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A Bibliometric Analysis of Research on Educational Equity in China (2021–March 2026): Based on Knowledge Graph

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Abstract. Educational equity is a vital manifestation of social justice in education. This paper conducts a bibliometric analysis of 1,462 valid CSSCI and Peking University core journal papers on educational equity (2021-March 2026) from CNKI, using VOSviewer and RStudio Bibliometrix to draw knowledge maps. The number of relevant published papers has stayed at a relatively high level; Beijing Normal University leads institutional output, while scholar collaboration is locally clustered yet insufficiently connected across institutions. Eight keyword clusters identify mainstream research hotspots: compulsory education balanced development, digital transformation and digital justice, Double Reduction governance, higher education equity, rural education revitalization, educational resource spatial allocation, international policy comparison, and substantive equity for disadvantaged groups. Future work should shift to small-scale, evidence-based, and long-term studies, match national goals to explore AI for fairer education, and encourage cooperation across disciplines and regions; this would help achieve real equity.

Keywords: educational equity, knowledge mapping, research hotspots, digital transformation of education

1. Introduction

Educational equity is central to social justice in education and has long been a goal of China's educational reform and development [1]. In the new era, its research connotation has shifted from equal educational opportunities to process equity, outcome equity and quality-oriented substantive equity. The digital transformation of education is ongoing, and efforts to reduce the urban-rural gap are also underway; balancing efficiency and fairness, along with handling the digital divide, now becomes a key research question.

Earlier domestic reviews have looked into educational equity, but comprehensive statistical reviews that cover the time from 2021 to March 2026 are not many; with quantitative statistics, knowledge mapping can show the overall structure and development trends of a field [2], and this study uses VOSviewer and Bibliometrix to build multi-dimensional knowledge graphs based on 1,462 core journal articles from CNKI, and it also analyzes publication patterns, institutional collaborations, major scholars, and keyword groupings; the study clarifies the research landscape of China's educational equity, identifies new fronts, and provides ideas for future theoretical work and practical use.

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2. Research methods

2.1. Data source

This study takes CNKI as the data platform, sets "educational equity" as the retrieval theme, restricts documents to Peking University core journals and CSSCI journals, and sets the research time range from January 2021 to March 2026. An initial search yielded 1,472 articles; after manual screening to remove literatures and duplicate documents, 1,462 valid samples were obtained.

2.2. Research methods

The study adopted two bibliometric tools, VOSviewer (version 1.6.20) and RStudio with the Bibliometrix package (version 4.1.4); VOSviewer is mainly used for building and showing networks of co-occurring terms, for instance, maps of author collaborations and keyword co-occurrence [2]; Bibliometrix provides more flexible functions for cleaning data, performing statistical analyses, and expanding into multiple dimensions [3, 4]; their strengths were combined, with VOSviewer for creating visual maps and RStudio for organizing data and conducting quantitative analysis, and this combination helped the researchers systematically detect the main research topics and emerging trends in the educational equity literature.

3. Bibliometric analysis results of "educational equity" research

3.1. Annual distribution of "educational equity" research

The high annual count of Chinese papers on fair education, which were indexed in Peking University core journals and CSSCI, stayed above 250 each year from 2021 to 2025; this steady publication pattern reflects lasting academic concern, and the yearly average over that five-year period reached roughly 285.

3.2. Institutional distribution of "educational equity" research

According to the institutional analysis, research capacity, resource distribution, and collaboration patterns tend to be concentrated; Beijing Normal University was ranked first with 135 relevant papers published between 2021 and 2026, and East China Normal, Central China Normal, Nanjing Normal, and Northeast Normal each had over 50 publications; high-level normal universities make up the main research force, but top-tier comprehensive institutions like Peking University and Xiamen University also produced a good amount of work.

