

The Intellectual Structure of Educational Equity and Social Justice

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Abstract. Educational equity and social justice have emerged as central paradigms in contemporary socio-educational research and policy frameworks. Despite a rapidly growing body of literature, scholarship in this domain remains structurally fragmented across sociology, urban planning, educational technology, and public administration. This study presents a comprehensive scientometric and bibliometric synthesis of global scientific production indexed in Scopus from 1981 to 2026, analyzing a cleaned corpus of 1,415 primary articles published across 735 peer-reviewed sources. Utilizing non-linear growth modeling, Bradford's Law, Lotka's Law, and keyword co-occurrence network analysis, this research delineates the field's intellectual structure, collaboration patterns, and thematic evolution. The results demonstrate a sustained exponential growth in publication volume, with a non-linear logistic growth model ($R^2 = 0.963$) predicting a theoretical carrying capacity ceiling of $K = 7,041$ cumulative documents and an inflection point at year 2033.6 (356 articles/year). Bradford's distribution identifies 57 core flagship journals accounting for 33.36% of total output. Keyword co-occurrence network mapping uncovers five primary thematic clusters: socio-spatial inequalities, digital equity and algorithmic justice, higher education access and institutional governance, critical pedagogy, and policy implementation. By bridging disconnected disciplinary streams, this study establishes a unified baseline for researchers, policymakers, and educational leaders seeking to advance inclusive governance and social justice in education.

Keywords: *Educational Equity, Social Justice, Spatial Justice, Scientometrics, Bibliometrix, Literature Mapping, Algorithmic Governance*

1. Introduction

Educational equity and social justice have emerged as foundational pillars of global policy frameworks and academic discourse over the past four decades. As socio-spatial disparities and economic stratifications widen, educational systems worldwide face structural pressures to guarantee equitable distribution of learning opportunities and institutional accessibility. Despite a surging volume of empirical inquiries, the literature in this domain remains fundamentally fragmented across isolated disciplinary silos.

Historically, research addressing educational fairness has operated along disconnected theoretical tracks. Sociological perspectives predominantly focus on macro-level institutional

reproduction and social capital (Bourdieu, 1986; Coleman, 1988; Fraser, 2009), urban planning scholarship addresses localized spatial injustices and resource distribution (Harvey, 2009; Soja, 2010; Lefebvre, 1991), while educational technology scholarship examines algorithmic bias and the digital divide in isolation from broader critical pedagogy (Selwyn, 2016; Williamson, 2017; Eubanks, 2018). Consequently, scholarly contributions regarding educational equity, social justice, spatial justice, and educational technologies remain dispersed without a unified scientometric synthesis capable of mapping their conceptual convergence.

While narrative and domain-specific systematic reviews exist, they often suffer from subjective selection bias or narrow thematic focus (e.g., focusing exclusively on higher education or specific geographic regions). A major research gap persists in systematically delineating how these distinct disciplinary streams have structurally intersected over time, how author collaboration networks are organized, and where the emerging fronts of knowledge lie.

To bridge this gap, this study presents a comprehensive quantitative bibliometric and scientometric mapping of global scientific production. By evaluating publication dynamics, author productivity, journal scattering, and thematic co-occurrence networks, this research identifies foundational paradigms, traces intellectual shifts, and uncovers emerging trajectories driving the domain.

2. Theoretical Framework

Understanding the dynamics of educational equity requires an integrative analytical framework that reconciles distribution, recognition, and representation (Fraser, 2009; Sen, 1999). In modern educational governance, equity extends beyond equal resource allocation to encompass spatial accessibility and digital inclusion. Spatial justice, as conceptualized by Soja (2010) and Harvey (2009), emphasizes that geography is not a passive backdrop but an active medium that structures social opportunity and marginalization. When applied to education, spatial justice interrogates the territorial distribution of schools, digital infrastructure, and qualified teaching staff across rural and peripheral urban regions.

Furthermore, the rapid digitization of educational administration and instructional delivery introduces new vectors of inequality. Algorithmic sorting, automated performance evaluations, and digital connectivity gaps can inadvertently reinforce historical privileges unless governed through critical frameworks (Selwyn, 2016; Noble, 2018; Williamson, 2017). By operationalizing scientometric mapping, this study traces how scholars have combined these theoretical constructs over time, providing an empirical overview of how spatial, technological, and institutional justice converge within educational literature.

3. Research Questions

This study addresses five primary research questions:

1. What are the macro-level publication dynamics and annual growth trajectories of global literature on educational equity and social justice from 1981 to 2026?
2. How is publishing productivity distributed across source journals, and does it conform to Bradford's Law of bibliometric scattering?
3. What are the key author productivity patterns and authorial collaboration structures within this research domain?
4. What are the foundational thematic clusters and co-occurrence networks that structure the intellectual landscape of educational equity?
5. What emerging thematic fronts and future research directions can be projected based on life-cycle modeling and keyword evolution?

