

# Research Hotspot and Trends in Pre-Service Training for Inclusive Preschool Teachers in China — A Bibliometric Analysis Based on Cite Space

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## ABSTRACT

The purpose of this paper is to help better understand pre-service training for inclusive preschool teachers in China; to grasp the research context, evolution research hotspots and trends of pre-service training for inclusive preschool teachers in China. In this paper, we use the scientific quantitative knowledge graph method and using Cite Space visualization software to analyze 111 studies from 2009-2023 in CNKI (China National Knowledge Infrastructure) databases, Such as literature publication trend graph and analysis, keyword co-occurrence analysis, keyword clustering analysis, research hotspot analysis and research prospects. The results show that the current hot research on pre-service training for inclusive education teachers is mainly focused on: pre-service training for inclusive education literacy of preschool teachers (it includes the research of the concept, connotation, status quo and pre-service training of preschool inclusive education teachers); pre-service talent cultivation models for inclusive early childhood education and design of inclusive early childhood education course; future research on inclusive education for pre-service preschool teachers can actively explore three aspects: First, according to the China's policy requirements for the training of inclusive teachers in colleges and universities, the preschool education major must clarify the pre-service training plan for preschool inclusive teachers. Secondly, it should analyze the social needs for preschool inclusive teachers and develop and design pre-service preschool inclusive education courses. Finally, pay attention to pre-service practice inclusive education and improve the pre-school inclusive education pre-service curriculum system.

**Keywords:** Pre-Service Training; Preschool Inclusive Teacher; Research hotspots; Cite Space

## INTRODUCTION

The Compulsory Education Law of the People's Republic of China Which was published in 1986, stipulated that "local people's governments at all levels shall establish special education schools (classes) for the blind, deaf-dumb, and mentally retarded children and adolescents" (Tang, 2021)). The Ministry of Education of the People's Republic of China (MOE) officially made LRC a policy intended to include children with disabilities in regular classes (Xiao, 2005).

In 1994, the Regulations on Education for Persons with Disabilities of the People's Republic of China proposed using laws to protect the right of disabled children and adolescents to education, and to ensure that

every child with special education needs (SEN) to LRC. In the same year, the concept of inclusive education was officially introduced at the World Conference on Special Education held in Salamanca, Spain (Williams & Vidmar, 2021). It gradually became a strategic goal in the educational development of many countries and served as a significant theoretical foundation for the formulation of related educational policies (W. Y. Li, 2011).

Inclusive education is defined as “the process of addressing and responding to the diversity of needs of all learners by increasing participation in learning, cultures, and communities, and reducing exclusion within and from education. It involves changes and modifications in content, approaches, structures, and strategies, with a common vision that covers all children of the appropriate age range and a conviction that it is the responsibility of the regular system to educate all children” (UNESCO, 2005)

Preschool inclusive education is the starting point of inclusive education. Active implementation of preschool inclusive education (PIE) has received sufficient attention from researchers worldwide and it has garnered the support of many countries through the development and implementation of laws and regulations, due to its benefits during early education for children with and without disabilities (Chhabra, Bose, & Chadha, 2018; Yu, 2019).

China also places great importance on the development of inclusive early childhood education. The “Regulations on Education for Persons with Disabilities,” promulgated in 2017, stipulate that children with disabilities have the legal right to have equal access to education. Early childhood education institutions are required by law to admit and provide education to children with disabilities (The State Council, 2017). “The 14th Five-Year Plan for Disability Protection and Development” points out that “general kindergartens should be encouraged to enroll disabled children” (The State Council, 2021).

Article 23 (Special Education) of the latest draft of the People’s Republic of China’s Preschool Education Act issued in June 2023 stipulates that local people’s governments at or above the county level shall, based on the number, type, and distribution of disabled preschool children in their respective regions, coordinate the implementation of various forms of preschool special education and promote inclusive education.

However, as of 2019, the total number of disabled children aged 3-6 in China was about 135900, of which 58600 were in kindergarten with disabilities, and the enrollment rate was only 43.12% (Liang, Song, Chen, Xu, & Wang, 2020). And preschool teachers are the key figures in implementing inclusive preschool education. Therefore, the global trend in inclusive education development demands that preschool educators reevaluate their professional roles to better accommodate it. Countries and regions such as Australia, Sweden, and Slovenia are placing increasing emphasis on pre-service training for preschool educators in inclusive education (Campbell, Gilmore, & Cuskelly, 2003; Engstrand & Roll-Pettersson, 2014; Štemberger & Kiswarday, 2018).

