



REVIEW ARTICLE

HOTSPOTS AND TRENDS IN RESEARCH ON TEACHER ACCEPTANCE ATTITUDES (2004-2023): A VISUAL ANALYSIS USING CITESPACE

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ABSTRACT

This study investigates the trends, hotspots, and general overview of research on teacher acceptance attitudes from 2004 to 2023. Using Citespace for bibliometric and knowledge map analysis on 574 publications from the Web of Science, the study reveals: (1) A steady increase in research activity, predominantly from the United States, with significant scholarly contributions; (2) Core research hotspots include "special educational needs", "pre-service teachers", "primary education", "physical education", "autism", "perceptions", "theory of planned behavior", "inclusive education", "placement", "social inclusion", and "prejudice"; (3) During the initial exploration phase (2004-2011), research focused on the effects of inclusive education on pre-service teachers dealing with special students. In the growth phase (2012-2019), the focus shifted to accommodating special educational needs within physical education and examining teachers' self-efficacy. The flourishing phase (2020-2023) expanded to study the impact of teacher acceptance attitudes on special students across diverse countries and educational levels.

KEYWORDS

Teacher acceptance attitudes; hotspots; trends; visual analysis

1. INTRODUCTION

Inclusive education, a progressive educational concept, was introduced at the World Conference on Special Needs Education in Salamanca, Spain, in 1994 (Fan, 2010). As an educational movement, inclusivity emphasizes accommodating all students and opposes discrimination and exclusion. It values collective collaboration and addresses diverse needs, aiming for education without exclusion, discrimination, or categorization. Teacher acceptance attitudes refer to their capacity to embrace and understand students' individual differences, learning difficulties, personality traits, and behaviors. Teachers with positive acceptance attitudes respect students' uniqueness, view their mistakes and shortcomings with an open mind, and regard them as opportunities for growth and learning. Such attitudes foster a safe and supportive learning environment, enabling students to feel respected and trusted, thus encouraging active participation and maximizing their potential. Clearly, teacher acceptance attitudes are a critical aspect of inclusive education research, highlighting the impact of teachers' outlooks on all students' development, particularly in providing differentiated support for children facing learning challenges.

Therefore, this study employs Citespace for visual analysis to delineate the progress, hotspots, and trends in research on teacher acceptance attitudes from 2004 to 2023. The study aims to address the following questions:

- What themes have emerged in the research on teacher acceptance attitudes from 2004 to 2023?
- How has the research on teacher acceptance attitudes evolved during this period?
- What emerging trends might shape the future of research in teacher acceptance attitudes?

2. RESEARCH DESIGN

2.1 Research Tools

This study employs the visualization analysis software Citespace V 6.3.R1, developed by Dr. Chen from Drexel University (Chen, 2017). Citespace offers various features, including: Hotspot Analysis: Identifying popular research themes through keyword and subject co-occurrence. Frontier Detection: Exploring emerging dynamics via co-citation, coupling, co-word, and burst detection. Research Evolution Path Analysis: Displaying thematic development by integrating temporal and cluster analyses. Research Community Discovery: Establishing networks of author and institution collaborations to identify key groups and influential players. Disciplinary, Field, and Knowledge Overlapping and Flow Analysis: Creating co-occurrence networks of journals and disciplines to study interconnections. CiteSpace supports multiple databases such as CNKI, CSSCI, Web of Science, Scopus, and Dimensions. Data for analysis must be downloaded from these sources. It visualizes literature connections through scientific knowledge maps, illustrating documents and their relationships using nodes and links. Overall, CiteSpace is a crucial tool for researchers conducting literature reviews, identifying research hotspots, exploring frontiers, and understanding research trends.

2.2 Data Sources and Processing

Using the Web of Science as the search platform, an advanced search was conducted on the SSCI and SCI core collections. The search focused on the themes "teacher acceptance attitudes" and "students", limiting the document types to Articles and Reviews. The search spanned from January 1, 2004, to December 31, 2023, covering a 20-year range, and was restricted to English-language results, yielding 739 records. By manually reviewing the titles and abstracts, documents related to children with special needs and learning disabilities were selected, removing irrelevant

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literature, ultimately resulting in 574 valid documents.