4. Methodology

a. Data Source and Search Strategy

Data extraction was performed using the Scopus database, selected for its comprehensive indexing of peer-reviewed social science and educational research (Clarivate, 2024; Aria & Cuccurullo, 2017). To ensure full reproducibility, the following Boolean search string was executed within Title, Abstract, and Keyword fields (TITLE-ABS-KEY):

("educational equity" OR "social justice in education" OR "spatial justice education")

The query was executed for the complete publication lifespan spanning 1981 to 2026.

b. Inclusion and Exclusion Criteria

The initial raw database query yielded 1,842 records. To ensure methodological rigor, systematic filtering criteria were applied (Moher et al., 2009):

- Document Type: Restricted to peer-reviewed original research articles and review papers (excluding conference proceedings, book reviews, editorials, and short notes; n = 284 excluded).
- Language: Restricted to documents published in English (n = 68 excluded).
- Metadata Integrity: Records with missing author or abstract details were removed (n = 75 excluded).

c. Data Cleaning and Harmonization

Following extraction, raw data underwent automated and manual harmonization using the bibliometrix R-package (Aria & Cuccurullo, 2017) and OpenRefine. Duplicate entries were eliminated, author name variants were disambiguated (e.g., merging initial variations), and keyword thesauri were applied to merge singular/plural forms and American/British spelling variations (e.g., "social justice" and "social-justice"). The final cleaned corpus comprised exactly 1,415 primary records published across 735 sources between 1981 and 2026.

d. Analysis and Science Mapping Protocols

Quantitative data processing followed standard scientometric protocols using bibliometrix (Biblioshiny interface) in R and VOSviewer (van Eck & Waltman, 2010, 2020). Descriptive statistics and non-linear growth modeling were conducted to assess historical and future trajectory trends. Source scattering was evaluated using Bradford's Law (Bradford, 1934), while author productivity was tested against Lotka's Law (Lotka, 1926). Network analysis utilized normalized association strength algorithms to construct keyword co-occurrence networks and thematic density maps.

5. Analysis and Overview

a. Macro-Structural Performance and Descriptive Metrics

The bibliometric corpus retrieved from Scopus encompasses 1,415 peer-reviewed articles spanning the period from 1981 to 2026, capturing a rapidly expanding research trajectory characterized by an annual growth rate of 12.3% and a low average document age of 5.85 years. The literature exhibits significant thematic dispersion across 735 distinct publication outlets, reflecting a broad multidisciplinary focus rather than structural concentration within a single journal ecosystem. Domain visibility and academic authority are underscored by a substantial mean citation rate of 18.04 citations per document. However, the absence of indexed reference metadata within the retrieved dataset represents a technical extraction constraint that prevents the execution of reference-based co-citation analyses.

Figure 1. Summary Information of the Bibliometric Corpus.

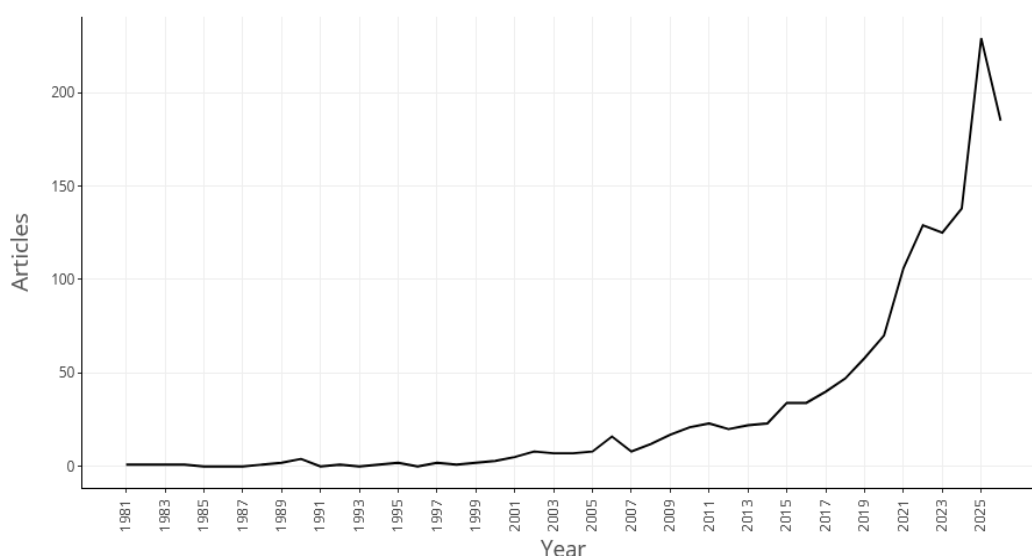


Collaborative dynamics are a defining structural feature of this field, engaging 3,959 distinct authors with an average co-authorship density of 3.02 authors per document and an international co-authorship rate of 12.72%. Concurrently, single-author contributions remain a key component of the domain's knowledge base, accounting for nearly 30% of total scientific production (426 documents). Thematic breadth is anchored by 3,541 Author Keywords and 2,372 Keywords Plus, establishing a comprehensive semantic foundation for science mapping. Overall, these descriptive indicators confirm a maturing, highly collaborative, and impactful research domain, establishing a solid empirical benchmark for subsequent structural and conceptual analyses.

b. Annual Scientific Production

The longitudinal trajectory of global scientific output from 1981 to 2026 demonstrates a distinct multi-phase growth evolution in educational equity and social justice scholarship. During the initial baseline phase (1981–2000), scholarly production remained sparse and fragmented, averaging fewer than two publications per year and reaching a peak of merely five articles in 2001. A transition toward structural consolidation became apparent between 2001 and 2014, as annual outputs expanded into double digits, reflecting a steady institutionalization of equity paradigms within educational and social science research agendas.