Research has shown that there is a relationship between educators’ preparedness for inclusive education and whether or not they had taken a university course in inclusive education (Zagona, Kurth, & MacFarland, 2017). The cultivation of the ability of general education teachers to educate disabled students in an inclusive environment must start from the pre-service stage. Inclusive education should be understood, valued, and integrated into teachers’ pre-service education.

However, only 19 of 137 Normal Colleges and Universities offered or used to offer compulsory or optional courses of special education for pre-service teachers, accounting for only 13.9%. (H. P. Wang, 2006), Although this phenomenon has improved somewhat in recent years, it still cannot meet the needs of many children with SENs (M. Deng, 2019).

In recent years, many national policies have emphasized the need to strengthen the pre-service training of

inclusive teachers. For example, Opinions on Strengthening the Construction of Special Education Teachers (MOE and other five departments, 2012), Special Education Promotion Plan (2014-2016) (MOE, 2014), and the second Special Education Promotion Plan (2017-2020) (MOE and other six departments, 2017) all clearly state: Encourage and support institutions of higher learning and preschool normal schools (majors) to set up inclusive (special) education courses, train preschool teachers to have the professional knowledge and ability of inclusive (special) education, and even put forward the “special education related content into the teacher qualification examination”.

So, what is the attitude of pre-service teachers towards inclusive education in China in recent years? What professional qualities do inclusive teachers need? What is the state of pre-service training for inclusive teachers? What are the current research hotspots in this field? What is the future trend of research?

By focusing on previous research trends, summarising and reflecting on existing literature, analysing key points and hot topics, effective strategies are formulated; holding significant importance for the current development of inclusive early childhood education.

Against this backdrop, this study utilises the journal literature related to early childhood education indexed by the China National Knowledge Infrastructure (CNKI, [www.cnki.net](http://www.cnki.net)) over the past fifteen years as samples. Using CiteSpace visualization software (J. Li & Chen, 2017), it presents the thematic evolution and focal points of research on pre-service training for inclusive early childhood educators, aiming to predict the future trajectory of pre-service training for these educators and thereby better promote the advancement of inclusive early childhood education.

## **DEFINITION OF CORE CONCEPTS**

### **Preschool inclusive education**

Preschool inclusive education refers to children aged 0-6 and 7 who have special education needs entering regular kindergartens and receiving care and education together with regular children in the kindergarten.

### **Preschool inclusive education teacher**

Preschool inclusive education teachers refer to teachers who can cope with the diverse needs of children, including special educational needs of special children, in ordinary kindergarten classrooms. Such teachers have both the professional quality of ordinary kindergarten teachers and inclusive educational literacy (including inclusive education belief, knowledge, and skills) and can carry out the education work of special children.

### **Pre-service training**

Pre-service training, also known as pre-service education. This study refers to the training of teachers before they formally enter the workplace. Its main educational object is the pre-school education students who are about to become early childhood education. Its main contents include pre-service self-knowledge and evaluation of the time and space environment, the establishment of inclusive education belief, the construction of inclusive education knowledge system and skill structure.

## **METHODOLOGY**

In order to conduct the study, the researcher adapted the methodological framework from C. Zhang and Miao (2022). The methodological framework as presented in Figure 1.