3. RESULTS AND DISCUSSION

3.1 Overview

3.1.1 Distribution over time

Analyzing the total volume of research on teacher acceptance attitudes from 2004 to 2023 reveals a consistent upward trend over the past two decades (see Figure 1). The slope of the development trend line indicates a spiraling increase, with annual publications exceeding 30 since 2016 and reaching an all-time high in 2023. This surge is closely linked to the 2016 issuance of the *Guidelines for the Construction of Special Education Resource Classrooms in Regular Schools* by the Ministry of Education, which set specific requirements for the establishment and management of such resources to promote inclusive education and improve the educational quality for students with disabilities. Overall, the implementation of national policies has significantly fostered the evolution of educational concepts, leading to greater emphasis on the development of children with special needs. This shift in perspective has encouraged researchers to further explore the impact of teacher acceptance attitudes on students, thereby driving sustained research in this area.

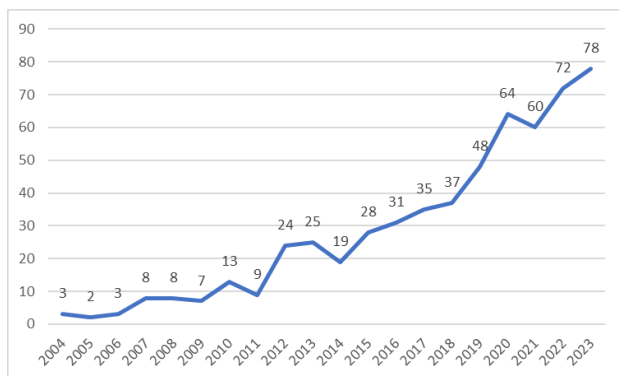


Figure 1: Distribution over time of studies on teacher acceptance attitudes.

3.1.2 Global distribution

Among the top ten countries in terms of publications, the United States leads with 102 papers, accounting for 17.77% of the total output, followed by Australia, Spain, China, and Canada. Countries with a centrality value exceeding 0.1 are considered key players, indicating significant influence and extensive international collaboration in this field. The top five countries by centrality are Australia (0.34), the United States (0.30), England (0.13), China (0.10), with South Africa (0.09) and Spain (0.09) tied for fifth place, as shown in Table 1 and Figure 2. This distribution is closely linked to the historical development of research in this domain within different countries. The evolution of inclusive education in the United States dates back to the 1970s, notably marked by the passage of the *Education for All Handicapped Children Act* in 1975 by Congress. This legislation laid the foundational framework for mainstream education by advocating for the inclusion of disabled students in general classrooms. In the early 21st century, the United States embarked on a second wave of the inclusive education movement, further emphasizing educational equity, quality, and the focus on students' individual learning needs and personal development.

No.	Countries	Publication Volume	Centrality
1	USA	102	0.3
2	AUSTRALIA	84	0.34
3	SPAIN	56	0.09
4	CHINA	45	0.1
5	CANADA	39	0.04
6	ENGLAND	39	0.13
7	GERMANY	37	0.08
8	SOUTH AFRICA	34	0.09
9	FINLAND	20	0.06
10	NORWAY	19	0.07



Figure 2: Network collaboration map by country.

3.1.3 Institutional distribution

Among the top ten institutions by publication count, Monash University ranks first with 33 papers, followed by The Education University of Hong Kong, North West University (South Africa), University of Jyväskylä, University of Groningen, and University of Vienna, among others. Monash University's 33 publications predominantly investigate pre-service teacher acceptance attitudes. Except for the top three universities, with centralities of 0.02, 0.01, and 0.01, all others have a centrality of 0, indicating lower influence (see Table 2). Overall, higher education institutions serve as the core driving force in research on teacher acceptance attitudes, utilizing scientific methodologies to advance this field and guide educational practice further.

