

Exploring the Frontiers of Inclusive Education in Ethnic Minority Regions: A Visual Bibliometrics Analysis Using CiteSpace

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Inclusive education, rooted in special education principles, champions individual uniqueness and diverse needs. It seeks a democratic, equal teaching environment free from exclusion and discrimination. In regions inhabited by ethnic minorities with distinctive education and cultural diversity, there are heightened differentiated student needs. This field has recently attracted extensive scholarly interest globally. Using the CiteSpace tool, the study examines literature from 2000 to 2023 on inclusive education in these regions. The research assessed publication volume, key authors, institutions, and trends through bibliometrics. The aim is to outline the field's evolution over two decades, providing insights for future research directions.

Keywords: bibliometrics analysis, CiteSpace, ethnic minorities, inclusive education, visualization

Introduction

In 1994, the United Nations Educational, Scientific and Cultural Organization (UNESCO) convened the “World Conference on Special Needs Education” in Spain, during which the “Salamanca Statement” was adopted. This statement marked the first explicit mention of “inclusive education”, drawing widespread attention. UNESCO defined inclusive education as a process aimed at increasing participation in learning, culture, and community, focusing on and addressing the diverse needs of all learners (UNESCO, 2005). Although the idea of inclusive education initially stemmed from special education, it had undergone continuous refinement as countries globally delve deeper into its theoretical underpinnings. Today, inclusive education is not confined solely to the special education sector. Its application has expanded into

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mainstream education, emphasizing attention to students from ethnic minorities, female students, and other marginalized groups.

Internationally, the definition of “ethnic minority” remains ambiguous under international law, resulting in the absence of a specific legal basis to characterize them. Typically, ethnic minorities are numerically inferior groups in a given country and display particular distinctions from the majority population in various aspects (Yang, 2014). In China, due to imbalances in economic development and cultural variations among ethnicities, the educational levels in ethnic minority areas lag behind the mainstream educational system, making it a relatively weak link in China’s modern educational progression (Deng, 2016). The Twentieth Report of the Communist Party of China explicitly highlights the strategy of prioritizing education and optimizing educational resource allocation among regions to promote educational equity (Xi, 2022). With the deepening of educational modernization and strengthening the sense of ethnic community, the educational quality in ethnic areas has garnered increasing attention. To gain deeper insights into the current research status and outcomes of ethnic minority education, this study adopts an inclusive perspective, utilizing the bibliometric analysis tool CiteSpace for visual analysis of relevant literature. By systematically analyzing keywords, the study aims to identify the main research hotspots and potential directions in ethnic minority education. These findings provide pivotal references for the future development and research of ethnic minority education.

Data Sources and Research Method

Data Sources

In this study, researchers systematically searched and analyzed literature pertaining to the domain to thoroughly understand the research development and trends in the academic field. Grounded in the context of preliminary research, the researchers meticulously selected and validated predefined search terms. Further, the optimal literature retrieval strategy was ultimately determined by comparing various search outcomes, as demonstrated in Table 1.

Table 1

Literature Retrieval Methods

	Source of Chinese literature (CNKI)	Source of English literature (WOS)
Search theme	Search formula: (inclusive education OR special education) AND (national minority OR ethnic group)	Search formula: (inclusive education OR special education) AND (national minority OR ethnic group)
Type of literature	Academic articles, dissertations	Articles, review papers
Time range	2000-2023	2000-2023

Specifically, the primary source for Chinese literature was the China National Knowledge Infrastructure (CNKI). Considering the heterogeneity of literature types and the variance in research depth in CNKI, researchers restricted their search to journal articles and dissertations. The search criteria were based on the following keywords: (inclusive education OR special education) AND (national minority OR ethnic group), yielding 638 articles. A manual screening was conducted on these articles to ensure methodological rigor and accuracy. Among the initial findings, 296 articles were discarded due to redundancy, lack of author information, or misalignment with the research focus. Furthermore, 58 documents, including conference proceedings,

newspapers, and books, were excluded. After the filtration process, 284 valid articles from 2000 to 2023 were selected for subsequent bibliometrics analysis. The “Web of Science” Core Collection served as the principal database for English-language literature. The literature search was confined to articles and papers with keywords: (inclusive education OR special education) AND (national minority OR ethnic group). The preliminary search retrieved 1,378 articles. After eliminating 883 articles due to redundancy or irrelevance to the primary research theme, 475 valid English articles were retained for in-depth examination.

Research Method

CiteSpace is an analytical tool grounded in bibliometrics and data visualization techniques (J. Wang, Chen, L. L. Wang, & Yang, 2016). It seamlessly integrates various functionalities, such as co-occurrence networks, association rules, and cluster analysis, making it particularly apt to examine multidimensional, time-sequential, dynamic, and complex network data (J. Wu, X. Wu, & Zhang, 2019). This tool can precisely identify research hotspots within specific disciplines or fields and provides an intuitive representation of the relevant domain’s scientific structure, relationships, and developmental trends through visualization techniques (Chen et al., 2015). Consequently, it has garnered widespread acclaim and utilization within domestic and international academic circles (Fu et al., 2022).