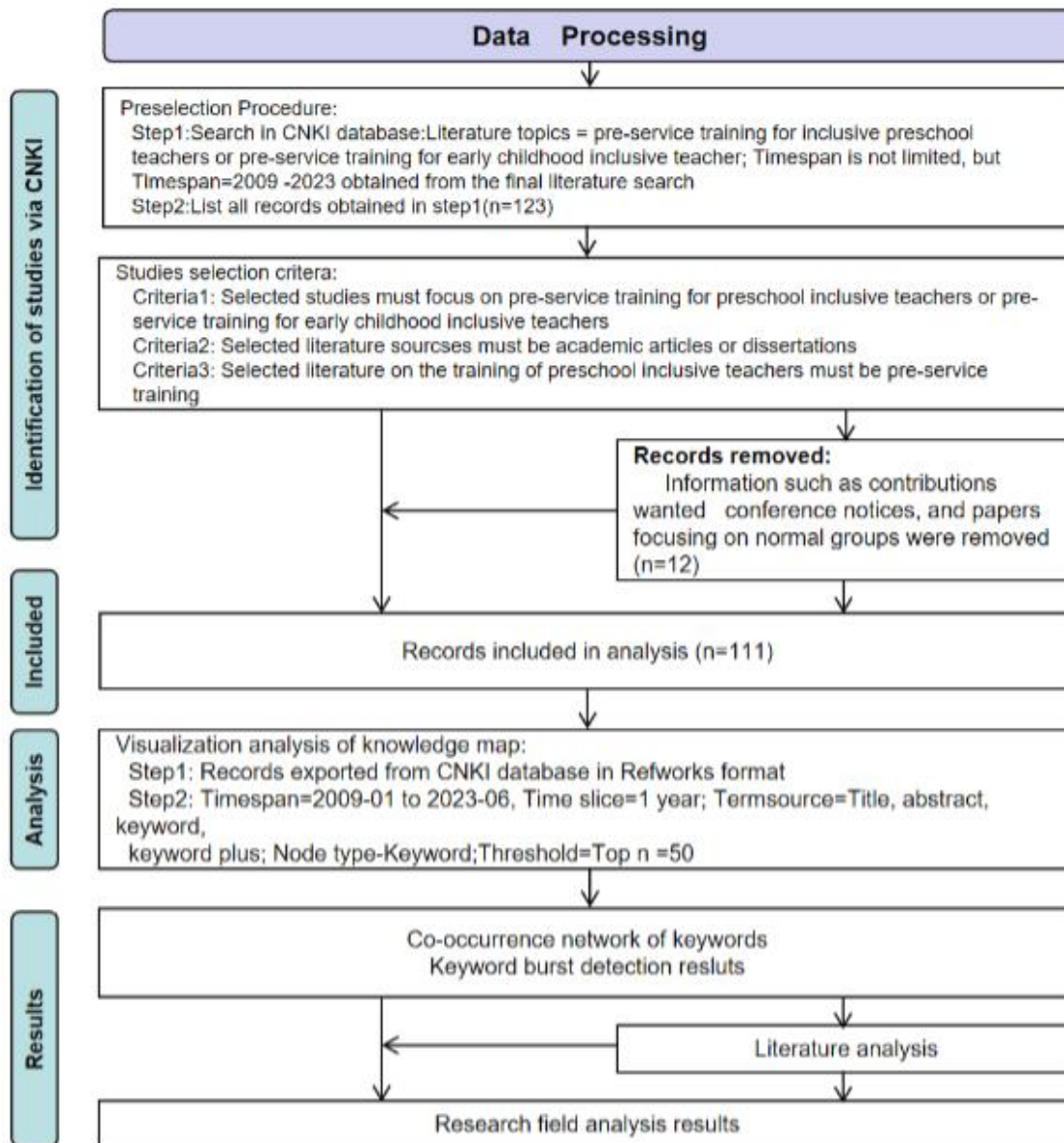


Figure 1. Methodological framework for the current study

### Data source

Data were obtained from the CNKI, the largest full-text database of Chinese journals in China. Using the CNKI’s advanced search function, we entered “pre-service training for inclusive preschool teachers or pre-service training for early childhood inclusive teacher” and selected “literature sources” as the source category.

### Research instrument

This study used Cite Space visualisation software, which was developed by Dr. Chen based on the JAVA language platform, to analyse data samples (Chaomei Chen, 2006). Based on the pathfinder algorithm and co-citation analysis theory, Cite Space has been widely used to examine research highlights and development trends by analysing the literature published in a certain field. It utilises publication trend maps, co-occurrence analysis of keywords, keyword clustering analysis, and keyword burst analysis to analyse the literature materials (Chaomei Chen, 2016; J. Li & Chen, 2017).

## Data analysis

Bibliometric Analysis collected literature online through the CNKI database, which is one of the most comprehensive databases in the China and covers a wide range of topics (Yuping Wang, 2012). The CNKI search results were exported in the Ref works format per Cite Space's input requirements and analysis was performed using Cite Space 6.2. R4 (64-Bit) Basic.

Phase 1: Data identification. In this study, the literature source was limited to pre-service training for inclusive preschool teachers or pre-service training for early childhood inclusive teacher in China, and the study period from January 2009 to June 2023. After removing calls for submission, conference notices, and papers focusing on in-service training, a total of 111 academic papers were selected for the next processing phase.

Phase 2: Data analysis. Firstly, utilizing the CNKI database, a publication trend chart and analysis were conducted. Employing keywords and exclusion criteria, a total of 111 valid articles were identified through the CNKI database. The "Visual Analysis of Selected Results" feature in CNKI was utilized, resulting in the automatic generation of a line graph depicting the publication trend of research literature related to "preschool inclusive teachers pre-service training," as shown in Figure 2. This publication trend chart provides insights into the annual publication volume, wherein an increasing number of published papers each year indicates a growing interest in the field.

