscape. The multifaceted nature of the identified keywords indicates an evolving discourse that encompasses various dimensions of global citizenship, ranging from socio-political concepts like cosmopolitanism and social justice to educational frameworks such as civic education and higher education.

These studies highlighted citizenship education, citizenship, and education as central themes, with a specific emphasis on global citizenship, global education, and global citizenship education. The congruence of these results underscores the sustained emphasis on these core themes in recent research endeavors.

In essence, the identified keywords not only reflect the current research landscape but also hint at the expanding scope of global citizenship studies. The diverse range of keywords indicates a comprehensive exploration of the subject, suggesting an interdisciplinary approach that encompasses social, political, and educational dimensions. As scholars continue to delve into these interconnected aspects, it is evident that global citizenship has become an integral and dynamic focal point within the broader field of education.

5. Conclusion

Based on environmental and social psychology theoretical frameworks, this study examined the cultural adaptation and identity construction mechanisms underlying global citizenship education through comprehensive bibliometric analysis of Scopus-indexed publications. From an environmental psychology perspective, the analysis of Current Publication Trends reveals how changing sociocultural environments trigger adaptive responses in academic research, with publication peaks during 2020-2021 reflecting heightened psychological needs for global identity construction amid environmental stressors. The Citation Trend analysis demonstrates the social psychological impact of knowledge diffusion, where h-index and g-index patterns illustrate how environmental changes influence scholarly attention to cultural adaptation mechanisms, particularly evident in the 2016 citation peak that coincided with intensified global environmental awareness. The Geographic Distribution findings illuminate the environmental determinants of research productivity, revealing how specific sociocultural contexts in North America, Europe, and Oceania create optimal conditions for investigating identity construction processes, while the Global Collaboration Pattern visualization exposes the social psychological barriers and facilitators that shape international knowledge networks in cultural adaptation research. The Research Focus analysis through keyword co-occurrence networks demonstrates how environmental pressures and social psychological processes converge to prioritize specific research domains, with clustering patterns reflecting the interconnected nature of identity formation mechanisms across diverse cultural environments. These findings provide crucial guidance for researchers investigating cultural adaptation and identity construction processes, offering insights into publication strategies, international collaboration opportunities, and the evolving intellectual landscape where environmental psychology and social identity theories intersect to advance our understanding of global citizenship development within rapidly changing sociocultural contexts.

6. Limitations

From environmental and social psychology perspectives, several methodological limitations must be acknowledged regarding this cultural adaptation and identity construction analysis. Firstly, the exclusive reliance on Scopus database may have created an environmental sampling bias that potentially excluded significant research contributions from other academic ecosystems, thereby limiting our comprehensive understanding of how diverse sociocultural environments influence global citizenship education research patterns. Furthermore, although the study enhanced research quality by excluding conference proceedings and dissertations, this selection criterion may have inadvertently omitted valuable insights into emerging cultural adaptation mechanisms and identity construction processes that are often first presented in these preliminary research venues. Additionally, since data retrieval occurred on March 24, 2023, the temporal boundary creates an environmental constraint that excludes recent publications addressing contemporary global challenges and their psychological impacts on identity formation processes. The social psychological implications of these limitations suggest that our findings may not fully capture the dynamic nature of cultural adaptation research, particularly regarding how rapidly changing environmental contexts influence scholarly discourse on global citizenship identity construction. It should be noted that these methodological constraints may introduce systematic errors in understanding the complete landscape of environmental and social psychological research on cultural adaptation mechanisms, thereby requiring cautious interpretation of findings within the broader context of evolving global citizenship education scholarship and its intersection with environmental psychology and social identity theories.

Conflict of interest

The authors declare no conflict of interest

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