No.	Institutions	Publication Volume	Centrality
1	Monash University	33	0.02
2	Education University of Hong Kong	17	0.01
3	North West University - South Africa	15	0.01
4	University of Jyväskylä	9	0
5	University of Groningen	8	0
6	University of Vienna	8	0
7	Beijing Normal University	7	0
8	Universidad de Extremadura	6	0
9	University of Granada	6	0
10	University of South Africa	6	0

3.1.4 Author distribution

Based on publication volume, researchers are ranked in descending order, as shown in Figure 3. Sharma, Umesh leads with the highest number of publications at 13, focusing primarily on the training and current status of pre-service teacher acceptance attitudes across various countries. Followed by Susanne Schwab who has published seven papers, mainly on teachers' attitudes towards students with special needs and the development of measurement tools. Agyei-Okyere Elvis, Opoku Maxwell Peprah, and Chris Forlin each have six publications, covering topics such as teacher acceptance attitudes toward children with Down syndrome and autism, the influence of demographic variables, and pre-service teacher acceptance attitudes. An analysis of the author collaboration network, depicted in Figure 4, reveals that Sharma, Umesh and Forlin, Chris form the largest collaboration cluster. However, overall connectivity among authors is limited, with few stable collaborative groups established. Moving forward, encouraging more prominent research teams to engage in studies on teacher acceptance attitudes and fostering academic collaboration would greatly enhance the breadth and depth of research in this field. 35.7% of respondents needed self-actualization media to channel their abilities and develop their potential,

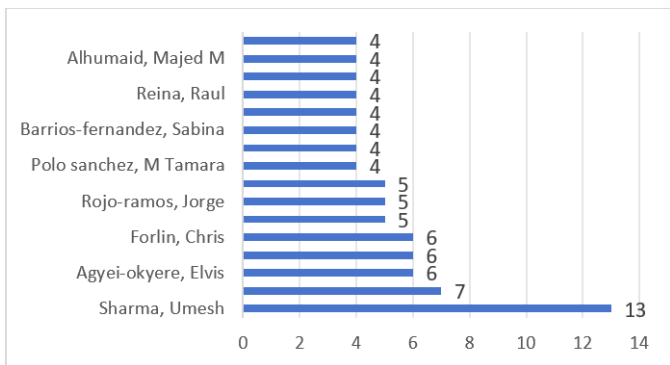


Figure 3: Top 10 Authors by publication volume.



Figure 4: Author collaboration network.

Table 3: High-Frequency and high-centrality keywords					
No.	Keyword	Frequency	No.	Keyword	Centrality
1	inclusive education	305	1	children	0.16
2	children	153	2	education	0.11
3	disability	142	3	special educational needs	0.11
4	education	87	4	disability	0.1
5	self efficacy	75	5	perceptions	0.1
6	perceptions	68	6	beliefs	0.1
7	preservice teachers	63	7	preservice teachers	0.09
8	beliefs	59	8	efficacy	0.08
9	special educational needs	53	9	sentiments	0.08
10	needs	51	10	schools	0.07

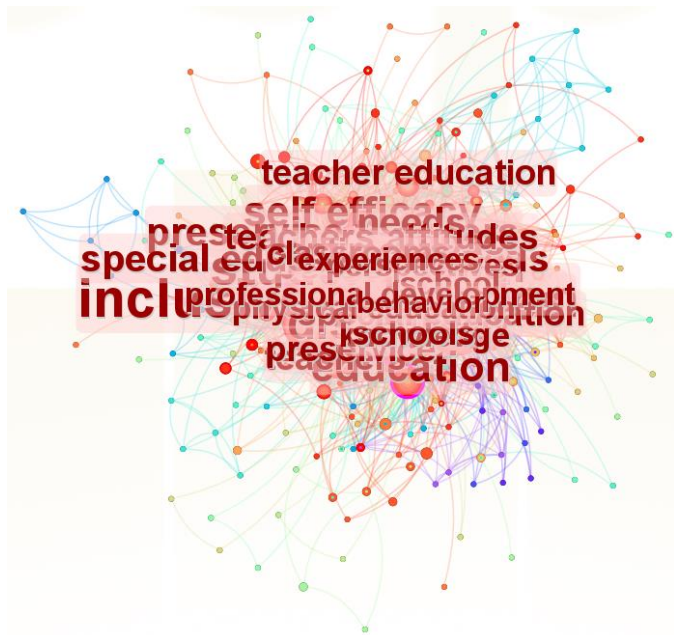


Figure 5: High-frequency keyword map.

3.2 Author distribution

To examine research hotspots in the field of teacher acceptance attitudes, the author utilized Citespace software for both keyword frequency analysis and clustering of high-frequency keywords.