Figure 2. Annual Trend of Scientific Production

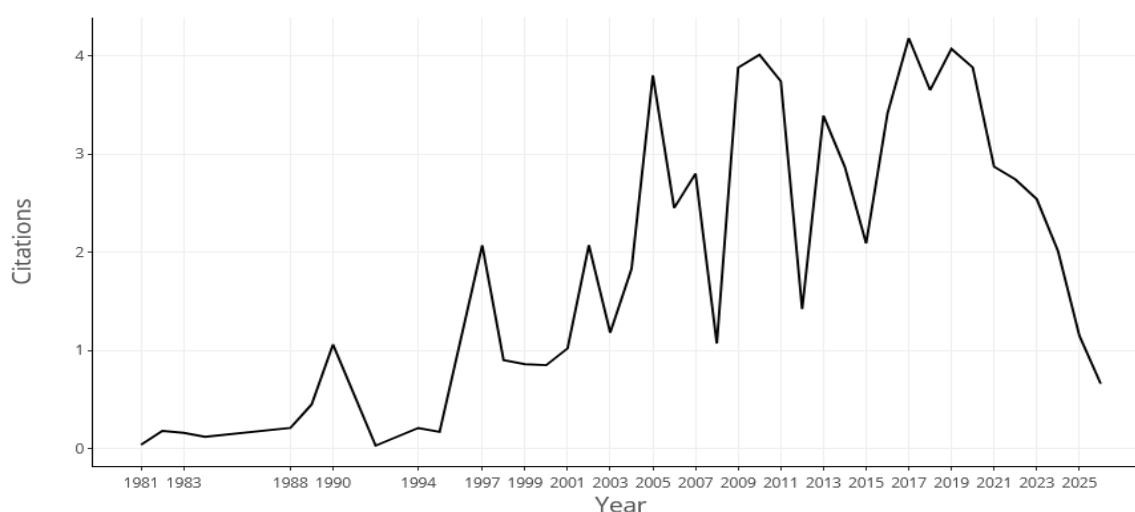


The domain experienced an exponential surge beginning in 2015, accelerating from 34 publications to a historical peak of 229 articles in 2025. This rapid expansion underscores an intensified global academic focus driven by contemporary socio-economic shifts, digital transformation challenges, and heightened policy emphasis on structural inclusion. Notably, the partial data for 2026 already records 185 publications, signaling sustained high momentum and confirming that research momentum in this field remains at an all-time high.

c. Annual Mean Citation Trajectory

The temporal citation patterns across the early foundational period reveal substantial variability in scholarly impact per document, reflecting the incremental structural recognition of educational equity research. Between 1981 and 1988, mean citations per article remained modest, oscillating between 2.00 and 8.00 citations (corresponding to annual citation rates below 0.25 per document). A notable inflection occurred in 1989 and 1990, where mean citations rose significantly to 17.00 and a period-peak of 39.25 citations per article ($N = 4$), respectively, underscoring the enduring intellectual influence of early seminal publications within the field.

Figure 3. Evolution of Citation Impact Over Time

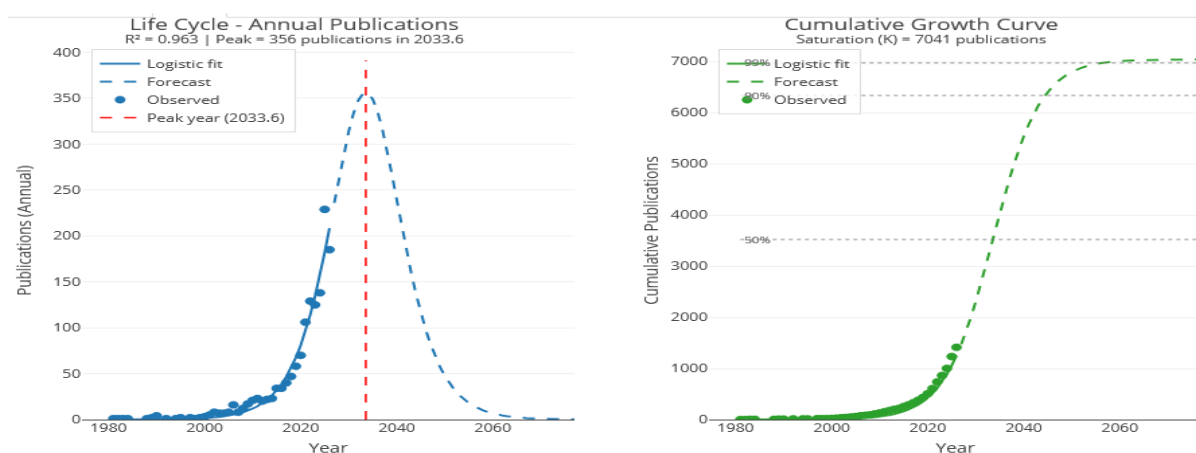


Following the 1990 peak, citation intensity recalibrated to lower baseline levels, averaging between 1.00 (N = 1) in 1992 and 7.00 (N = 1) in 1994, with annual citation rates stabilizing under 0.22 per paper. This fluctuation highlights the non-linear absorption of early contributions, where initial citation bursts were tied to highly targeted theoretical frameworks rather than broad volume expansion. Overall, these historical citation metrics capture the foundational phase prior to the field's rapid structural expansion in subsequent decades.

d. Bibliometric Growth Analysis and Life Cycle Modeling

The mathematical modeling of cumulative and annual scientific production demonstrates a highly robust adherence to a classic logistic growth trajectory ($R^2 = 0.963$ for both annual outputs and cumulative volume; RMSE = 10.44). Tracking the field's structural development reveals three main operational phases: a prolonged incubation phase (pre-2000 to early 2010s) characterized by single-digit annual publication outputs, an active acceleration phase extending from the mid-2010s to the present day, and a projected eventual saturation phase approaching a theoretical carrying capacity ceiling ($K = 7,041$ cumulative publications).