For this study, CiteSpace 5.7 was employed as the primary software for literature information excavation. A total of 759 articles were imported into the software. An analysis of the literature’s annual distribution, author collaboration network, and institutional publication volume provided insights into the fundamental landscape of ethnic minority education. Furthermore, the research themes and evolving trends within this field were discerned by examining keyword frequency, clustering, timeline visualization, and burst trends.

Findings

Annual Distribution of Literature

As illustrated in Figure 1, the publication count from the China National Knowledge Infrastructure (CNKI) has generally exhibited a progressive increase over time. 2004-2008 and 2014-2018 witnessed a consistent publication surge. However, after these periods, the growth rate has shown fluctuations. Specifically, over the past four years, there has been a declining trend in the number of publications, with 2019 registering a peak count of 30 articles. In contrast, the Web of Science (WOS) gradually grew in publications from 2000 to 2016. However, a significant increase was observed from 2016 to 2019. While there was a decline in 2020, the publication count rebounded in 2021, followed by a gradual decrease. Notably, the highest publication count for WOS was recorded in 2021, amounting to 73 articles. On a broader perspective, the annual publication count in WOS generally surpasses CNKI’s. Except for 2002, 2011, 2012, 2013, 2015, and 2016, WOS’s yearly publication numbers have consistently exceeded CNKI’s.

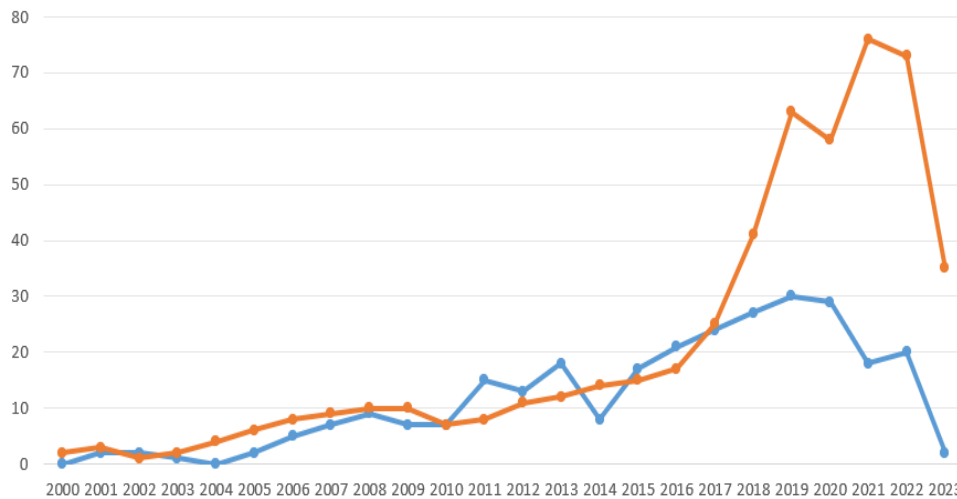


Figure 1. Annual distribution of research publications on ethnic minority education within the framework of inclusivity, 2000-2023.

Distribution of Author Collaboration Networks

In a comprehensive analysis of the author collaboration network, this study initially conducted bibliometric evaluations of the authors of Chinese-language publications. The selected node type was “Author”, and considering that there were no Chinese publications in 2000, the timeframe for the Chinese literature was set from 2001 to 2023, while English literature spanned from 2000 to 2023. Based on these criteria, visualizations were computed using one-year time slices (as depicted in Figures 2 and 3). The statistical results indicated that from the 284 articles, 316 authors were extracted, constructing 126 collaboration relations, resulting in a network density value of 0.0025.