3.3. Distribution of scholars in "educational equity" research

Liu Baocun published the most articles (12), with scholars such as Feng Jianjun and Cheng Tianjun also showing high activity. The article "Implementation of the 'Double Reduction' Policy: Focus, Difficulties, and Suggestions" by Zhou Hongyu and Qi Yanlei received the highest number of citations (997). The author collaboration map shows tight local clusters but insufficient overall collaboration; cross-institutional networks need strengthening.

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4. Research hotspots of "educational equity"

To present the hotspots and themes of this research field, this study imported 1,462 valid data entries into VOSviewer software and performed co-occurrence clustering analysis on keywords. Based on keyword co-occurrence analysis (frequency≥5, yielding 139 high-frequency keywords), a dense co-occurrence network was formed, identifying eight research hotspots. Based on the keyword co-occurrence map, cluster analysis, and a thorough examination of the 1,462 articles, the following eight directions are identified as the main research hotspots in China's educational equity field.

4.1. Cluster 1: core connotations of educational equity and balanced development of compulsory education

This cluster is the core part of the map, centering on the connotations of educational equity and the balanced development of compulsory education. From 2021 to 2026, research has expanded from "equality of opportunity" to "quality equity" and "substantive equity," focusing on the transition from "having access to school" to "attending good schools" [5, 6]. At the practical level, the focus is on balancing compulsory education, emphasizing resource allocation, urban-rural integration, balanced teacher allocation, and teacher exchange and rotation [6-9], while also attending to financial aid and compensation mechanisms for disadvantaged groups [5]. This cluster reflects the shift from conceptual interpretation toward institutional optimization.

4.2. Cluster 2: digital transformation of education and digital justice

This cluster reflects new dimensions of educational equity in the intelligent era, revolving around keywords such as "digital transformation of education" and "generative artificial intelligence." Research has shifted from information infrastructure to digital resource allocation and literacy enhancement [10-12]. Generative AI can compensate for resource-poor areas, but without institutional regulation, it may exacerbate the digital divide [13, 14]. Therefore, building an inclusive digital ecosystem, enhancing teacher and student digital literacy, and improving ethical governance have become important directions [13, 14].

4.3. Cluster 3: macro-policy-driven "double reduction" and governance system research

This cluster reflects the governance shift driven by the "Double Reduction" policy, with keywords including "after-school services" and "family capital." The "Double Reduction" policy aims to reduce burdens and alleviate disorderly educational competition [15, 16]. Two main threads emerge: governance of off-campus tutoring can weaken the impact of family capital on educational opportunities [17, 18]; after-school services, as supporting measures, need to improve quality and promote home-school-community collaboration to prevent new forms of hidden inequity [16, 19].

4.4. Cluster 4: higher education equity and selection of top innovative talents

Cluster 4 focuses on higher education equity, with keywords such as "college admissions" and "top innovative talents," and addresses the balance between excellence in selection and fairness. Research has extended from equality of access to enrollment policy and cultivation mechanism reforms [20, 21]. Two main threads: first, college enrollment reforms, emphasizing that differentiated selection mechanisms like the "Strength Enhancement Plan" require scientific, transparent evaluation systems [20]; second, research on the selection of top innovative talents

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emphasizes procedural justice and diversified evaluation to prevent the cumulative advantages of family capital [21-23]. Overall, higher education equity is moving from "equality of opportunity" toward "fairness of standards" and "fairness of process."

4.5. Cluster 5: rural education revitalization from the perspective of rural revitalization strategy

Cluster 5 reflects the extension of educational equity research into rural education in the context of rural revitalization, with keywords including "rural revitalization," "rural education revitalization," "rural teachers," and "urban-rural education integration." Rural education has become an important topic, with research shifting from early improvements in school conditions to the enhancement of educational quality and the revitalization of communities [24, 25].

Two main threads are evident: first, building the rural teacher workforce by improving support services and incentive policies to enhance teachers' willingness to stay and improve educational quality [26, 27]; second, urban-rural education integration, promoting two-way flow of urban and rural elements and advancing high-quality balanced development through resource sharing and governance collaboration [24, 28]. Overall, research on rural educational equity is moving from "filling gaps" to "improving quality" and "promoting revitalization".