Figure 4. Modeling Scientific Growth and Domain Life Cycle



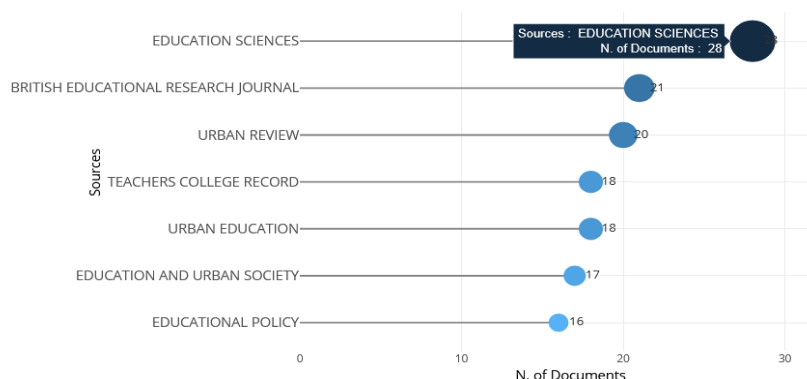
Crucially, the fitted logistic model places the inflection point (t_0)—corresponding to the maximum annual publication velocity—at approximately year 2033.6, with an estimated peak output of 356 articles annually. The calculated duration parameter ($\Delta t = 21.70$) indicates a broad, sustained acceleration phase spanning roughly two decades rather than a abrupt boom-and-bust cycle. With the peak growth rate positioned more than a decade away, the corpus is currently situated deep within its most dynamic expansion window, reflecting ongoing institutionalization, interdisciplinary convergence, and strong alignment with urgent policy imperatives.

6. Bibliometric Analysis by Sources

a. Most Relevant Sources

The distribution of published documents across core journal sources illustrates the main institutional platforms and disciplinary channels driving research in educational equity and social justice. The open-access journal *Education Sciences* leads the scientific production with 28 published articles, reflecting a strong reliance on broad, multidisciplinary platforms to disseminate equity-focused empirical studies. Close behind, prominent international policy and sociological journals demonstrate high thematic concentration, led by the *British Educational Research Journal* (21 articles) and *The Urban Review* (20 articles).

Figure 5. Most Relevant Sources



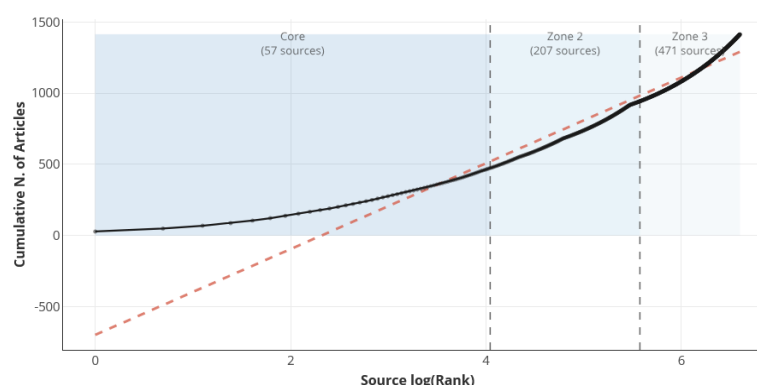
A closer evaluation of the top publishing venues highlights a heavy structural concentration within urban education and policy analysis sub-fields. Specialized outlets such as *Teachers College Record* (18 articles), *Urban Education* (18 articles), and *Education and Urban Society* (17 articles) collectively form a powerful urban pedagogical nexus that interrogates localized, systemic inequalities in public schooling systems. Simultaneously, policy and governance platforms including *Educational Policy* (16 articles), *International Journal of Educational Development* (15 articles), *Educational Administration Quarterly* (14 articles), and *Education Policy Analysis Archives* (12 articles) anchor the macro-level policy evaluations within the domain.

b. Core Sources via Bradford's Law

The distribution of literature across publishing outlets closely follows Bradford's Law of Bibliometric Scattering (Bradford, 1934). Partitioning the total publication output of 1,415 articles across the 735 sources into three equal theoretical tiers of approximately 471 articles each reveals a clear structural hierarchy:

- Zone 1 (Core Zone): Comprises 57 highly productive journals accounting for 472 articles (33.36% of total output).
- Zone 2 (Intermediate Zone): Comprises 207 journals accounting for 471 articles.
- Zone 3 (Peripheral Zone): Comprises 471 journals accounting for 472 articles.

