



Trends and Knowledge Structure in Global Studies of Education and Social Transformation: A Bibliometric Analysis (2000–2024)

Muhammad Nur Imanulyaqin¹, Fauziah Sri Wahyini², Patrisia Rahayu Utami³, Iwan Ramadhan⁴

^{1, 2, 3, 4}Department of Sociology education, Tanjungpura University, Indonesia

*Email: Muhammad.nur.imanulyaqin@fkip.untan.ac.id

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ABSTRACT

Purpose--Education functions not only as an instrument for advancing social transformation toward improved quality of life but also as a medium for preserving cultural identity amid global modernization. Despite the growing attention to these themes, no prior bibliometric study has systematically mapped the intellectual structure and global development of research on the connections between education and social transformation. Filling this gap, the article conducts a systematic bibliometric comparison of documents indexed in Scopus between 2000 and 2014, encompassing both journal articles and conference papers.

Methodology--The study constructs the knowledge structure based on VOSviewer and explores trends in publications, influential authors, core journals, contributing countries, and frontier research in this field. Five publication phases were identified: the early, slower-growth phase (2000–2005), the period of fluctuating expansion (2006–2014), a surge in publications (2015), continued growth up to 2022, and a recent decline in new research output from 2023 to 2024.

Findings--The Journal of Transformative Education appears to be the most prolific outlet, whereas Streck, D.R., and Zembylas, M., are identified as the most central authors. The United States remains the leading contributor, with dominant keywords centered on education, social change, critical pedagogy, and sustainability.

Contribution--The originality of this study lies in establishing the first bibliometric mapping of education and social transformation research, which contributes to conceptual clarity of this interdisciplinary field and provides strategic directions for future studies and policy development in transformative education.

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INTRODUCTION

According to Aberšek (2024), education and social transformation are two key elements that significantly influence the formation of society. Social transformation can be described as a planned, large-scale process for introducing new dimensions in tackling social issues and upgrading the status of marginalized groups through the implementation of innovative practices (Turar, 2022). It is the course that enables communities to respond to current challenges while maintaining their cultural heritage, fostering social equality, and facilitating negotiation between traditional and modern values. He argues that this process is cultural and more adaptive, as it educates people on how to negotiate between traditional and modern values through the education system. Community development, resilience enhancement, identity reinforcement, progress supportiveness, and transformation promotion are outlined by Rahman & Al-Azm (2023) as essential for effective adaptation of communities to current-day challenges while preserving their cultural heritage. Therefore, effective social transformation must be able to facilitate stability and progress, even amid tensions between traditional and modern dynamics (Turar, 2022).

In this light, education as an agent of social transformation has a direct influence on educational practices, with individuals being naturally vested in learning as a means of improving their lives. This is because transformative education is the only way to ensure that there are well-prepared human resources who can address the challenges of their time (Islamiah, 2022; Aarti et al., 2024). Socio-economic change influences education by highlighting the evolving interplay between social change and the education system. Among these are the lack of correlation between what is being taught and what the labor force requires, as well as the need for new approaches to training that can close the gaps created by conventional educational systems (Danilov & Plotnikov, 2019). Moreover, socio-economic change steers thinking in a direction that is more socially grounded and adaptive, which aligns with societal expectations for sustainable development within the educational sphere (Kalinov & Karadencheva, 2023).

Nevertheless, there are many obstacles to be overcome when it comes to creating a proper synergy between education and social development. There are situations where learning institutions may focus more on conventional curricula than on addressing current social and environmental issues, which could be viewed as less important (Gatzweiler et al., 2022). Furthermore, education is known for not embracing changes early nor responding fast to the present challenges (Manea et al., 2023). The lack of convergence in educational qualification standards affects cross-border mobility and the international perception of skills (Stoykova, 2018). The resistance among teachers to changing their traditional ways, often due to social conservatism, can in turn help perpetuate the education crisis (Manea et al., 2023). Such problems are exacerbated by the rapid changes brought about by globalization, digitization, and the industrial revolution, which necessitate an innovative approach to education (Poszytek et al., 2022). Consequently, educational institutions often lag in meeting societal progress due to their conservative nature, resistance to change, and the impacts of rapid social transformation and technological advancements.

Its impact on educational institutions extends not only to increased teaching loads but also to reduced job prospects and vocational guidance (Jung et al., 2023; Dolado, 2009). The education system produces a labor force lacking the skills required for modernization to solve complex problems in the long term (Lebedinsky, 2015). If the education system cannot be transformed to meet these changed circumstances, substantial economic and social losses may result. For example, the failure of public education to adapt completely, but only partially, to harsh socio-economic conditions has led to a significant rise in the private education sector. This drains substantial resources and also causes additional pressure for families (Kim, 2010; So & Kang, 2014). As such, to address these situations, continuous innovation, strategic management, and effective policies that take into account societal evolution are required (Barman, 2020; Agrawal & Shashi, 2014; Koopmans, 2016; Yemini, 2016).

These challenges analyze the interdependent association of education and social transformation that is much more important (yet arguably insignificant) as a way to improve social resilience, lessen the harmful effects of social dynamics, and shift (Ismunandar, 2020). Therefore, defining a conceptual framework that unites these topics is essential for providing methods to promote their applicability and assess existing

research. It is also crucial to consider all aspects of this field of study and identify its main trends. Therefore, as a first methodological step, bibliometric analysis is chosen as an appropriate tool for mapping research development within that area, retracing its progress.

One important element of bibliometric analysis is citation visualization, which reveals intrinsic relationships and patterns within a discipline through knowledge mapping (Yang et al., 2021). As a quantitative analytical tool, bibliometrics is widely used to understand the current status and to identify research gaps within a scientific domain (Chen et al., 2016). Previously conducted bibliometric studies have addressed other connected themes, as highlighted in "The Future Trends of Human-Machine Collaboration in Empowering Education in China," which analyzes the effects of social change and AI on the human-machine relationship in educational settings (Xu & Wu, 2024). Just like Machado et al. (2023), who conducted a bibliometric analysis titled "Digital Policies and Innovation: Contributions to Redefining Online Learning of Health Professionals," have also focused on innovation and policy change transversely through the educational process. While these studies offer important insights into specific dimensions of education, they are confined to particular thematic niches, such as technology-enhanced learning or e-learning for professionals. To date, no bibliometric research has been conducted to map the intersection between education and social transformation as an integrated field. Thus, this study aims to fill the gap by conducting a comprehensive bibliometric analysis that captures global research trends, intellectual structures, and thematic evolutions related to the intersection of education and social transformation worldwide. This paper does not undertake a cross-national comparison or cross-disciplinary analysis; instead, it seeks to explore how the debate about the role of education as an agent of social change has evolved within disciplines and countries, drawing on published literature.