3.2.1 Keyword frequency analysis

As shown in Table 3 and Figure 5, after excluding search-related keywords ("teacher", "acceptance attitude", "student", etc.), the top five keywords by frequency are: inclusive education (305), children (153), disability (142), education (87), and self-efficacy (75). These results suggest that the primary research hotspots in this field focus on teachers' acceptance of children with disabilities within the educational context and the enhancement of teachers' self-efficacy. In terms of centrality data, again excluding search-related keywords ("teacher", "acceptance attitude", "student", etc.), the top five keywords by centrality are: children (0.16), education (0.11), special educational needs (0.11), disability (0.10), and cognition (0.10). A higher centrality score indicates a stronger intermediary role in the knowledge network, highlighting that this field also emphasizes teachers' perspectives on students with special educational needs. Figure 5 provides a visual representation of these findings.

3.2.2 Clustering analysis of high-frequency keywords

To gain deeper insights into research hotspots in this domain, a clustering analysis of high-frequency keywords was conducted (see Figure 6). The results reveal a modularity value (Q value) of 0.336 and an average silhouette value (S value) of 0.663. According to a study, an S value greater than 0.3 indicates significant clustering results. The clustering analysis of research on teacher acceptance attitudes is both significant and satisfactory. Table 4 further illustrates the hot topics in this research area.

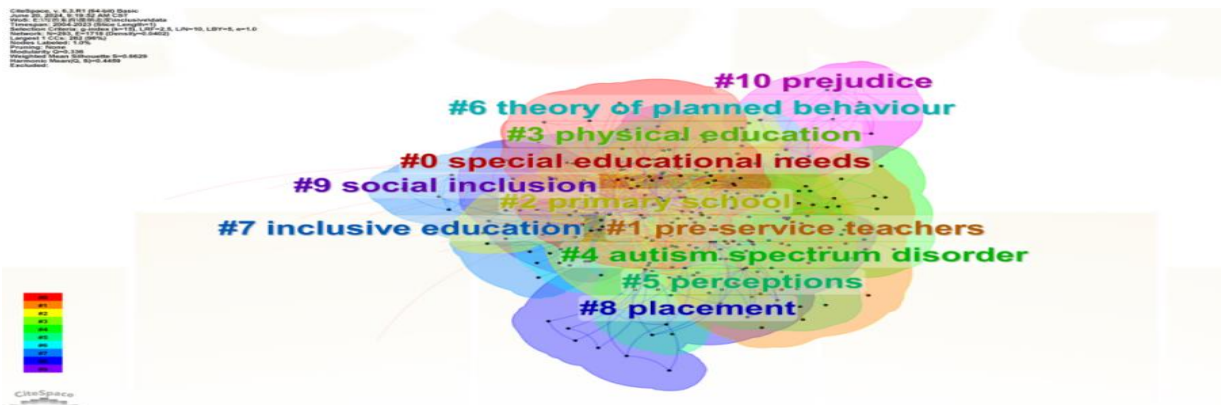


Figure 6: High-frequency keywords clustering analysis.

Table 4: Keyword clustering results.

No.	Cluster Name	Main Keywords	Silhouette Value
0	special educational needs	inclusive education; teachers self-efficacy; cooperative learning; student teachers attitudes; high school special educational needs; teacher efficacy; general teachers; mainstream education; parent-teacher interactions	0.680
1	pre-service teachers	inclusive education; teacher attitudes; differentiated instruction; teacher profiles; teacher preparation pre-service teachers; content analysis; teacher thinking; narrative research; empathy-based stories	0.596
2	primary school	inclusive education; saudi arabia; special education teachers; in-service teachers; inclusive pedagogy primary school; pre-service teachers; teacher training; education policy; secondary school teacher	0.555
3	physical education	physical education; inclusive education; least restrictive environment; general education teachers; professional learning special educational needs; inclusive physical education; teacher education; osteogenesis imperfecta; cultural factors	0.633
4	autism spectrum disorder	inclusive education; teacher education; qualitative research; least restrictive environment; general education teachers special education; autism spectrum disorder; teacher attitude; social stigma; teacher knowledge	0.606
5	perception	inclusive education; professional development; learning difficulties; physical education; special education school special educational needs; professional learning; continuing professional development; inclusive education teachers; social support	0.673
6	theory of planned behaviour	inclusive education; pre-service teachers; teacher attitudes; pre-school teachers; pre-service training teacher preparation; early childhood education; mainstream teachers; professional development; stem education	0.709
7	inclusive education	inclusive education; teacher training; turkish elementary schools; visual impairment; course reform special educational needs; attitude questionnaire; mokken scale analysis; professional learning; course design	0.568
8	placement	inclusive education; special needs; filipino students; character strengths; autism spectrum disorder children; attitudes; teachers; classrooms; students	0.859
9	social inclusion	inclusive education; special educational needs; validation; events; needs autism spectrum disorder; special education; pre-service teachers; pupils; disability	0.762
10	prejudice	responsive pedagogy; minority-ethnic parents; parenting approaches; inclusive teaching; public schools attitude measurement; special educational needs; inclusive education; public schools; inclusive physical education	0.971