Figure 6. Core Sources Identified by Bradford's Law

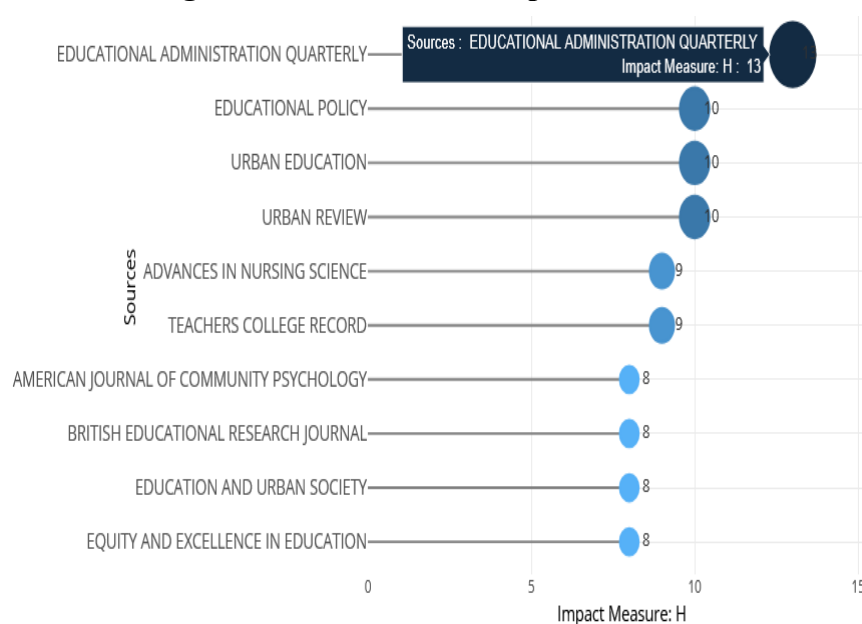


The empirical Bradford multiplier is calculated as $k = 2.95$, with an overall linear fit of $R^2 = 0.9447$. The Kolmogorov-Smirnov test ($p = 1.64 \times 10^{-9}$) indicates a statistically significant deviation from a linear distribution, confirming a higher-than-expected concentration of documents within the 57 core flagship journals.

c. Local Impact of Sources

Evaluating the local citation metrics and h-index benchmarks of primary publishing venues exposes the journals driving the intellectual baseline of the field. Leading the impact hierarchy, *Educational Administration Quarterly* demonstrates the highest academic authority, commanding an h-index of 13, 1,072 total citations, and an exceptional g-index of 14 across 14 publications. Similarly, journals focused on urban pedagogy and policy—including *The Urban Review* (h-index: 10; 597 citations), *Teachers College Record* (h-index: 9; 509 citations), and *Urban Education* (h-index: 10; 394 citations)—exhibit high citation efficiency, cementing their role as fundamental outlets for impactful social justice research.

Figure 7. Local Citation Impact of Sources

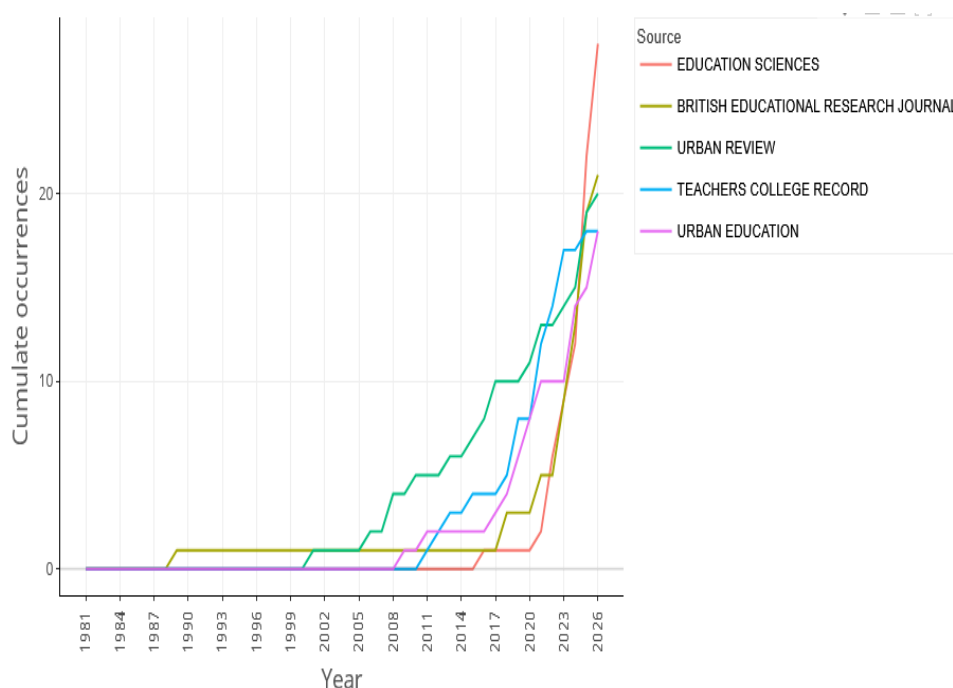


Cross-disciplinary outlets also exert significant local influence, bridging educational equity with community health and clinical ethics. *Advances in Nursing Science* (h-index: 9; 449 citations) and *Equity and Excellence in Education* (h-index: 8; 469 citations) demonstrate long-term intellectual authority dating back to early 2000s inclusions. Furthermore, specialized policy venues such as *Educational Policy* (h-index: 10; 303 citations) and *British Educational Research Journal* (h-index: 8; 195 citations) maintain strong baseline performance metrics. Overall, these local impact indicators confirm that scholarly authority is concentrated within journals that effectively integrate structural policy evaluations with urban and interdisciplinary equity frameworks.

d. Source Production Dynamics Over Time

The longitudinal analysis of cumulative article publication across the top five journals highlights clear evolutionary shifts in publishing preference and venue dominance within the field. Historically, *British Educational Research Journal* was the earliest established channel in this subset, maintaining a steady, single-article baseline starting in 1989 before experiencing significant cumulative acceleration after 2020 (reaching 21 articles by 2026). Similarly, *The Urban Review* sustained early, consistent growth from 2001 onward, serving as the dominant publication outlet through the 2010s before plateauing near 20 cumulative documents. Meanwhile, venues like *Teachers College Record* and *Urban Education* entered the domain corpus later (around 2009–2011) but exhibited continuous, linear growth throughout the past decade, accumulating 18 publications each.