More than just tracking the flow of publications, the results of this study will add to our knowledge by providing a unified understanding of how educational research both discovers and constructs social change trends. This research report aims to provide guidance for policy-making in education that promotes equal opportunities and safeguards the nation's cultural heritage. It offers young scholars insights into emerging research fronts and opportunities for collaboration in this emerging discipline.

METHODOLOGY

Research Design

Mapping research trends and intellectual structures is a crucial aspect of bibliometric analysis. Making a numerical representation can help to identify publication patterns, intellectual structures, and emerging research trends within a body of scientific literature. For instance, our examples illustrate how the elements of these maps are organized. It examines elements such as authorship (Lusiana et al., 2020), institutional affiliations (Saputra et al., 2023), country of origin (Brown et al., 2018), and citation networks (Riaman et al., 2022). This approach also enables the visualization of conceptual and social relationships between critical elements, shaping the direction of future research (NP, 2024; Beskaravajnaja & Kharybina, 2021).

The Tranfield framework requires adherence to the five-step bibliometric procedure outlined by Tranfield et al. (2003). In their debate on the framework, while Tranfield's agreed purpose was to develop a tool for systematic literature reviews, others argued that it should also serve as a general schema with which to guide and evaluate every article in terms of its evidential structure. The Tranfield approach, systematic in nature, is highly transparent and therefore ensures that the mapping of research trends and intellectual structures follows a consistent logic. So, the methodological kinks may be ironed out, which can only enhance its worth in terms of reliability and validity in this kind of research. The study thus adopts the five-step bibliometric procedure, as represented in Figure 1, and continues to discuss each step.

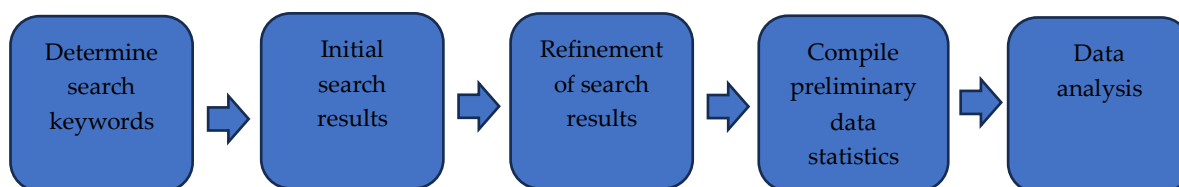


Figure 1. Five-step method for bibliometric analysis

Determine Search Keywords

We did a literature search on the Scopus platform. The keywords 'education' and 'social transformation' were used in this search. The reason for choosing Scopus is that it is the world's largest and most reliable research database. It has strict content selection policies, covers a wide range of scientific content, advanced analysis tools, and integrates high-quality data from more than 5,000 publishers worldwide (Baas et al., 2020). We conducted a literature search on the Scopus database. To ensure transparency and reproducibility, the specific search string used in this study was as follows:

TITLE-ABS-KEY ("Education" AND "social transformation")
 AND PUBYEAR > 1999 AND PUBYEAR < 2025
 AND (LIMIT-TO (LANGUAGE, "English"))
 AND (LIMIT-TO (DOCTYP, "ar") OR LIMIT-TO (DOCTYPE, "cp"))

By combining these two, it was possible to ensure that any retrieved publications explicitly discussed either education or transformation in their titles, abstracts, or keywords. The year filter (2000–2024) was used to capture changes in research focus over that quarter-century, while the language and document type filters, along with other criteria, limited the dataset to peer-reviewed journal articles and conference papers written in English. These parameters were established to maintain consistency and ensure that only scholarly, high-quality papers are included for analysis.

Initial Search Results

The initial search, conducted on October 14, 2024, yielded 1,538 documents. Each record was screened manually and automatically to ensure relevance to the topic. Duplicate entries, inconsistencies in author metadata, and non-English abstracts were removed prior to refinement.

Refinement of Search Results

After applying inclusion and exclusion criteria, 1,049 documents were identified for analysis. The structured data was then exported in Research Information System (RIS) format, containing bibliographical information such as titles, authors, affiliations, abstracts, keywords, and references. We followed a sequence of steps to cleanse the data, eliminating noise and improving its accuracy. Namely, merge keywords with similar meanings (such as "education system" and "educational system"); delete overly generic terms (e.g., "study," "approach"); exclude keywords indicating geographical locations; correct inconsistencies in metadata. Through this, only relevant and standardized terms would be analyzed.

Compile Preliminary Data Statistics

The cleaned RIS data were reviewed for completeness and accuracy. Missing information, such as publication year, volume, issue, or page number, was corrected when available. The dataset was then categorized by year, source, and publisher to produce preliminary descriptive statistics that illustrated publication growth, source distribution, and major contributing countries.

Data Analysis

A bibliometric analysis was carried out using VOSviewer (version 1.6.20). VOSviewer was selected due to its capability to help us comprehend knowledge graphs more easily, clarifying trends in publications, the

influence of authors at different stages, and how keywords evolve over a given period, among other features. Different analytical parameters were applied using VOSviewer to ensure a comprehensive map of the research field in this study; 1) Co-authorship analysis, to show the partnership pattern of authors, institutions, and countries, 2) Citation analysis is used to identify the most influential sources and authors, 3) Keyword co-occurrence analysis provides significant thematic terms that guide major trends in research development.

In the VOSviewer, the analyzed units were author countries, sources, and author keywords. With an eight-occurrence minimum keyword requirement in co-occurrence analysis, the implementation looked for significant thematic terms. The co-occurrence association strength normalization method was used to construct the bibliometric networks, while network, overlay, and density formats were used for visualization. These parameters facilitated a detailed examination of the field's conceptual, social, and intellectual structures. Such a configuration is consistent with past bibliometric studies (Huang et al., 2022) and ensures that this analysis captures both quantitative and relational identifiers of the research field.