Category #0, as shown, is the largest group, encompassing 36 sources. This category includes keywords such as inclusive education, teacher self-efficacy, cooperative learning, high school/special educational needs, mainstreaming, and parent-teacher interactions. It primarily addresses educational support for students with special educational needs, teachers' attitudes and practices, the implementation of relevant policies, and students' experiences within the educational environment. Additionally, it covers topics like the assessment of students' special educational needs, the impact of teacher training on instructional practices, and the support that school environments provide for students' learning and development (de Oliveira et al., 2023; Slowik et al., 2023; Hue, 2012).

Category #1, the second largest group, encompasses 36 sources. It includes keywords such as inclusive education, teacher attitudes, differentiated instruction, pre-service teacher preparation, teacher reflection, and narrative research. This category primarily explores how pre-service teachers' attitudes often shift positively through training and practice, evolving from initial uncertainty or negativity to strong support for special education. Factors such as personal background, training experiences, and practical involvement influence their attitudes, beliefs, and practices. For instance, teachers with a background in special education or related practical experience tend to be more receptive to the ideas and methods of special education (Lancaster and Bain, 2010; Ahsan et al., 2012; Lindner et al., 2023; McHatton and Parker, 2013).

Category #2, the third largest group, covers 33 sources. It includes keywords such as inclusive education, studies in Saudi Arabia, special education teachers, in-service teachers, inclusive pedagogy, primary school, pre-service teachers, teacher training, and education policy. This category primarily examines the role and positioning of primary school teachers in special education and how they address students' special educational needs. It also explores the impact of the primary school environment, including facilities, resource allocation, and school culture, on students with special educational needs (Ahmmmed et al., 2014; Donath et al., 2023; Lindner et al., 2023).

Category #3, the fourth largest group, encompasses 32 sources. It includes keywords such as inclusive physical education, inclusive education, least restrictive environment, general education teachers, professional learning, special educational needs, teacher education, and cultural factors. This category primarily explores the attitudes and perceptions of physical education teachers toward students with special educational needs and how these attitudes influence teaching practices. It analyzes student participation in physical education, including engagement levels, enthusiasm, and outcomes (Wang et al., 2015; Tarantino and Neville, 2023; Coates, 2012).

Category #4, the fifth largest group, comprises 28 sources focusing on inclusive education, teacher education, qualitative research, least restrictive environment, general education teachers, special education, autism spectrum disorder, teacher attitudes, social stigma, and teacher expertise. This category mainly analyzes the developmental progress of students with autism spectrum disorder in educational settings, including language abilities, social skills, and cognitive development. It underscores the role of teachers in ASD education, emphasizing enhanced teacher training, acceptance of children with autism, and avoiding stigmatization. Elevating teachers' professional skills and teaching capabilities is crucial for advancing ASD education (Segall and Campbell, 2012; Latorre-Coscolluela et al., 2022; Han and Cumming, 2024).

Category #5, the sixth largest group, encompasses 25 sources, including keywords such as inclusive education, professional development, learning difficulties, physical education, special education schools, special educational needs, inclusive teachers, and social support. It primarily explores teachers' perceptions and views of students with special educational needs, including their abilities, needs, and behaviors. There are notable differences between teachers' and students' perceptions; teachers often focus on educational needs and development potential, while students are more concerned with their status and feelings within school and society (de Oliveira et al., 2023; Devi and Ganguly, 2024).