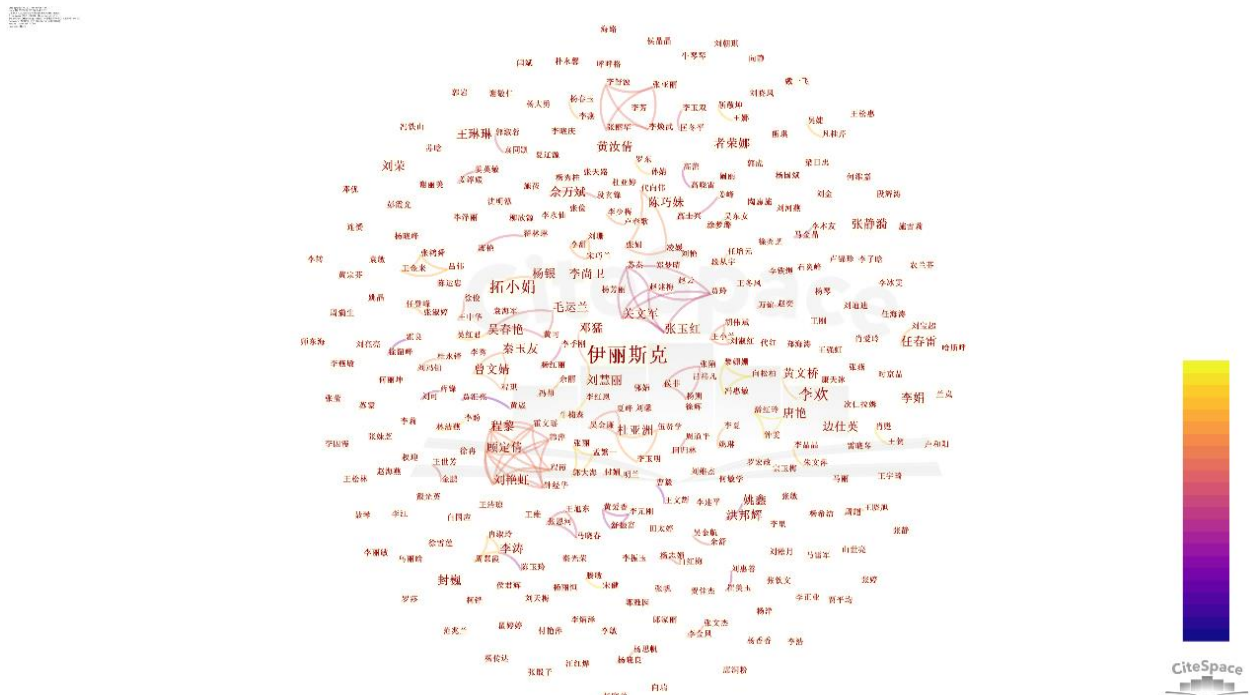


Figure 2. Authorship distribution map of Chinese-language publications.



Figure 3. Centrality emphasis map of authors in Chinese-language publications.

This analysis revealed that the collaboration among most authors could be more extensive, suggesting many conducted their research independently. However, within the left-central region of the network diagram, several small research clusters emerged, demonstrating tighter collaborations. Among these authors, Yilisi had the most notable publication count with five articles, while Tuo Xiaojuan and Li Huan each published three articles. The remaining scholars predominantly published one to two articles. Based on network centrality and line colors, it can be inferred that between 2015 and 2020, Du Yazhou, Wu Chunyan, Li Tao, Yilisi, and the team comprising Gu Dingqian, Liu Yanhong, and Cheng Li conducted profound research in the domain of inclusive education for ethnic minorities.

In the visualization analysis of English-language literature, the researchers employed the same configuration parameters as those applied to Chinese literature. As illustrated in Figures 4 and 5, out of the 475 articles, 464 authors were identified, culminating in 429 collaborative connections. The corresponding network density value (Density) stands at 0.004. The results depict that, despite several small-scale academic collaborative groups, extensive collaboration among English-language authors is not prevalent, indicating an absence of a large-scale cooperation network.

Notably, the publication volume of Geogre Farkas and Liz Jackson stands out with four and three articles, respectively, while most other authors have a publication count ranging between one and two. Analyzing network centrality and link coloration, it can be inferred that between 2000-2010, the team, comprising Russell J. Skiba, Geogre Farkas, Arri Eisen, James M. Kauffman, Barbara Linder, and Eleazar, exhibited high centrality in the research. It is noteworthy that although English-language publications outnumber Chinese articles and boast more research teams, their overall network density is lower than that of Chinese scholars. This suggests that the collaboration between international scholars in this research domain could be more robust. In a comprehensive view, neither domestically nor internationally has established a wide-ranging collaboration network, rendering the overall collaboration relatively sparse.



Figure 4. Authorship distribution map of English-language publications.



Figure 5. Centrality emphasis map of authors in English-language publications.

Analysis of Institutional Publication Volume

In an in-depth analysis of institutional publication volume, researchers selected “Institute” as the node type. Given the time frame, Chinese literature was considered from 2001 to 2023, while foreign literature spanned from 2000 to 2023. An annual time slice method was adopted, and the CiteSpace software was used to compute

both sets of literature independently. Figures 6 and 7 depict the co-occurrence analysis maps of Chinese domestic and international institutions.



Figure 6. Co-occurrence map of institutions in Chinese literature.