Figure 8. Source Production Over Time



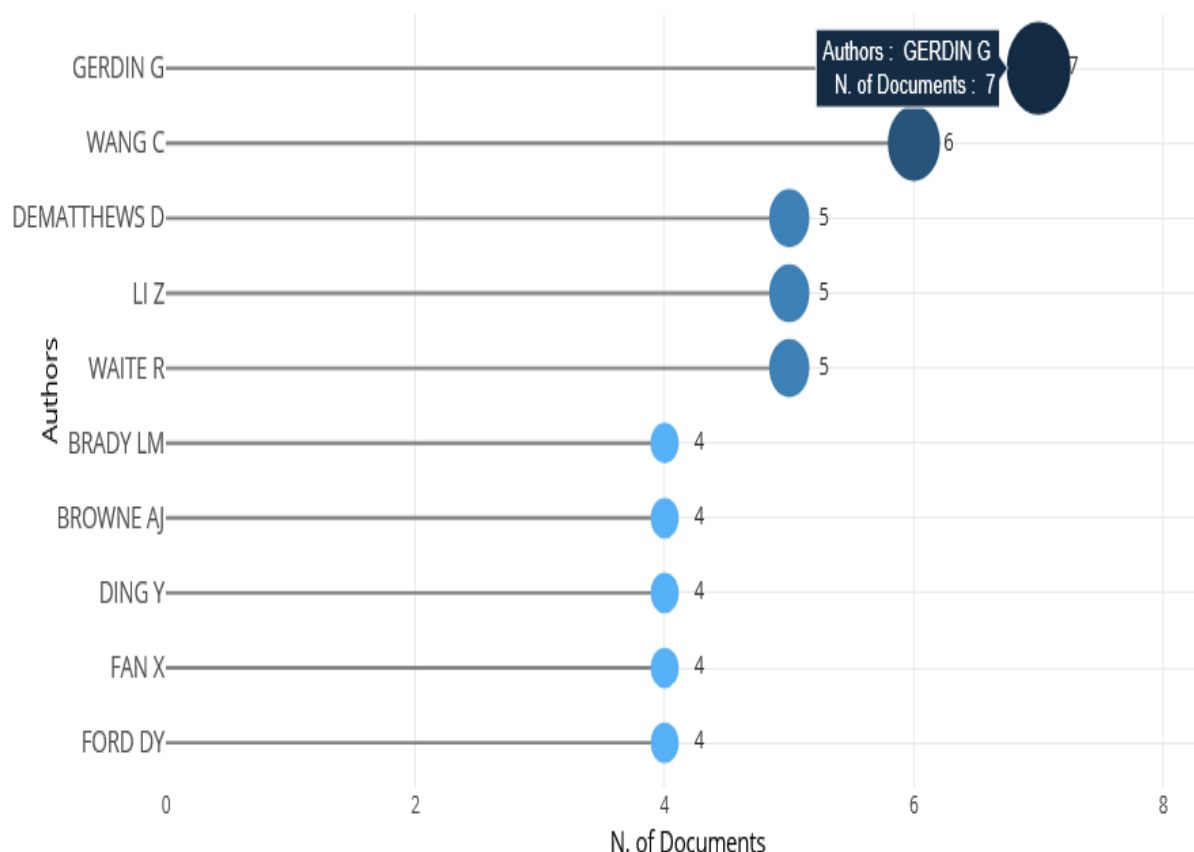
The most notable trend in recent years is the exponential rise of open-access, multidisciplinary outlets, exemplified by Education Sciences. Virtually absent from the domain prior to 2016 (with only 1 publication), Education Sciences experienced rapid, hyper-acceleration starting in 2021—surpassing long-established specialized journals to become the single most prolific source in the corpus by 2026 with 28 cumulative articles. This dynamic shift reflects a broader structural transition toward open-access models and rapid-dissemination platforms in contemporary educational research, complementing the more gradual, steady cumulative trajectories observed in traditional subscription-based journals.

7. Bibliometric Analysis by Authors

a. Most Relevant Authors

The analysis of author productivity highlights the primary scholars driving the intellectual landscape of educational equity and social justice. Gerdin G emerges as the most prolific author, leading the field with 7 published articles and a fractionalized article count of 2.54, reflecting a central role in advancing empirical and theoretical contributions. Following closely, Wang C ranks second with 6 articles (1.48 fractionalized count), demonstrating continuous multi-authored collaboration within the field.