Category #6, the seventh largest group, includes 23 sources focusing on inclusive education, pre-service teachers, teacher attitudes, pre-school teachers, pre-service training, teacher preparation, early childhood education, mainstream teachers, professional development, and STEM education. This category examines interventions based on the Theory of Planned Behavior and their impact on teachers' attitudes and behaviors. It explores how training and educational interventions can enhance teachers' understanding and attitudes toward inclusive education, increasing their willingness and capacity to implement it (Opoku et al., 2021a; Opoku et al., 2021b; MacFarlane and Woolfson, 2013).

Category #7, the eighth largest group, includes 21 sources with keywords such as inclusive education, teacher training, Turkish elementary schools, visual impairment, course reform, special educational needs, attitude questionnaires, Mokken scale analysis, professional learning, and course design. It primarily explores course reform and design in inclusive education and the development of research tools (Li and Cheung, 2021; Lindner et al., 2023).

Category #8, the ninth largest group, encompasses 20 sources with keywords such as inclusive education, special needs, Filipino students, character strengths, autism spectrum disorder, and teacher attitudes. It

primarily evaluates the impact of different placement models on the learning outcomes, social skills, and mental health of students with special educational needs. It explores how to optimize placement decisions to enhance their effectiveness (Zweers et al., 2019; Maher and Morley, 2020).

Category #9, the tenth largest group, comprises 19 sources with keywords such as inclusive education, special educational needs, autism spectrum disorder, pre-service teachers, and disability. It primarily discusses how societal attitudes towards students with special educational needs are gradually improving, yet some discrimination and prejudice persist. Therefore, it emphasizes the need to enhance educational awareness and understanding to foster a more inclusive and supportive social environment (Lindsay et al., 2013; Fine-Davis and Faas, 2014; Huber et al., 2020).

Category #10, the eleventh largest group, consists of 9 sources featuring keywords such as responsive pedagogy, minority-ethnic parents, parenting approaches, inclusive teaching, public schools, attitude measurement, special educational needs, and inclusive physical education. It primarily examines the persistent prevalence of prejudice against students with special educational needs, which adversely affects their learning and development. Educational campaigns, social interventions, and policy-making can effectively mitigate prejudice and enhance societal awareness and understanding, fostering a more inclusive and supportive social environment (Markova et al., 2016; Krischler and Pit-ten Cate, 2020).

These clusters indicate that research on teacher acceptance attitudes can be divided into 11 categories, each focusing on distinct themes such as pre-service teachers' attitude shifts, primary school teachers' roles, physical education teachers' attitudes and practices concerning students with special needs, acceptance of autistic students, differences in perceptions between teachers and students regarding special needs, planned behavior-based interventions, course reform and tool development, evaluations of placement models for special needs students, improvements in societal attitudes, and strategies to reduce prejudice. Based on this cluster analysis, six overarching research themes are integrated (as shown in Figure 7): special educational needs, pre-service teachers, inclusive education, autism spectrum disorder, course design, and social attitude.

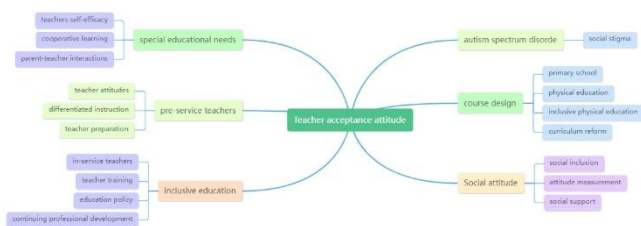


Figure 7: Mind map of the six major research themes on teacher acceptance attitude.