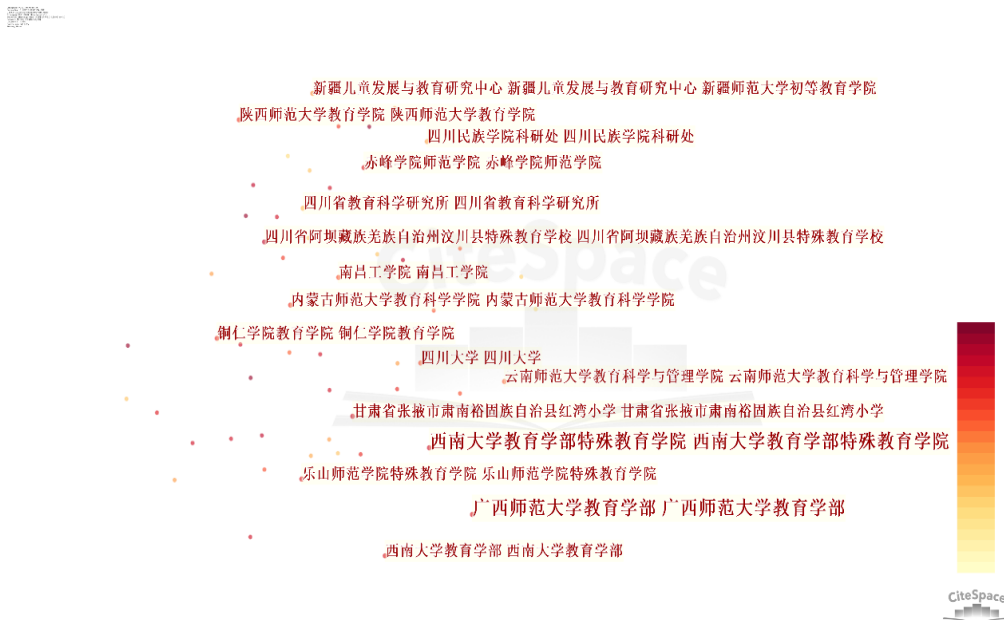


Figure 7. Co-occurrence map of institutions in English literature.

From the map of Chinese literature, there are 175 institutional nodes but conspicuously no collaborative links, resulting in a map density of 0. These institutions prominently align geographically, concentrating on ethnic minority-dense areas such as Sichuan, Yunnan, and Guangxi. In contrast, the map from foreign literature exhibits 398 institutional nodes along with 390 collaboration links, leading to a map density of 0.0049. This suggests a relatively robust collaboration frequency among international institutions.

The Department of Special Education of Southwest University and the Guangxi Normal University emerged as the top publishing entities, each with three articles (see Table 2). Internationally, Penn State University and Indiana University stood out with an average publication volume reaching six articles (see Table 3). When juxtaposed with international institutions, Chinese institutions have a diminished collaboration frequency and need to catch up in peak and average publication volumes. Nonetheless, on a broader scale, whether domestic or international, research institutions are at the embryonic stages in studies related to this subject.

Table 2

Top 15 Domestic Institutions by Publication Count

Name of institutions	Publication count	Density	Year
Department of Special Education of Southwest University	3	0	2019
Guangxi Normal University	3	0	2018
Sichuan University	2	0	2015
Nanchang Institute of Technology	2	0	2015
Shanxi Normal University	2	0	2016
Hongwan Primary School	2	0	2019
Leshan Normal University	2	0	2018
Inner Mongolia Normal University	2	0	2016
Wenchuan Special Education School	2	0	2020
Xinjiang Normal University	2	0	2012
Tongren University	2	0	2017
Sichuan Institute of Education Sciences	2	0	2009
Yunnan Normal University	2	0	2014
Sourthwest University	2	0	2018
Sichuan Minzu College	2	0	2011

Table 3

Top 15 Foreign Institutions by Publication Count

Name of institutions	Publication count	Density	Year
Pennsylvania State University	6	0.01	2008
Indiana University	6	0.01	2005
University of California, Los Angeles (UCLA)	5	0.02	2004
University of California, Irvine (UCI)	5	0.01	2007
Boston University	4	0.01	2012
University of Hong Kong	4	0	2019
University of Toronto	4	0	2005
University College London (UCL)	4	0	2014
University of Miami	3	0.01	2008
Harvard Univeristy	3	0.01	2012
City University of New York (CUNY)	3	0	2013
Ben Gurion University	3	0	2006
University of North Carolina	3	0	2003
University of Murcia	3	0	2005
Open University	3	0	2001

High-Frequency Keyword Analysis

This section aims to delve deeply into the research hotspots of this field. Keywords, as refined summaries of the literature content, effectively reflect a document's core research subjects and directions (Feng et al., 2014).

Therefore, by analyzing the frequency and centrality of keywords over a specific time frame, one can effectively identify significant trends and focal points in the research field. In this study, given the absence of keyword data for Chinese literature in 2000, the researcher set the time frame from 2001 to 2023. However, the starting point is still considered 2000 for consistent analysis and comparison. Concurrently, the time frame for foreign literature remains from 2000 to 2023. Each year is taken as an individual time slice, and the “Log-Likelihood Ratio algorithm” is employed to cluster the keywords into a network.

Table 4

Top 10 High-Frequency Keywords and Centrality in Chinese and Foreign Literature From 2000 to 2023

Chinese-language literature (CNKI)					English-language literature (WOS)				
	Publications	Centrality	Starting year	Keyword		Publications	Centrality	Starting year	Keyword
1	60	0.45	2002	Special education	1	80	0.34	2005	Education
2	29	0.26	2007	Ethnic regions	2	60	0.13	2006	Inclusive education
3	22	0.18	2004	Inclusive education	3	57	0.19	2004	Diversity
4	16	0.18	2007	Special education schools	4	36	0.06	2009	Inclusion
5	13	0.04	2012	Ethnic minorities	5	36	0.12	2007	Disability
6	11	0.05	2010	Educational equity	6	35	0.14	2004	Student
7	10	0.08	2007	Strategies	7	31	0.09	2013	Race
8	10	0.1	2008	Compulsory education	8	31	0.21	2002	Children
9	9	0.04	2018	Teachers in special education	9	30	0.12	2002	Special education
10	8	0.03	2017	Inclusive education	10	29	0.14	2001	Ethnicity