FINDINGS

The Growth and Output Publications

In bibliometric studies, the yearly publication count can serve various purposes: for example, it helps track research trends over time, provides a measure of research productivity, and underpins strategic planning for research development. As shown in the chart below, output and growth, as interesting to the panel on "education reform and social transition" from 2000 to 2024, reflect the evolution of this field.

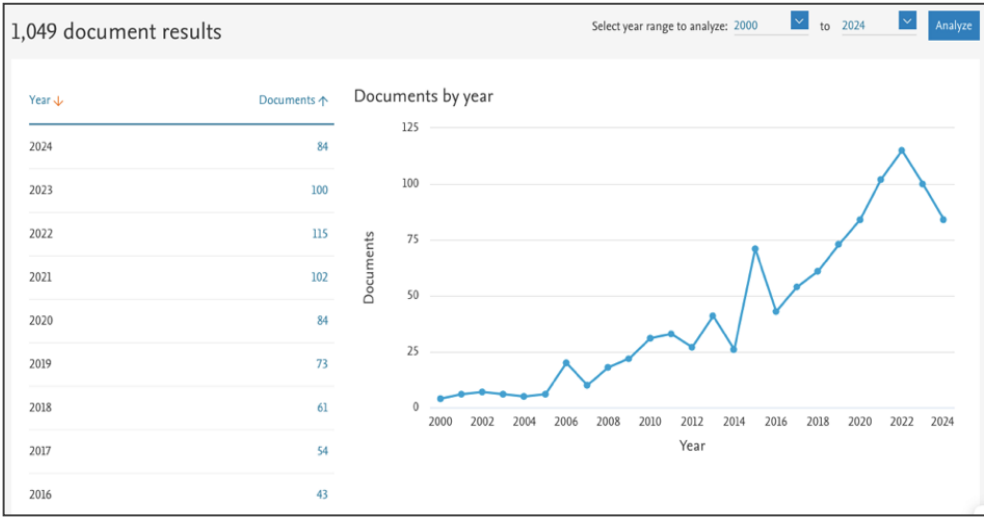


Figure 2. Annual Research Trend (Source: Scopus, 2024)

The annual publication count on education and social transformation from 2000 to 2024 is reflected in Figures 1 and 2. Overall, the number of articles on the topic increased dramatically--from just four in 2000 to 84 at last check in 2024. This suggests that interest in research on education and social transformation has grown quickly. In contrast, however, research progress was still somewhat limited, as evident from the period from 2000 to 2005. After 2005, the number of publications began to increase significantly, although fluctuations were observed in some years.

Similarly, the publication number will be divided into five stages. First, the development stage I (2000-2005), during which very few studies on education and social transformation attracted wide attention outside of academia. Moreover, it only existed in scholarly form as a concept, complex to incorporate into the actual reality of Chinese people's lives. Second, the development stage II (2006-2014) saw several publications, with a clear trend of fluctuation. From here, we can also see that the development stage III (2015) was an explosive period; in that year alone, numerous publications by scholars from all levels and areas on educational social change were published. In the development stage IV (2016-2022), the number of

publications grew steadily and is expected to continue increasing year by year, without any decline, until it reached a peak last year. In development stage V: Decline (2023 - October 2024), however, publication numbers started to trend downward again.

This slight decline in 2023-2024 may be attributed to a post-pandemic shift in research priorities. Many education scholars have begun redirecting their focus toward new themes, such as digital learning transformation, sustainability education, and post-COVID recovery policies, which, although conceptually related, are often categorized under different research clusters in Scopus. Additionally, the decline may also reflect the completion of several large-scale projects funded during the pandemic period (2020-2022), leading to a temporary decrease in publication output.

Overall, the temporal pattern suggests that research on education and social transformation has evolved in parallel with global socio-educational challenges. Periods of rapid publication growth often coincide with moments of societal transition, such as educational reform movements, global crises, and technological shifts, suggesting that this research area responds dynamically to global transformations rather than following a linear academic trajectory.

Source Distribution of Publications

An analysis of publication sources is a valuable method for identifying key journals related to education and social transformation. This is crucial for researchers to identify relevant literature and select the most suitable journals for publishing their research. Table 1 presents information on the ranking of journals that are active in publishing articles related to this topic.

Table 1. Top Contributing Journals

Journal	Documents	Proportion (%)
Journal of Transformative Education	14	1,33
Sustainability Switzerland	13	1,23
Educacao E Pesquisa	9	0,85
International Journal of Educational Development	9	0,85
Journal For Critical Education Policy Studies	9	0,85
Revista Brasileira De Educacao	9	0,85
Revista Internacional De Educacion Para la Justicia Social	8	0,76

Based on the analysis conducted, it is evident that the Journal of Transformative Education is the most productive in publishing articles related to the topic of education and social transformation, followed by Sustainability (Switzerland). The Journal of Transformative Education is an academic journal focused on issues encompassing individual experiences, educational and institutional processes, goals, as well as the contexts of formal and informal education, and cultural issues such as accessibility and the social context in transformative education. Meanwhile, Sustainability (Switzerland) encompasses a broad range of subject areas, with a primary focus on social sciences (including geography, planning, and development), computer science, and environmental studies.

The prominence of the Journal of Transformative Education indicates that research on education and social transformation is conceptually anchored in transformative and critical pedagogical frameworks. This indicates that scholars in this field are concerned not only with improving educational systems but also with promoting social justice, empowerment, and inclusion through educational initiatives.

Here in Switzerland, the sturdy position of sustainability indicates a growing rapprochement between educational research and discourse on sustainable development. As this trend gains momentum, today's social transformation studies are taking on an increasingly interdisciplinary character, with educational theory, reconsideration of entropy, sustainability, and freedom emerging from media economics, as well as globalization, all coming to the fore simultaneously. When we examine cover sheets from around the world, we can see further examples of this trend. The current enthusiasm for all things "global" in education thought now encompasses not just changes within the classroom itself, but also wider societal ones. Journals

from Latin America and Southern Europe, such as *Educacao E Pesquisa* in Brazil, *Revista Internacional de Educaci3n para la Justicia Social* (Mexico), and *Revista Internacional de Educaci3n para la Justicia Social* (Spain), also represent research on education and social transformation that is not dominated by the Global North alone. These journals signal an emerging rhetoric of perspective from nations in development, where educational transformation is often linked to ethics, equality, citizenship, and the post-colonial redefinition of education.