3.2.3 Evolution and development process of research

To examine the progression of research on teacher acceptance attitudes, the author utilized Citespace software to conduct a burst term analysis and a timeline map analysis. According to Figure 8, from 2004 to 2023, there are 12 prominent terms related to the study of teacher acceptance attitudes. Notably, terms with a burst duration longer than three years include inclusive students, perspectives, special educational needs, teacher attitudes, teacher training, teacher efficacy, needs, professional development, and predictive factors. The timeline map analysis further refines these terms (as seen in Figure 9) and reveals the developmental trend of research on teacher acceptance attitudes, which broadly falls into three stages: (1) From 2004 to 2011, this period marked the initial exploration stage of research on teacher acceptance attitudes, focusing primarily on the impact of inclusive education by pre-service teachers on students with special needs, corresponding to clusters #1, #5, #7, and #8. (2) From 2012 to 2019, this phase represented the growth period for research on teacher acceptance attitudes, primarily exploring the special educational needs of students in physical education and research on teachers' self-efficacy, corresponding to clusters #0, #3, #6, #9, and #10. (3) From 2020 to 2023, this period was the flourishing stage of research on teacher acceptance attitudes, examining the influence of teachers' attitudes towards students with special needs across different countries and educational levels (kindergarten, primary, secondary, and higher education), corresponding to clusters #2 and #4.

Based on the findings from the burst term and timeline analysis, the following projections can be made: Firstly, future research in this field may

delve more deeply into the factors influencing teacher acceptance attitudes, such as the specific impacts of whether students have disabilities, their academic performance, mental health, and self-awareness. Secondly, in terms of research methods, there might be an increased use of empirical studies, longitudinal research, and neuroscience. This field will likely see closer intersections with disciplines like psychology, sociology, and brain science, employing a multidisciplinary approach to comprehensively explain the mechanisms and principles of these influences. Thirdly, there will be further integration of longitudinal tracking and cross-sectional analysis. This includes exploring the adaptation and development of individuals from kindergarten through to post-university life, examining how the overall school atmosphere and family environment interact with teacher acceptance attitudes, with a particular focus on the long-term impact of teacher acceptance on students with special needs. Thus, the research findings will be applied more directly to areas such as teacher training and education policy-making, to better support and accept students with learning difficulties in educational practice.

Top 12 Keywords with the Strongest Citation Bursts

Keywords	Year	Strength	Begin	End	2004 - 2023
included students	2004	4.14	2004	2012	
sentiments	2010	3.49	2010	2017	
special educational needs	2012	8.44	2012	2016	
teacher attitudes	2012	3.9	2012	2016	
student teachers	2012	2.98	2012	2013	
pupils	2012	2.65	2012	2014	
preparing teachers	2013	3.34	2013	2018	
teacher efficacy	2016	2.64	2016	2019	
needs	2012	6.66	2018	2020	
professional development	2018	3.53	2018	2021	
predictors	2019	2.73	2019	2021	
students with disabilities	2015	2.7	2021	2023	

Figure 8: Analysis of burst terms.

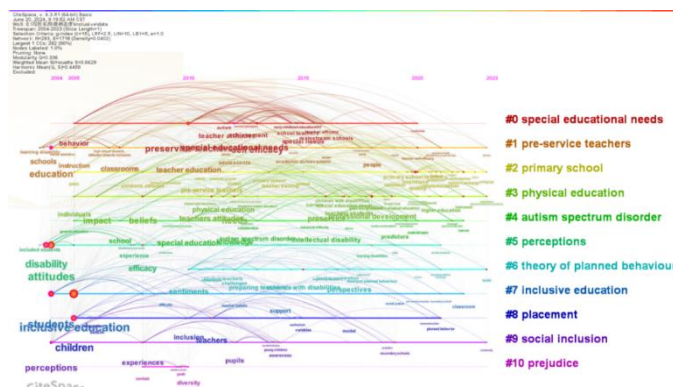


Figure 9: Sequence map.

4. RESEARCH OUTLOOK

This study utilizes Citespace software to visually analyze 574 articles on teacher acceptance attitudes, published in the SSCI/SCI on the Web of Science from 2004 to 2023. It outlines the basic overview of research in this field over two decades, explores relevant research hotspots, and predicts developmental trends. Research on teacher acceptance attitudes in various countries has begun to establish a development model and support mechanism unique to each region. As national policies and regulations are continuously refined, this field is becoming a significant focus for both theoretical and practical research. However, research in this area is still relatively lacking in China. Currently, China is committed to developing equitable and high-quality education, and the advancement of inclusive education should garner attention from relevant personnel, with teacher acceptance attitudes providing a strong leverage point for progress. Based on these insights, the author suggests that future research should focus on the following five areas:

4.1 Policy Implementation and Support System Construction

Inclusive education policies could be developed and implemented from the top down, with an emphasis on formulating and enacting policies centered on teacher acceptance attitudes. Attention to the impact on schools, teachers, and students, along with strategies for practical implementation, may reveal critical insights. The development of teachers' capacities for acceptance education remains essential, including enhancements in teacher education course design, professional development support systems, and ongoing training needs. A supportive system for teacher

acceptance attitudes would likely benefit from the coordinated efforts of government, social organizations, and communities. Moreover, the influence of teacher acceptance attitudes on the quality of special education support systems, alongside further investigation into core competencies for special education and evaluation mechanisms for inclusive education teacher preparation, merits close examination (Li et al., 2022).

4.2 International Comparison and Collaboration

Teacher acceptance attitudes represent a global concern, suggesting the value of strengthened international comparisons and collaborations in future research. While international studies often provide broad perspectives on foreign policies, domestic research has typically emphasized current descriptions and theoretical analyses, with fewer practical case studies. Due to variances in social contexts, direct application of foreign findings may be challenging; thus, additional micro-level and specialized case studies could offer valuable guidance for China's research and practical applications (Saloviita and Schaffus, 2016).

4.3 Innovative Research Methods and Course Reform

Technological tools, such as online learning platforms, present opportunities for supporting research on teacher acceptance attitudes, particularly in accommodating diverse student needs. Advancements in research methodologies and assessment tools, including mixed methods, action research, and participatory research, could enhance study rigor. The development of localized teacher acceptance attitude assessment tools, combined with models and indicators based on both qualitative and quantitative analyses, may yield more comprehensive evaluations. Inclusive education course reform studies could further support specialized educational needs, while development and refinement of research tools (such as Mokken scale) might provide foundational support for special education research and practice (de Boer et al., 2012; Lancaster and Bain, 2020).

4.4 Teacher Attitudes and Professional Development

Research on the mechanisms influencing different teacher attitudes, beliefs, and practices, potentially guided by theories such as the Theory of Planned Behavior, could help in shaping effective interventions (Wang et al., 2015; Opoku et al., 2021a; Opoku et al., 2021b; MacFarlane and Woolfson, 2013). Enhancing teachers' understanding and readiness to implement inclusive education, strengthening competencies, and countering stigma towards students with special needs, including those with autism spectrum disorders, would likely advance acceptance attitudes among teachers (Segall and Campbell, 2012; Latorre-Cosculluela et al., 2022).

4.5 Social Cognition and Integration

Efforts to strengthen educational promotion and social research might contribute to reducing discrimination and prejudice toward students with special educational needs. An inclusive, welcoming social environment cultivated through policy and social interventions could better facilitate student integration into society. Evaluations of various placement models regarding students' learning, social interactions, and psychological well-being may offer insights that would inform placement decisions (Hein et al., 2011). In conclusion, this study employs Citespace for a visual analysis of literature on teacher acceptance attitudes sourced from the Web of Science database, summarizing research developments and focal points from 2004 to 2023, with the aim of providing a reference framework for future research.

5. CONCLUSION

From 2004 to 2023, eleven research hotspots emerged concerning teacher acceptance attitudes, including "special educational needs", "pre-service teachers", "primary education", "physical education", and "autism". The period from 2004 to 2011 marked the initial exploration phase, focusing on the impact of inclusive education on pre-service teachers and special students. Between 2012 and 2019, a growth phase ensued, primarily examining how physical education addressed the needs of special students and teachers' self-efficacy. The years 2020 to 2023 constituted a flourishing phase, emphasizing the influence of teacher acceptance attitudes in various countries and educational stages on special students. Future research may delve deeper into factors affecting teachers' professional development and acceptance attitudes, such as the impacts on students with disabilities, academic performance, mental health, and self-perception.

There are still some limitations in this study. Firstly, CiteSpace's analytical capabilities for other English databases are not fully developed, leading to potential literature omissions, as non-SSCI and SCI papers were excluded. Although CiteSpace can extract the evolution and hotspots within a research field, results may vary if other bibliometric software is employed, potentially introducing prejudice in predicting themes and trends. Future research should aim to conduct empirical interventions in this field to confirm the findings and broaden the scope of related studies.

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