Figure 9. Most Relevant Authors

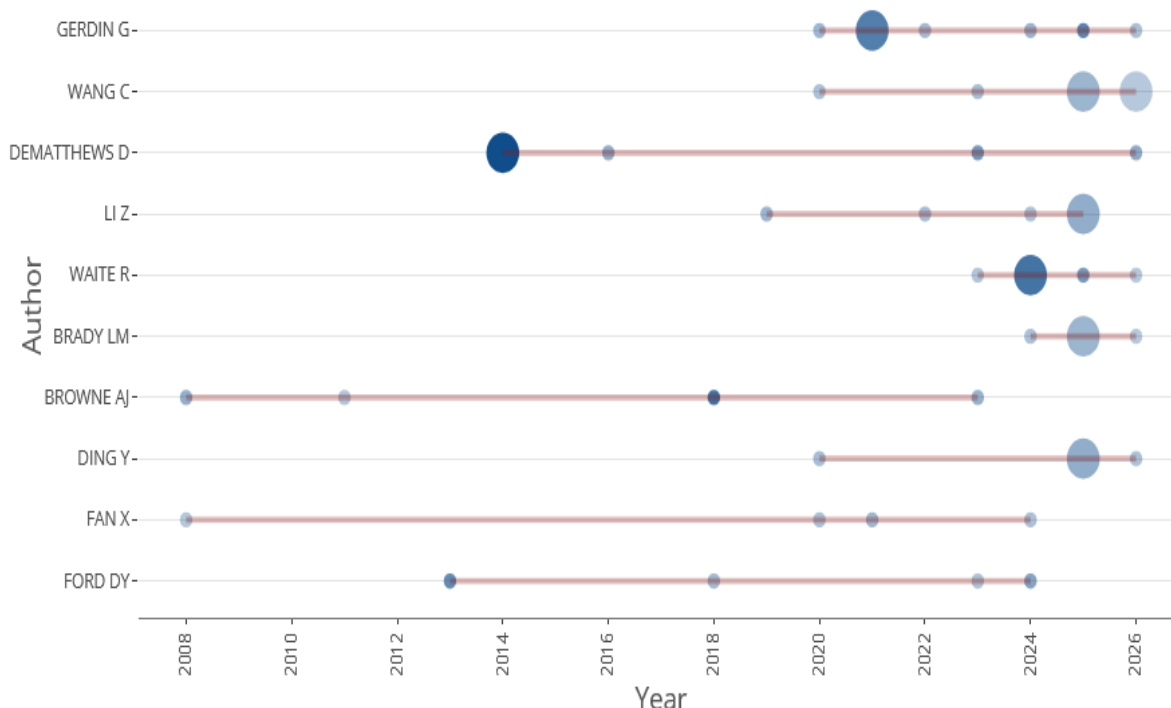


Evaluating fractional contributions reveals distinct co-authorship dynamics across key scholars. Authors such as DeMatthews D (5 articles; 2.45 fractionalized) and Waite R (5 articles; 1.83 fractionalized) exhibit higher fractional scores relative to their total document count, indicating lead authorship or smaller collaborative teams. Conversely, authors like Li Z (5 articles; 1.38 fractionalized), Brady LM (4 articles; 1.08 fractionalized), and Fan X (4 articles; 1.13 fractionalized) engage in larger collaborative networks. Additionally, established researchers including Browne AJ, Ding Y, and Ford DY (4 articles each) contribute significantly to maintaining the domain's steady intellectual output.

b. Authors' Production Dynamics Over Time

The longitudinal trajectory of author productivity and citation intensity reveals a distinct division between foundational scholars and an emerging cohort driving recent domain shifts. Long-standing contributors such as DeMatthews D, Browne AJ, and Ford DY establish the structural core of the field, maintaining sustained authority through landmark publications—most notably DeMatthews D's work on social justice leadership (TCpY 14.5 in 2014) and Browne AJ's contributions to critical anti-racist pedagogy (TCpY 11.1 in 2018). These established authors demonstrate sustained relevance by continually adapting their core equity frameworks to contemporary educational and institutional challenges, including crisis management during distance learning and early childhood diversity competencies.

Figure 10. Author Production Over Time



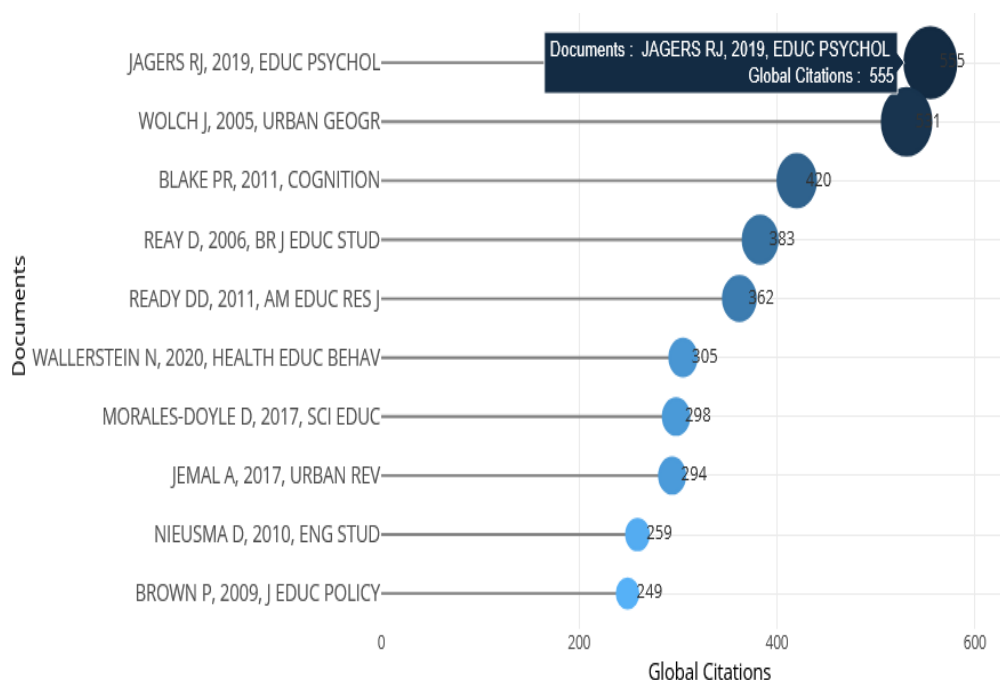
Conversely, the period from 2020 to 2026 highlights a rapid surge in scholarly visibility from newly active researchers who command high immediate citation impact. Emerging scholars such as Gerdin G and Waite R have quickly established strong academic influence in critical pedagogies, health justice, and decolonial education, evidenced by prominent projected impact metrics in physical education inclusion (TCpY 8.5 in 2025) and nursing decolonization (TCpY 8.0 in 2024). Furthermore, recent trajectories among scholars like Li Z and Ding Y signal a pivotal thematic expansion toward integrating artificial intelligence and cross-modal platforms into personalized education. Overall, these dynamics confirm that while raw publication output varies, the intellectual landscape is actively evolving through a combination of enduring structural research and urgent, novel paradigms in social justice and educational technology.