As indicated in Table 4, influenced by the literature retrieval settings, the high-frequency keywords for Chinese literature primarily encompass “special education”, “ethnic regions”, “inclusive education”, and “special education schools”. In contrast, the top 10 keywords in foreign literature, such as “education”, “inclusive education”, “children”, and “diversity”, exhibit significant centrality. This suggests that Chinese scholars, while focusing on special education and inclusive education in ethnic regions, also pay considerable attention to issues related to special education schools. Meanwhile, foreign scholars, in addition to their focus on inclusive education, emphasize child education and its diversity and differentiation. Overall, research in China tends to be more detailed and specific, with fewer interdisciplinary studies and a relatively lower degree of integration. On the other hand, foreign research adopts a more macroscopic perspective, covering a broader range with notable interdisciplinary collaboration and integration. This observation is further corroborated by the keyword co-occurrence network in Figure 8, where the network density value for Chinese keywords stands at 0.0086. In contrast, that of foreign keywords is significantly higher at 0.0209.



Figure 8. Comparative knowledge map of keyword co-occurrence networks in Chinese and foreign literature from 2000-2023.

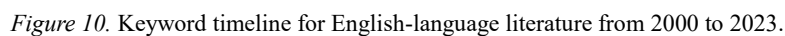
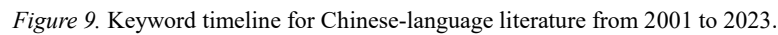
Keyword Timeline Analysis

The keyword timeline graph in CiteSpace offers scholars a precise tool for analyzing the evolution of academic disciplines. One can discern the prominence of particular research themes during those periods by examining the frequency and distribution of keywords across specific timeframes. As time progresses, increasing the frequency of specific topics might indicate a burgeoning interest in them, whereas a decrease could suggest their saturation or being superseded by newer trends. The emergence of novel keywords may hint at new directions or innovations within the discipline. The keyword timeline graph presents researchers with a macroscopic yet detailed perspective, further facilitating a profound understanding of the discipline's evolutionary trajectory (Wang et al., 2016).

This study analyzed keywords from domestic and international data incorporated into the software. Utilizing the “label clusters with indexing terms” feature, the researchers constructed a keyword timeline graph for Chinese literature (Figure 9) and foreign literature (Figure 10). The computed Modularity Q values were 0.8038 and 0.4811 for Chinese and foreign literature, respectively, both exceeding 0.3, indicating significant cluster structures. Additionally, the Weighted Mean Silhouette S values for Chinese and foreign literature were 0.9406 and 0.7537, respectively, surpassing 0.5, suggesting reasonable and strongly interconnected clustering.

From Figure 9, the most encompassing clusters (ranging from #0 to #9, with the 10th cluster being repetitive and thus omitted) include special education, special education teachers, special education schools, inclusive education, educational equity, strategies, compulsory education, Korean ethnicity, and Latino ethnicity. Notably, the “Korean ethnicity” cluster emerged earliest, and the #0 cluster on special education encompassed the highest frequency keyword and spanned the most extended duration.

According to Figure 10, the most encompassing clusters (from #0 to #9) were inclusion, children, schools, curriculum, social harmony, inclusive education, bias, special educational needs, education policy, and public health. The earliest emergent clusters were “social harmony”, “education policy”, and “public health”. The #9 cluster, public health, persisted the longest, from 2000 to 2023. The keywords “inclusion”, “inclusive education”, and “schools” represented the top three frequencies.



Keyword Burst Analysis

Within CiteSpace, the burst detection analysis effectively pinpoints prevalent research keywords within a specific timeframe, revealing prevailing academic trends and innovative directions. Significant surges over short periods can be captured by assessing the temporal frequency variations of keywords, often signifying a discipline's novel exploratory directions. This analysis not only aids researchers in grasping the academic frontier but also provides directional insights for their research endeavors (Feng, Wang, & Liu, 2014). In this study, based on keyword clustering, researchers employed the “burstness” function in CiteSpace to conduct a burst detection analysis on keywords from both Chinese and English literature (see Figures 11 and 12).