Contributors and Collaboration Networks

Based on the analysis of the database, which includes the number and trends of author distributions related to this topic, productivity, relationships, and the status of collaboration among research teams can be determined. In addition to data on the number of documents published by each author and country, which helps identify key contributors in this field, analysis using VOSViewer is also applied to cluster authors and depict the collaboration network among them. For more details, the collaboration network is presented in Table 2 below.

Table 2. Top Contributing Authors

Author	Country/Institute	Document	H-Index
Streck, D.R.	Brazil/universidade de caxias do sul	5	6
Zembylas, M.	South Africa/Nelson Mandela University	5	57
Apple, M.W.	United States/University of Wisconsin-Madison	4	41
Costandlus, E.	South Africa/Stellenbosch University	4	5
Babacan, A.	Australia/President of the Court of Appeal of the Supreme Court of Victoria	3	5
Babacan, H.	Australia/James Cook University	3	8
Beach, D.	Sweden/Göteborg	3	23
Martinez-scott, S.	Spain/Universidad de Valladolid	3	3
Porto, M.	Argentina/Universidad Nacional de La Plata	3	15
Romo, A.D.	Chile/Universidad de Chile	3	4

Table 2 presents the authors who have contributed most prominently to the field of education and social transformation, based on the number of published documents and H-index scores. Streck and Zembylas appear as the most productive authors in terms of publication output, while Zembylas and Apple show the highest levels of academic influence based on citation impact. This pattern illustrates that in this field, countries produce a large number of printed contributions; however, this does not necessarily have a significant impact, as some regions face different problems that hinder current educational change and social liberation. Brazil and South Africa are two examples. This suggests a comparative analysis of academic situations, indicating that research on educational change, which aims to address people's social needs and support their personal development, is not primarily conducted by a select few.

Figure 3 illustrates the countries with the highest research output on education and social transformation. The United States holds the leading position in terms of publication volume, followed by several European and Latin American countries. However, this quantitative dominance does not directly correspond to individual scholarly productivity, as shown in Table 2, where the most productive authors originate from Brazil and South Africa. This suggests that the advancement of this research field is shaped not only by the scale of academic systems but also by contextual educational and social challenges that drive the need for transformative research, particularly in regions undergoing socio-structural change.

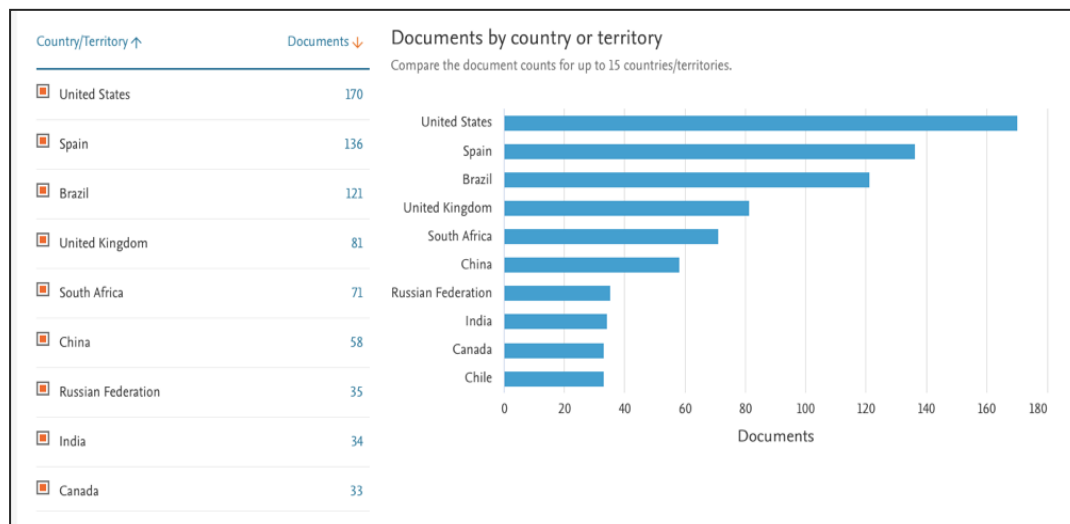


Figure 3. Top Contributing Countries (sources: Scopus, 2024)

Figure 4 depicts the co-authorship network that connects contributors. The collaboration structure appears relatively fragmented, as evidenced by the presence of multiple authors who work independently or only with small, localized research groups. Only ten author pairs have direct collaboration ties, such as Babacan H. and Babacan A., or Santamaria-Cardaba N. with Martinez-Scott S. From this limited network connectivity, it is evident that there is a need for strong links based on joint efforts across the boundaries of institutions and nations. Boosting inter-regional collaboration would promote the diversity of methods used, provide an expanded range of comparative perspectives, and illuminate how research on educational policies can lead to both theoretical and practical advances in a broader sense.

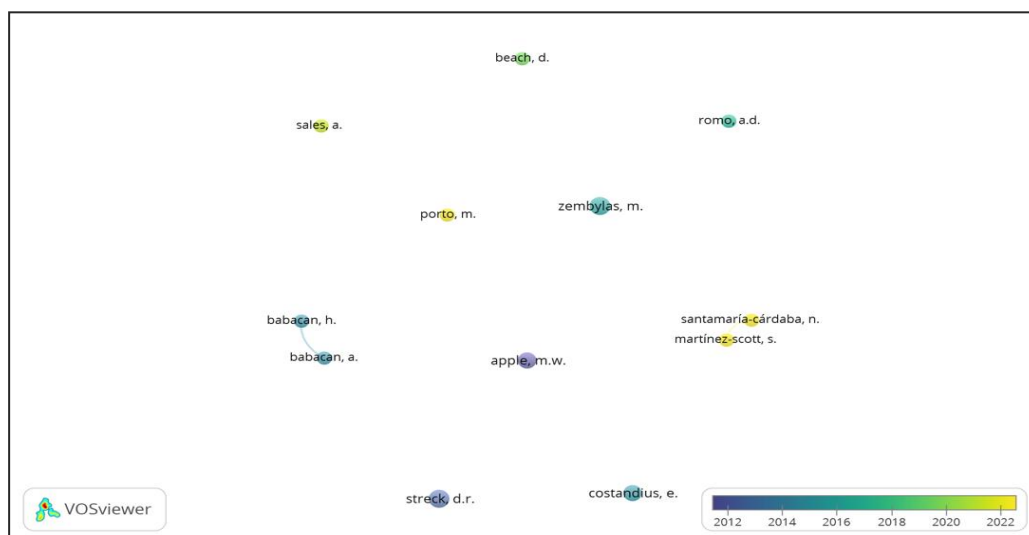


Figure 4. Visualization of Overlay Authors and Co-Authorship Relations

Keyword Hotness Analysis

Keywords provide an overview of the research focus of the authors, and analyzing keywords in a research field can quickly identify hotspots and the forefront of research development in that field. A total of 1,049 documents obtained from Scopus were imported into VOSViewer, and 87 keywords appeared with at least eight occurrences. However, after filtering by excluding overly general keywords, those with similar meanings, as well as words referring to country names, research methods, and document types, 69 relevant keywords were identified. More specifically, the clustering and mapping related to keywords in the fields of education and social transformation, as presented in this study, are illustrated in Figures 5, 6, and 7 below.