4.6. Cluster 6: deep governance of educational resource allocation and spatial justice

Cluster 6 mainly reflects the continuous deepening of research on resource allocation and quality balance in educational equity, with keywords including "resource allocation," "educational quality," "spatial justice," and "balanced development." Academic attention to the material foundation of educational equity has shifted from early resource coverage and quantity expansion to improving resource efficiency, optimizing spatial balance, and coordinating high-quality development [29-31]. Against the backdrop of compulsory education moving toward high-quality balanced development, resource allocation must focus not only on total input but also on the rational distribution and efficient use of high-quality resources [30, 31].

Two main threads: first, spatial allocation of educational resources, promoting higher-level balance through school layout optimization, resource sharing, and cross-regional collaboration [29]; second, quality-oriented allocation, emphasizing a shift from "average input" to "targeted input," improving resource relevance and efficiency based on actual needs, achieving a leap from resource balance to quality balance [30-32]. Taken together, domestic research has moved past the simple question of resource sufficiency to explore fairer, more efficient ways of distributing educational supplies.

4.7. Cluster 7: educational equity policies and global experiences from an international comparative perspective

Cluster 7 reflects the international comparative orientation in domestic educational equity research, with keywords including "international comparison," "United States," "United Kingdom," and "UNESCO." Through cross-national comparisons, scholars examine the institutional logic and governance paths of educational equity. They are no longer satisfied with simply introducing foreign policies; they now focus on extracting replicable lessons from global education governance, compensatory policies, and shadow education governance [33, 34]. The UNESCO concepts of

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"inclusive, equitable, and quality education" and "lifelong learning" also provide important references for China [34].

Two core research themes emerge. The first compares educational reforms and support measures for vulnerable groups in countries including the US and UK, and discusses China's rules governing after-school tutoring and domestic compensatory education systems [34]; the second takes a global education governance standpoint. It argues that Chinese research should maintain localized characteristics while learning from global practices that balance education quality, equity and diversified development [34]. Overall, international comparative research has become an important reference path for deepening China's educational equity theory and policy optimization.

4.8. Cluster 8: research on student development and substantive equity for disadvantaged groups

Cluster 8 focuses on "migrant children," "disadvantaged groups," "academic achievement," and "student financial aid." Research extends to individual developmental outcomes, emphasizing targeted support, non-economic assistance (psychological, academic, social integration), and a shift from opportunity protection to substantive equity.

5. Conclusion

VOSviewer and RStudio were used in this study to carry out a bibliometric analysis of the literature on educational equity, covering the period from 2021 to 2026, and the analysis helped to map out the knowledge structure and development trends of this field; the findings showed that the research output was considerable, with 1,462 articles in total, and the annual number remained high, with two peak years observed in 2021 and 2025; however, the collaboration networks displayed a pattern of local clustering but overall fragmentation, and there were only a few deep partnerships across different institutions; eight main research hotspots were identified, including digital transformation, policy-driven governance, high-quality balanced development, rural revitalization, and support for disadvantaged groups, among other topics; for future work, it would be good to encourage multidisciplinary and cross-regional cooperation, and to bring in governments, research institutes, and universities so as to form a more cohesive academic community; also, research topics should be more closely connected to national strategies like new quality productive forces and common prosperity, and more attention should be given to algorithmic fairness, digital justice, and the use of generative AI in rural education and for migrant children, which means shifting from a focus on scale-based balance to technology-enabled and evaluation-fairness approaches; finally, there is a need to move away from macro-level theoretical construction and toward micro-level evidence-based empirical research, with more long-term follow-up studies and analyses of large samples; quantitative and mixed methods can be used to check the effects of policies and practical measures, and theoretical thinking should be combined with empirical testing, so that genuine educational equity for all learners can be advanced.

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