Top 25 Keywords with the Strongest Citation Bursts

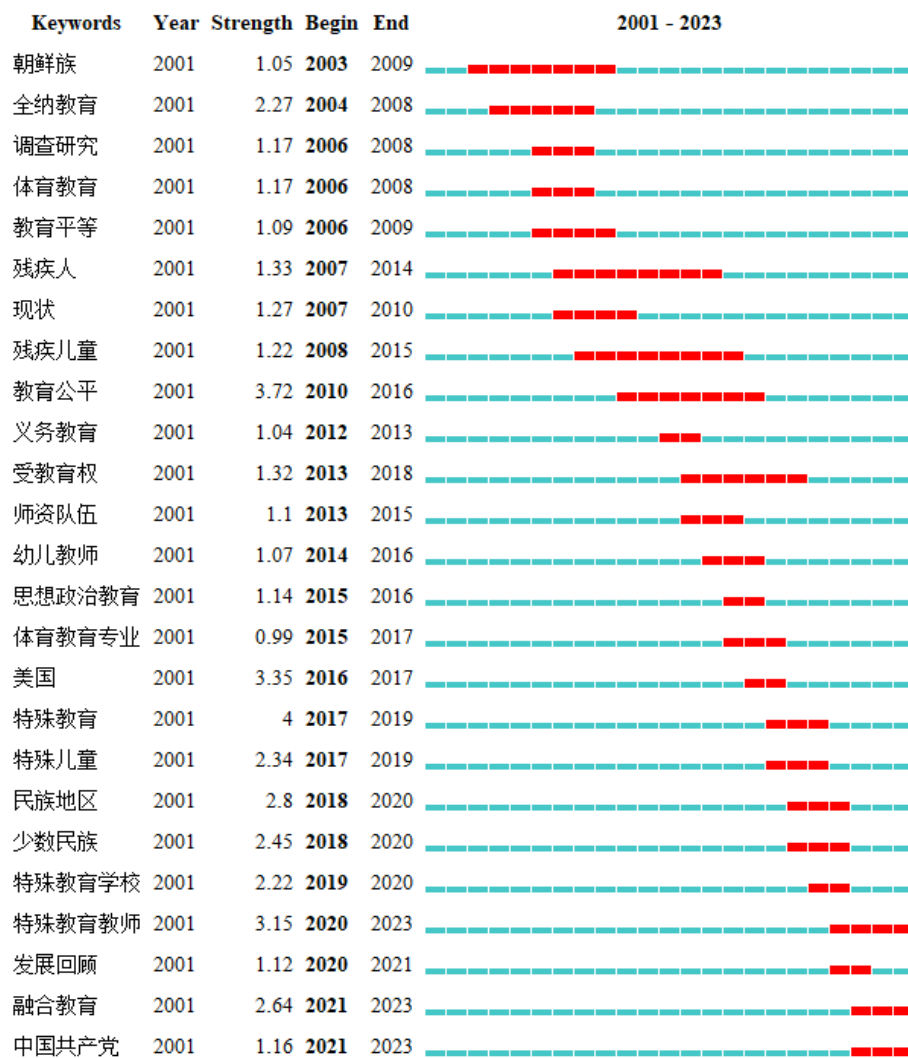


Figure 11. Visualization map of burst keywords in Chinese-language literature.

Top 25 Keywords with the Strongest Citation Bursts



Figure 12. Visualization map of burst keywords in English-language literature.

The results indicated that, in the Chinese literature, “Korean ethnicity” emerged as the foremost bursting keyword, with a burst duration spanning from 2003 to 2009 and a burst strength of 1.05. Following this, “physical education”, “educational equity”, “persons with disabilities”, “disabled children”, and “educational fairness” were progressively recognized as central research themes. More recently, scholarly attention has intensified around “ethnic regions” and “minorities”. Concurrently, “special education teachers” and “inclusive education” are dominant research areas. In English literature, “special education” emerged as the earliest notable term, having prominence from 2000 to 2008 with a burst intensity of 3.13. Successively, terms such as “children”, “overrepresentation”, “disability”, “disproportionality”, and “African American” began to captivate the research community’s focus. In the subsequent years, themes like “experience”, “intersectionality”, “inclusion”, “science”, “racism”, and “performance” have ascended as the central research topics.

Discussions

Journals on Inclusive Education Research in Ethnic Minorities

This study comprehensively analyzed Chinese and English literature published from 2000 to 2023. Most of the included Chinese journals are non-core, displaying varying quality and significant academic discrepancies, suggesting ample room for enhancement in the research quality within this field. The limited number of articles in core journals reflects an inadequacy of in-depth research on inclusive education for ethnic minorities in China. This situation could be attributed to the late initiation of this field, a slow research pace, and a lack of substantial impetus for ethnic education. Additionally, the current research directions appear narrow, with limited interdisciplinary studies, suggesting that the field's academic influence has growth potential. In summary, domestic research on inclusive education for ethnic minorities predominantly focuses on policy-level discussions, lacking in-depth exploration (Tuo, Yang, & Zhao, 2019).

In contrast, foreign journals manifest superiority in quantity, quality, and professionalism compared to Chinese journals. The theory of inclusive education originated in the West, granting it an inherent advantage and foundation for research. This has led to a broader and more profound exploration of inclusive education for ethnic minorities in international contexts. Concurrently, the frequency of interdisciplinary research is more pronounced, forming a relatively comprehensive research framework. Overall, international research on inclusive education for ethnic minorities exhibits a more mature landscape.

Scholars on Inclusive Education for Ethnic Minorities

From the perspective of the authors of the published papers, Chinese scholars such as Yilisike, Tuo Xiaojuan, Du Yazhou, Li Huan, Gu Dingqian, Cheng Li, Liu Yanhong, Wu Chunyan, and Deng Meng have been prolific contributors in the field of inclusive education for ethnic minorities, playing a leading role in shaping the discourse. However, examining the co-occurrence of authors reveals a weak collaboration among the majority, with only a tiny fraction forming a discernible network of cooperation. This underscores a significant challenge in developing research on inclusive education for ethnic minorities in China: limited academic interaction and collaboration.