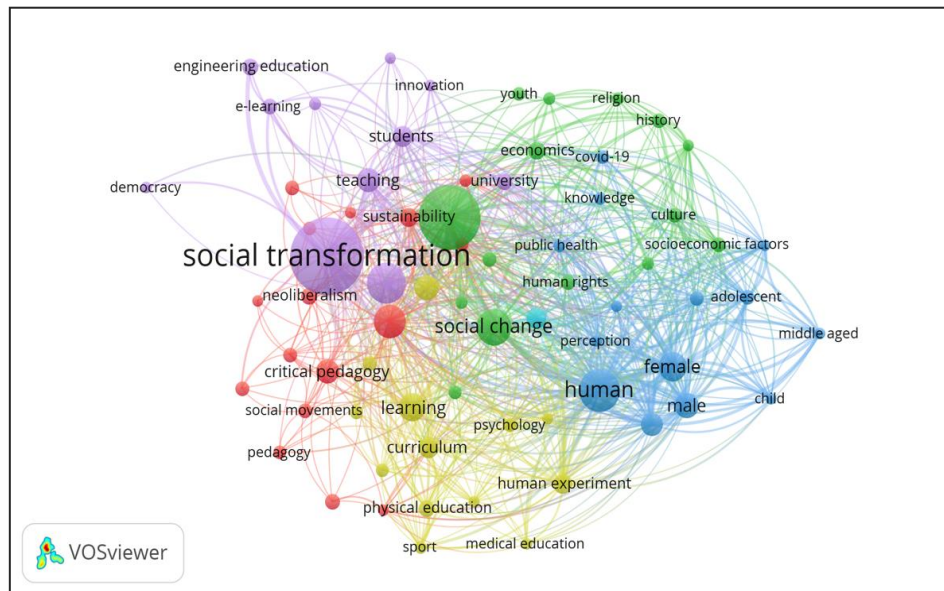


Figure 5. Network Visualization

It can be seen that the proximity of keywords signals both familial relationships and migration patterns. Nodes' different standpoints in space represent how close word meanings are to one another in a cognitive plane; if words are nearby, then they will usually appear together. The varying brightness of nodes can indicate power; stronger nodes are those that appear most frequently in the data. This perspective offers a preliminary map that highlights how thematic ties are formed and where major themes are situated within the entire research field.

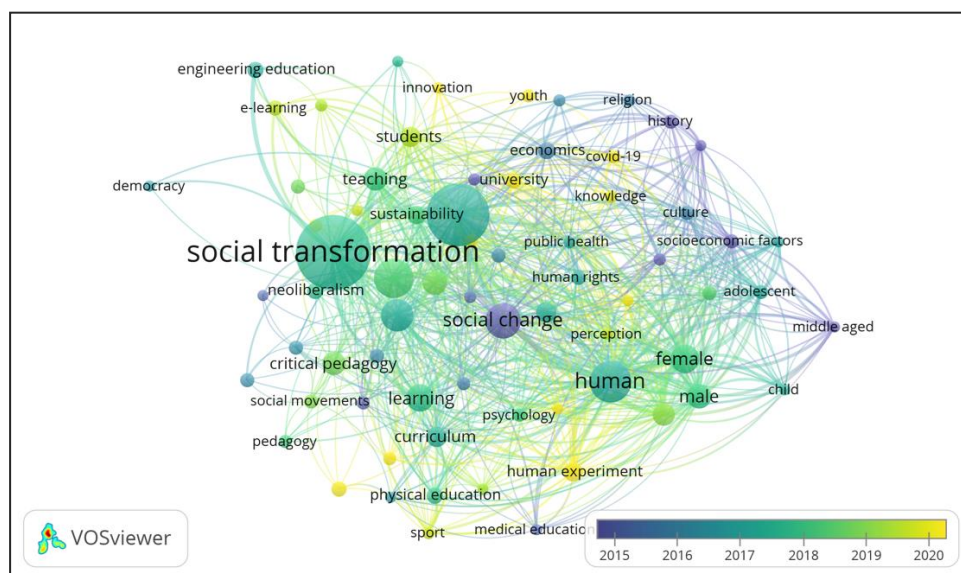


Figure 6. Visualization Overlay

Figure 6 presents an overlay visualization that highlights the temporal progression of research themes. The color gradient applied to the nodes indicates the relative recency of keyword usage, allowing for the identification of emerging and maturing areas of study. Keywords that appear in colors associated with more recent years indicate themes that are currently gaining scholarly attention. In contrast, keywords in earlier color tones represent concepts that have been foundational or established over time. This visualization enables the observation of how the thematic focus within the field has shifted and expanded.