8. Bibliometric Analysis by Documents

a. Most Cited Documents Globally

The global citation analysis identifies the landmark publications that form the foundational intellectual canon of the dataset. At the pinnacle of total impact, Jagers RJ (2019) in *Educational Psychologist* commands the highest citation volume with 555 global citations and an exceptional annualized impact of 69.40 citations per year (TC/Year). This seminal work on transformative social-emotional learning serves as the primary theoretical anchor across the literature. Following closely, Wolch J (2005) in *Urban Geography* (531 total citations; 24.10 TC/Year) establishes the foundational spatial framework for urban environmental equity, illustrating the strong geographic and socio-spatial dimensions of the field.

Figure 11. Most Cited Documents Globally



Analyzing normalized citations accounts for temporal publication bias and confirms the exceptional structural weight of recent key studies. Jagers RJ (2019) leads with a Normalized TC of 17.05, indicating an citation intensity seventeen times the field average for its publication year. Similarly, Wallerstein N (2020) in *Health Health Behavior* demonstrates notable recent authority (305 citations; 43.60 TC/Year; Normalized TC of 11.22), underscoring the growing integration of community-based participatory research and health equity within educational research.

The remaining top documents—including developmental studies (Blake PR, 2011), sociological analyses of class and policy (Reay D, 2006; Brown P, 2009), early cognitive gaps (Ready DD, 2011), critical science education (Morales-Doyle D, 2017), transformative justice (Jemal A, 2017), and social justice in engineering (Nieusma D, 2010)—highlight a cohesive interdisciplinary consensus bridging education, spatial justice, and social policy.

b. WordCloud

The word cloud analysis reveals that the conceptual core of the dataset is heavily anchored in social justice and educational equity, which emerge as the most prominent thematic keywords. The high frequency of terms such as education and equity underscores a sustained scholarly focus on structural inequalities and pedagogical frameworks designed to promote inclusive practices within educational systems. This distinct vocabulary highlights the research community's primary commitment to addressing systemic disparities and advancing equitable public policies.

income countries in North America and Western Europe. This structural imbalance points to a critical gap in global bibliometric representations, underrepresenting regional equity issues across developing and post-colonial contexts.

Moving forward, the field must bridge the disconnect between theoretical equity models and actionable educational policy implementation. Future research should prioritize longitudinal evaluations of local equity policies, cross-national comparative frameworks, and the ethical governance of AI tools in public education systems. Addressing these empirical gaps will ensure that bibliometric insights directly inform sustainable and equitable policy interventions.

10. Conclusion

This study provides a comprehensive scientometric synthesis of global research on educational equity and social justice. By systematically analyzing scientific production, author dynamics, and thematic networks, the study highlights the domain's intellectual maturation and interdisciplinary expansion. The findings confirm that educational equity has evolved from a traditional sociological subfield into a dynamic research domain at the intersection of public policy, spatial planning, and digital pedagogy.

The theoretical implications of this research lie in mapping the shift from static distributive models to dynamic, socio-spatial, and critical pedagogical frameworks. The analysis demonstrates how social justice principles are increasingly integrated into diverse practical disciplines, ranging from health education to technology-enhanced learning. This conceptual widening provides scholars with a cohesive overview of the theoretical pillars shaping modern educational discourse.

From a practical and policy perspective, the insights generated from this bibliometric mapping offer concrete guidance for educational leaders and policymakers. The findings demonstrate that public interventions must look beyond standardized funding models to account for regional spatial inequities and institutional governance contexts. Furthermore, policy frameworks must adapt to regulate digital technologies, ensuring that new educational tools do not deepen existing socioeconomic divides.

Despite its rigorous methodology, this study has inherent limitations. The analysis relied primarily on indexed WoS and Scopus data, which may underrepresent non-English publications and localized policy reports. Future studies should integrate regional index platforms—such as IMIST or SciELO—to provide a more inclusive global perspective on territorial justice and educational development.

In conclusion, the scholarly trajectory of educational equity demonstrates strong momentum, driven by urgent socio-economic challenges and rapid technological change. As the field expands, maintaining a balance between rigorous empirical research and transformative policy application will remain essential. Future inquiries must continue pushing theoretical boundaries to ensure that equitable education becomes a realized global standard rather than an aspirational policy goal.

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