In contrast, in the English literature, researchers like Russell J. Skiba, George Farkas, Arri Eisen, and James M. Kauffman have made substantial contributions to the field. Nevertheless, they share a similar challenge with their Chinese counterparts: a need for more extensive collaborative networks. Most researchers operate in isolation, with only sporadic clusters of close collaboration, which remain unstructured. Both domestic and international scholars have yet to establish extensive collaborative networks, implying that research in inclusive education for ethnic minorities is neither in-depth nor systematic.

Research Institutions on Inclusive Education for Ethnic Minorities

In the analysis of research institutions, it was observed that Chinese institutions exhibit a regional distribution pattern. Specifically, most of these publishing institutions are situated in areas with significant minority populations, such as Sichuan, Guangxi, and Yunnan. Notably, these institutions have no collaborative links, indicating that each entity conducts its research independently without any inter-institutional collaboration or exchange. This lack of collaboration is a glaring issue in the current Chinese research landscape. Concurrently, there is an evident absence of participation from prestigious institutions, commonly called “elite universities”, in this study area.

In contrast, international institutions have begun to establish collaborative networks amongst themselves. While these networks are still nascent and have not fully matured into a comprehensive system, the basic framework is evident. Furthermore, the presence of authoritative institutions in these discussions is significantly higher compared to their Chinese counterparts, leading to a broader and more diverse research team.

Trends in the Development of Inclusive Education for Ethnic Minorities

According to a concentrated keyword analysis, Chinese scholars are increasingly focusing on research related to “special education teachers” and “inclusive education”, influenced by recent national policies. Deng (2016) argued that minority areas inherently exhibit multi-ethnic, multilingual, and multicultural characteristics. Consequently, ethnic special education encompasses an additional layer of integration and adaptation between special education and diverse cultures. Meanwhile, China’s policies advocating the establishment of modern socialist education have positively propelled the development of inclusive education for ethnic minorities.

Leveraging national policies, issues faced by special education teachers are gradually being addressed. However, the pace of these improvements struggles to meet the demands of ethnic special education (Tuo et al., 2019). The scarcity of special education resources in ethnic regions, the lack of professional standards in special education, and the rigid training models remain significant challenges for educators. Issues about special education teachers constitute a crucial link in ethnic special education. Addressing these issues requires not only macro-policy adjustments but also proactive societal exploration and a commitment by special education teachers to elevate their instructional standards (Tuo et al., 2019).

A timeline indicates that terms like “inclusive education”, “educational fairness”, “countermeasures”, and “compulsory education” have gained traction in recent years. The continued expansion of compulsory education has heightened the popularity of ethnic education. As the inclusive education philosophy becomes more recognized, researchers embark on deeper explorations and considerations of ethnic special education from various perspectives (Feng et al., 2014).

In contrast, recent international research has emphasized keywords like “inclusion”, “children”, “schools”, “curriculum”, and “bias”. This suggests that international scholars prioritize investigating minority inclusive education from childhood school education and curriculum planning perspectives. Prejudice has also emerged as a focal area of study, with researchers examining its relationship with children’s school education and its implications for inclusive education. This alignment with the broader context of inclusive education research indicates a global trend wherein researchers converge on children’s education to discern its intrinsic connection with inclusive education.

Implications

Inclusive education for ethnic minorities represents a novel research perspective born from the fusion of minority and inclusive education. It is a nascent field that has yet to be extensively explored. The late onset of research in this domain, coupled with pronounced regionalization of research institutions, imbalances in educational resources within minority regions, and inherent diversities, all contribute to the complexity and challenges faced in its study. While the academic community has made some achievements in this area, future research and advancement in ethnic minority inclusive education could be approached from several angles, further facilitating its development.

Deepening Research on the Theoretical Dimension of Inclusive Education for Ethnic Minorities

The practical and research levels of a field determine its theoretical development. Conversely, the theoretical progress in a domain can, to some extent, guide the implementation and exploration of its theory. Since inclusive education is relatively new to China and research in this area started late, localizing this educational philosophy has been gradual. Its integration with China's primary national conditions still needs to be improved. It is essential not only to conduct field research to understand the latest educational developments in ethnic minority regions but also to have robust theoretical guidance and support to broaden and deepen the research on inclusive education for ethnic minorities. The research on inclusive education should gradually move towards localization and systematization, adapting it to fit China's unique context better. By integrating theory with practice, we can promote the research on local inclusive education for ethnic minorities, subsequently influencing global perspectives on the subject.

Establishing a Systematic and Diversified Collaborative Research Network

Establishing a collaborative network is an indispensable step to advance inclusive education principles. As discerned from the visualization analysis of both domestic and international literature in this study, research on inclusive education for ethnic minorities within China and abroad has not yet formed a large-scale, systematic collaborative research network. Collaboration between scholars, as well as between institutions, remains relatively independent. This scenario constrains upward progress in the field. Diverse intellectual collisions can lead to novel insights. Collaborative exchanges can catalyze many outcomes, breaking the barriers of isolated research. Transcending the regional constraints of scholars and institutions is the first step for ethnic minority inclusive education research to internationalize. This includes, but is not limited to, academic collaborations and exchanges between domestic and international entities, even bridging the two. An international academic exchange collaboration network should be cultivated on the foundation of establishing domestic research cooperation and international exchange networks. Concurrently, it is imperative to encourage scholars from diverse domains and interdisciplinary backgrounds to join, enriching the network's structure and embodying the spirit of "inclusivity" in practice.