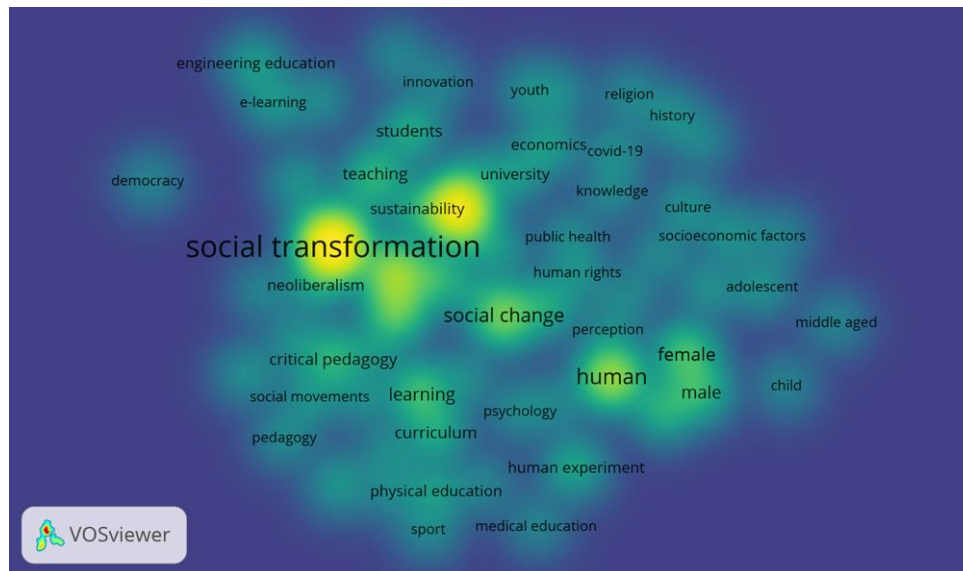


Figure 7. Visualization of Density

According to the key constituent words density distribution graph, it highlights specific themes and research activities that are stronger or more intensive than others. Where the density is high (i.e., deep colors), day scholars form clusters and share ideas on various levels as intellectual partners. On the other hand, areas with lower density are associated with fewer explored themes or fresh topics. In this way, we can gain some insight into which themes become the focal components of research composition, and concepts appear to represent new opportunities for further exploration by scholars.

The nodes in these diagrams represent the keywords that appear in the research, while the connecting lines indicate the co-occurrence relationships between these keywords. Based on the different colors of the nodes, the keywords can be grouped into six main topics. As shown in Figure 7, there are six primary clusters, each depicted by a different network color: Cluster 1 (red), Cluster 2 (green), Cluster 3 (blue), Cluster 4 (yellow), Cluster 5 (purple), and Cluster 6 (light blue). Below is the mapping of each keyword within the respective clusters.

Table 3. Keywords Representing Each Cluster

No	Cluster	Element (Frequency)
1.	Cluster 1	culture (12), economics (16), education (133), ethics (12), globalization (9), history (11), human rights (11), leadership (10), migration (9), politics (9), psychological aspect (8), religion (9), social change (51), socio-economic factors (12), youth (10)
2.	Cluster 2	Adolescent (12), adult (24), child (8), covid-19 (10), female (35), health education (11), human (68), knowledge (9), male (28), middle aged (8), perception (8), public health (9), social participation (8), young adult (8)
3.	Cluster 3	Agency (10), citizenship education (8), community (9), critical pedagogy (26), education policy (11), empowerment (11), music education (8), neoliberalism (14), paulo Freire (13), pedagogy (10), popular education (8), social justice (44), social movements (12), sustainability (17), teacher education (11)
4.	Cluster 4	Curriculum (20), environmental education (11), human experiment (19), learning (33), medical education (8), organization (8), physical education (15), professional development (8), psychology (10), sport (9), sustainable development (27), teacher training (10), transformative learning (10)
5.	Cluster 5	Climate change (9), democracy (8), e-learning (13), engineering education (15), higher education (62), inclusive education (8), innovation (8), social transformation (176), students (13), sustainability (17), teaching (26), university (15)
6.	Cluster 6	Gender (21)

Cluster 1 (Red) consists of 15 keywords. According to Table 3 and Graph 5, the primary keyword within this group is 'education.' Following closely behind are "social change," "economics," and "socio-economic factors." It explores the complex relationship between education, social change, and economics. Cluster 2 (Green) consists of 14 keywords. Table 3 and Figure 5 show that the primary keyword in this cluster is "human". Following this are "female," "male," and "adult". Here, the themes emerge as a human, gender, and age perspective of issues in education and social transformation. Cluster 3 (Blue) consists of 14 words. The primary keyword in this cluster, like the others, is 'social justice,' followed by 'critical pedagogy.' Publications fall into three broad categories: those concerned with social justice per se and critical pedagogy, and those that deal more generally but still intelligibly with this relationship. Cluster 4 (Yellow) has 13 words. Table 3 and Figure 5 indicate that the main keyword in this cluster is 'learning.' Moreover, just behind it comes "sustainable development" and "curriculum." This cluster underlines the relationships between learning, sustainable development, and curriculum. Cluster 5 (Purple) includes 12 keywords. As shown in Graph 5 and Table 3, the primary word for this cluster is "social transformation". It is followed by "higher education" and then "teaching." Research in this cluster concerns social transformation in the higher education setting and its relationship to teaching. Finally, Cluster 6 (Light Blue Network) has only one keyword, "gender." This reflects that this area has not yet been developed to any great extent within the field of education and social transformation itself. This cluster's subject matter is revealed by its one keyword, gender studies in the context of it.

DISCUSSION

Quantifying if a particular subject has increased or decreased after its peak at low level numbers may actually still rise as research literature trends away from specific areas, evaluating if scientific research was any good last year (Hassan & Duarte, 2024; Coronado et al., 2021; Ding et al., 2023). Moreover, supporting strategic planning (Paraboi et al., 2021). Throughout 2000-2010 and beyond, the data also show that every year, publications on education for social change are fewer than those on all but three or four other areas of current interest. As researchers' attention shifts towards these areas, significant aspects are represented in those pieces of work. Moreover, in the ordinary places of academic research, too, as interest in this topic grows. Overall, the number of articles in scientific journals related to education and social change has increased from four papers in 2000 to 84 papers in 2024. This growth indicates that the topic is becoming increasingly relevant and drawing attention at present within the broader academic literature. This development can be divided into several stages:

Slow Growth Stage (2000-2005)

During this period, few literary works provide evidence that "Education, society and revolution" were still at the experimental stage. Thus, research or experimental activities related to the right of center would have been constrained during this period, possibly influenced by specific social and political conditions that had not yet emphasized the need to do so. Thus, therefore, more inclusive educational systems or social systems that are more flexible to global change have become urgent.

Fluctuating Growth Stage (2006-2014)

After 2005, there was a notable increase in the number of papers published, although the trend continued to change constantly. This rising trend can be attributed to changes in international education policy priorities. In the OECD policy documents of the period, these priorities included labor policy, education policy and development, higher education, equity, and governance (Pont, 2017). However, these fluctuations may also have been influenced by changes in governmental policies and efforts to develop education in various countries at that time (Kaymakci, 2012; Echávarri & Peraza, 2017). This period was one in which, although interest in the subject began to pick up, we had not yet achieved stability in its development.