Promoting Policy Discussions on Inclusive Education for Ethnic Minorities

Policy support and guidance are crucial for the development of a research domain. In the process of literature review, researchers have observed that articles offering policy interpretations related to inclusive education for ethnic minorities remain limited in number, with the depth of discussions often being insufficient. Many pivotal issues within this realm have yet to be thoroughly explored. The existing policy discussions have covered only some of this domain's essential details and orientations. Given this backdrop, future researchers should delve deeper into interpreting and discussing relevant policies. A comprehensive examination of current policies' strengths, challenges, and potential hurdles is imperative. Based on real-world scenarios, forward-thinking policy recommendations should be put forth. Such endeavors will not only facilitate the continuous optimization of policies within this field but also contribute to establishing a more comprehensive and systematic policy framework, better supporting the long-term advancement of inclusive education for ethnic minorities.

Cultivating Specialized Teachers for Ethnic Minority Special Education

A teacher's professional competence directly reflects the educational standard in a given region. However, addressing students from ethnic minorities who speak diverse languages and come from varied cultural backgrounds is inherently challenging. Educating children with special needs within this diverse cohort further

escalates the demands on a teacher's instructional skills and professional competence. Such educators must possess an even higher level of expertise than special education teachers in more homogeneous regions. They must not only adapt to a multifaceted cultural teaching environment and have ample specialized knowledge but also tailor education methods to the individual variances among students. This aims to address inter and intra-individual differences, achieving proper inclusive education. Consequently, there is an urgent need to cultivate a cadre of special education teachers for ethnic minorities with robust professional acumen.

Enhancing Infrastructure Support for Inclusive Education in Minority Regions

Minority regions, influenced by their geographical characteristics, cultural conflicts, and conceptual differences, exhibit a significant educational gap compared to more mainstream areas. More is needed to refine educational theories and policies or enhance teacher training to address this challenge. The upgrade and development of infrastructure and facilities are also essential components. Enhanced physical facilities can create a more comprehensive learning environment for students, improving their educational experience and providing necessary support and convenience for educators. Therefore, investing in infrastructure development and upgrades in minority regions is paramount to bridge the educational disparity between these areas and mainstream regions.

References

- Chen, Y., Chen, C. M., Liu, Z. Y., Hu, Z. G., & Wang, X. W. (2015). The methodology function of CiteSpace mapping knowledge domains. *Studies in Science of Science*, 33(2), 242-253. Retrieved from <https://doi.org/10.16192/j.cnki.1003-2053.2015.02.009>
- Deng, M. (2016). On the development of special education for ethnic groups based on multicultural education. *Chinese Journal of Special Education*, 23(1), 3-8.
- Deng, Y. (2016). The enlightenment of inclusive education concept to the compulsory education of minorities. *Journal of Baicheng Normal University*, 30(3), 31-34.
- Feng, J., Wang, K. F., & Liu, X. (2014). Emerging trends in translation studies (1993-2012): A scientometric analysis in CiteSpace. *Technology Enhanced Foreign Language Education*, 36(1), 11-20.
- Fu, L., Mao, S., Chen, F., Zhao, S., Su, W., Lai, G., ... Lin, C.-T. (2022). Graphene-based electrochemical sensors for antibiotic detection in water, food and soil: A scientometric analysis in CiteSpace (2011-2021). *Chemosphere*, 297, 134127. Retrieved from <https://doi.org/10.1016/j.chemosphere.2022.134127>
- Tuo, X. J., Yang, Y., & Zhao, B. (2019). Review and outlook on ethnic special education under the context of inclusive education. *Journal of Suihua University*, 39(4), 17-21.
- UNESCO. (2005). *Guidelines for inclusion: Ensuring access to education for all*.
- Wang, J., Chen, S. C., Wang, L. L., & Yang, X. M. (2016). The analysis of research hot spot and trend on big data in education based on CiteSpace. *Modern Educational Technology*, 26(2), 5-13. doi:10.3969/j.issn.1009-8097.2016.02.001
- Wu, J., Wu, X., & Zhang, J. (2019). Development trend and frontier of stormwater management (1980-2019): A bibliometric overview based on CiteSpace. *Water*, 11(9), 1908. Retrieved from <https://doi.org/10.3390/w11091908>
- Xi, J. P. (2022). *Upholding the great banner of socialism with Chinese characteristics and rallying unity in the strive for the comprehensive building of a modern socialist country—Report at the 20th National Congress of the Communist Party of China*. Beijing: People's Publishing House. Retrieved from https://www.gov.cn/xinwen/2022-10/25/content_5721685.htm
- Yang, Y. S. (2014). An analysis of the European definition of "ethnic minorities". *Contemporary World and Socialism*, 35(2), 173-179. Retrieved from <https://doi.org/10.16502/j.cnki.11-3404/d.2014.02.033>