Publication Boom Stage (2015)

The year 2015 marked a significant surge in publications related to education and social transformation. This sharp increase was likely influenced by global factors impacting education and social policy. For instance, the 2030 Agenda for Sustainable Development, which was also adopted this year (Pertiwi, 2023), emphasized the importance of inclusive, equitable, and quality education as part of global development goals (Laguna & Segovia, 2023; Kioupi & Voulvoulis, 2019; Adipat & Chotikapanich, 2022).

Consistent Growth Stage (2016-2022)

Between 2016 and 2022, publications on education and social transformation became increasingly frequent and regular. The implication is that the subject has achieved a more profound understanding, as well as a firmer footing, in academic literature. Other research trends during this period included educational technology, such as artificial intelligence, virtual reality (VR), augmented reality (AR), and extended reality (XR) in education (Liu, 2024; Artsin et al, 2024; Ai et al., 2025; Liu et al., 2018; Dubé et al., 2022). In addition, taking COVID-19 as an example of the widespread digital transformation affecting everyone's lives, research has undergone a significant shift (Wannemacher et al., 2022; Chen et al.).

Publication Decline Stage (2023-2024)

However, in 2023-24, the number of publications decreased significantly, which could be attributed to several factors. As research topics become exhausted and saturated, this year still saw a significant drop, despite most themes related to education and social change having been discussed thus far. Now it was a Saturday morning, but the weather was beautiful. On the other hand, given that data collection for this study was completed only in October 2024, the publication count may still increase in 2024. Nevertheless, this short-term (Vol.) data can also mean a turn in the field's thematic evolution. For example, future research is likely to create hybrid areas that marry social transformation with digital ethics, artificial intelligence in education, climate literacy, or comprehensive transnational citizenship. These are objects that require a longer-term approach. They also take into account global issues such as automation, sustainability, and equal opportunity in education.

Further analysis was conducted on the findings regarding publication sources. Analyzing publication sources is a valuable method for identifying core journals related to education and social transformation. This is also crucial for researchers to find relevant literature and select the appropriate journals (Nouri et al., 2013; Anilkumar & Rajaram, 2013). Based on the findings, the two most dominant journals in publications related to education and social transformation are the *Journal of Transformative Education* and *Sustainability* (Switzerland). These two journals play a significant role in disseminating research related to the topic of transformative education.

It now appears that, in terms of the number of publications on education and social transformation, *The Journal of Transformative Education* comes out top. This journal primarily explores critical issues in education, including individual learning experiences, educational processes, and the institutional dynamics of transformative education. One of the most important sources for researchers on the role of education in social change is its emphasis on transformative education. *Sustainability* (Switzerland), in contrast, is a journal focusing on education and social transformation. However, its main themes are actually the social sciences, geography and planning, computer and environmental sciences, and development engineering.

In the coming years, publication trends are expected to show stronger interdisciplinary convergence between education, sustainability, and technological innovation. Journals such as *Sustainability*, *Education and Information Technologies*, and *Social Sciences* may serve as platforms for this transition, accommodating research that explores digital transformation and ecological consciousness as parallel dimensions of social transformation.

The following analysis focuses on the collaboration network. The collaboration network reveals that many researchers still publish their work independently, with minimal interaction or contact with other teams. The cooperation network tends to be fragmented and more dispersed. Only four authors are connected: Babacan, H., and Babacan, A., as well as Santamaria-Cardaba, N., and Martinez-Scott, S. This

finding highlights the importance of encouraging collaboration among authors, institutions, and countries. The visualization of the collaboration network reveals that more complex networks often yield better outcomes. In this way, Authors and organisations can together integrate knowledge and resources. A collaborative effort sparks individual thinking, breaks through traditional patterns, and boosts research productivity. (Duan, 2024). Practitioners' Team Promotion. In addition, these joint efforts enhance the quality of publications (De & Docampo, 2023), promote the exchange of knowledge, and, most importantly, improve the impact of research through collaboration (Dini et al., 2024). Furthermore, a correlative synthetic method can apply multiperspective methodologies to meet manifold needs and increase the creation of knowledge through merging resources and viewpoints (Panagopoulos & Vazirgiannis, 2022). Further research is needed to explore the barriers hindering collaboration among researchers in this field, including language barriers, cultural differences, and access to research funding.

In the future, collaboration patterns are expected to evolve toward more cross-institutional and cross-regional partnerships, particularly between scholars from the Global North and the Global South. The establishment of open-access repositories, digital academic communities, and international funding schemes can stimulate higher connectivity and data sharing. Future bibliometric analyses could also explore how collaboration networks evolve in tandem with global academic mobility and digital research ecosystems.

Taking everything into account, the research results and analysis in this paper strongly suggest that the field of education and social change is undergoing a transformative expansion. Future directions for work might be: (1) improving the quality of interdisciplinary methods from the practice of environmental sociology, digital ethics, and ecological economics; (2) incorporating indigenous and local knowledge systems into transformative educational frameworks; (3) reflecting on how educational reform policy can help effect extensive social change. These future research pathways would not only extend existing theory but also enhance the social relevance of educational research in addressing current global challenges.

The following analysis focuses on the key contributors in the field of education and social transformation. It was found that several authors have made significant contributions, both in terms of the number of publications and their influence in the field. Several factors were analyzed, including the author's name, their country of origin, the institutions they represent, the number of publications they have published, and the H-index, which reflects the impact and quality of their research.

Main Authors and Their Contributions

Based on the data presented in Table 2, the authors with the most publications are Streck and Zembylas. While the United States has the highest number of publications, the most productive authors come from other countries, such as Streck from Brazil and Zembylas from South Africa. This phenomenon indicates a more even distribution of authors, beyond countries with dominant publication output such as the United States. It suggests that the topic of education and social transformation is not only a concern in developed countries but also in developing nations that face more complex social and educational challenges. Moreover, this trend suggests that transformative education issues are garnering increasing global attention, with significant contributions from countries focused on enhancing educational quality and promoting social justice.

H-Index as an Indicator of Author Influence

The H-index is a bibliometric indicator designed to measure the productivity and citation impact of a scientist, researcher, or academic (Teixeira et al., 2018; Mayer, 2009; Burrell, 2007). Zembylas at Nelson Mandela University (South Africa) is the leader in the accumulation of articles of this kind, as measured by H-index. Typically, a high H-index indicates that Zembylas' writing has a broad impact, is frequently cited in the work of others, and makes a profound contribution to the formation of knowledge in transformative education. Apple, the second-highest scholar from the University of Wisconsin-Madison (USA), can undoubtedly be regarded as a highly influential figure in research related to education and social change. The H-index is a crucial indicator of the quality and influence of research, reflecting not only the number of publications but also the role it plays in advancing science and education policy in many countries. Authors

with a high H-index demonstrate that their work has provided important insights within the field and has been accepted by other scholars (Ayaz & Masood, 2020; Masic, 2016).

Next, the analysis focuses on the emergence of keywords. This analysis provides an overview of the research content, enabling the quick identification of key areas and emerging frontiers in a particular field (Yang et al., 2021). Based on the keyword network visualization presented in Figure 5, keywords related to education and social transformation can be grouped into six main clusters. Each cluster represents themes closely related to education and social change research, providing insights into trends and key focuses within this research field. Below is a more detailed analysis of each cluster:

Cluster One (Red): Education, Social Change, and Economics

The first cluster (red) contains 15 keywords, with "education" as the central keyword, followed by words such as "social change," "economics," and "socio-economic factors." This suggests that publications in this cluster focus heavily on the relationship between education, social change, and economic factors. Studies in this cluster may focus on how education can contribute to transforming social and economic structures within society. This theme is relevant to social change theories that view education as a critical tool for social empowerment and reducing economic inequality (Lee & Lee, 2018; Shizha & Abdi, 2014).

Cluster Two (Green): Humans, Gender, and Age

The second cluster (green) comprises 14 keywords, with the core word "human" followed by other terms such as "female", "male", and "adult". It shows that this cluster of studies examines the relationships between sex, age, and gender in education. The research in this cluster examines the gender analysis of education and how educational policy can be more responsive to the needs of both men and women, as well as all ages, from young to old.

Cluster Three (Blue): Social Justice and Critical Pedagogy

The third cluster (in blue) features 14 key phrases, with Social Justice as the core keyword, followed by Critical Pedagogy. It signals that many of the studies examined the relationship between Critical Pedagogy and Social Justice in Education. This theme highlights awareness of social injustice in the educational system, as well as the potential of critical pedagogy to advocate for more equitable and just changes in education (cf. Mishra, 2010; Rubin, 2010).

Cluster Four (Yellow): Learning, Sustainable Development, and Curriculum

The fourth cluster (yellow) contains 13 keywords, with "learning" as a hub keyword and "sustainable development" and "curriculum" listed in that order. It is thus clear that many studies examine the relationship between learning and both curriculum and sustainable development. This theme suggests that the development of curricula can promote education in support of social and environmental sustainability, while also highlighting the role of learning in achieving more sustainable and inclusive development at all levels of education. Many policies are now introducing environmental issues into formal education at the primary, secondary, and university levels, respectively, to advance a base of awareness, knowledge, and pro-environmental behavior among students (Nerantzaki, 2016; Damoah et al., 2024; Mkhitarian & Sargsyan, 2024; Bamrara & Bamrara, 2024; Olivos et al., 2021; Rahayu et al., 2021).

Cluster Five (Purple): Social Transformation, Higher Education, and Teaching

Cluster 5 (purple) comprises 12 keywords, with "social transformation" as the central theme, followed by "higher education" and "teaching." Many articles focus on how social transformation is reflected in higher education and its impact on teaching methods. In this cluster, research may examine how higher education can facilitate social transformation through more forward-looking and multidisciplinary pedagogy, as well as how higher education course content should evolve to support broader societal change. As is well known, higher education offers an opportunity for social mobility, helping the less well-off improve their social status and achieve what Marx called "a piece of the pie" (Hune, 2023). Moreover, new ideas on teaching soon translate into practical measures. Not only do critical thinking skills form the basis of students' active

participation in society, but they also provide a powerful driving force for the social change that is desperately needed (Mangas, 2020; Odame & Oram, 2012).

Cluster Six (Light Blue): Gender in Education and Social Transformation

The sixth cluster (in light blue) contains only one keyword, "gender." This shows that this subject has yet to quite develop in education for social change. Nonetheless, gender studies remain significant because they are relevant to understanding the power relationships, fair treatment, and humane treatment of all students in an education system based on equality rather than paradox (Underhalter, 2006). Another route for further research is to examine how educational policies can now take more account of both the short and long term, not just for women's learning but for our whole society.

CONCLUSION

The study reveals that the field of educational and social reform has evolved into a distinct scholarly area, with opinions becoming increasingly diverse over time. Scholars are attaching increasing importance to the subject, and debate about it has spread internationally. Through bibliographical mapping, we see that within this framework, talk on the ground no longer describes shifts in education at all; instead, it posits education as one changing social and cultural force — a nucleus of values, identities, or collective futures. As must be increasingly apparent to scholars and students, this book identifies that current academic research increasingly unites critical pedagogy with sustainability, social justice, and higher education reform; normative discussion of the need for educational reform has turned away into wider questions, which are also to do (for example, through changing institutions) with empowerment and bigger structural change. These findings serve to clarify the field further, demonstrating how strands of research intersect, diverge, and evolve.

According to the results of this bibliometric analysis, meaningful profit concerns researchers, policymakers, and institutions of higher learning. As for intellectuals, the plot proposed herein is something on which they can build their research platforms. That will be the battleground for future theoretical frontiers and students of our own time. For policymakers, understanding how education fits into the broader context of societal change benefits policy formulation by enabling the development of policies that affirm individuality and participation in citizenship, as well as cultural traditions, as cultural products that achieve lasting value: the green argument. For educational institutions, these parameters suggest that what is critical for teachers in the third world, even though we may tend to take it too lightly in practice or theory.

These findings also have limitations, however, such as the fact that content is drawn solely from Scopus, and some keywords are not searched for. This would mean that relevant works were not included, and they were published in a different language by mere chance. A later task is to diversify data sources beyond university libraries, conduct fuzzy searches or other methods for handling ambiguity, and utilize bibliometric tools for comparison and verification to ensure greater accuracy. Moreover, north-south cooperation, discussion, and deliberation remain essential to advancing academic perspectives and enriching them with more nuanced theories and methods. With advances in these areas, future research can deepen its range of analysis and reveal how one education affects others - whether it is more or less influenced by social change.

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