Secondly, Cite Space was used for data analysis. First, the time-span is not limited, but the time span=2009 - 2023 obtained from the final literature search; the time slice was set to one year; and the term sources were set to "Title," "Abstract," "Author Keyword (DE)," and "Keyword Plus (ID)." The node type was set as "Keyword," while the threshold was set as "Top n=50." The co-occurrence network of keyword analysis was used to reveal research highlights by detecting high-frequency and high-centrality co-occurrence keywords. As academic publications are summarized and condensed into keywords, high-frequency keywords can be used to represent the research concentration of studies in a specific field (J. Li & Chen, 2017). Centrality of keywords is widely employed to qualify the importance of a node's position, with high-centrality keywords considered important hubs in the network (Yixia, Xin, Kun, & Peng, 2019).

In the network analysis of keyword co-occurrence, it should be noted that because researchers cannot use different terms but express the same meaning, this study will identify keywords, such as 学前全纳教育 (preschool inclusive education) and 早期全纳教育 (preschool inclusive education), and merge them into "preschool inclusive education"; as well as merging "kindergarten teachers", "preschool education teacher", and "preschool educators" into "preschool education teachers". The research development trends were identified using keyword burst analysis. In order to explore research trends, burst words can be used to identify active themes that are receiving unusual attention from researchers at a certain time (Bicheng, Adnan, Harji, & Ravindran, 2023). Finally, the research topics were sorted by combining them with the results of the literature analysis.

## RESULTS

### Literature publication trend graph and analysis

Figure 2 visually presents the trend chart of paper publications. The trend chart provides a macroscopic insight into the research level, development speed, and broad developmental stages of pre-service training for inclusive early childhood educators. By analysing and summarising, this study divides the entire research process into three research stages.

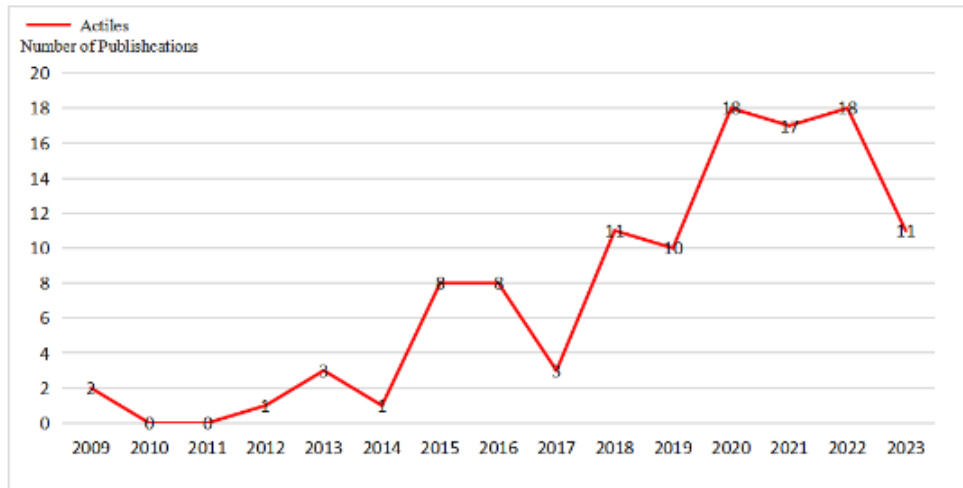


Figure 2: Number of Publications published from 2009 to 2023

**The first stage: Initiation Phase of Research (2009-2014).** During this period, there were a limited number of publications, totaling 6 papers focusing on pre-service training for inclusive early childhood educators. In 2008, the United Nations Educational, Scientific and Cultural Organization (UNESCO) held the 48th International Education Conference in Geneva, Switzerland, under the theme “Inclusive Education: The Way of the Future.” This conference sparked a global enthusiasm for “inclusion”(LEVELS, 2008) Chinese researchers were also prompted by this conference to pay attention to inclusive education at the early childhood stage and to start exploring the pre-service training of inclusive early childhood educators. Therefore, this stage can be characterized as the initiation phase of research, with an overall limited emphasis on pre-service training for inclusive early childhood educators.

**The second stage: Period of Gradual Development (2014-2017).** As depicted in the graph, during this phase, research on pre-service training for inclusive early childhood educators began to increase, although the overall growth was relatively slow. In 2014, the State Council of China endorsed the “Special Education Enhancement Plan (2014-2016),” which called for “actively developing early childhood education and supporting regular kindergartens in creating conditions to accommodate children with special needs” (The State Council, 2014). Simultaneously, it also “encouraged universities to offer special education courses in teacher education programs, fostering teacher candidates’ inclusive education concepts and teaching abilities for integrating disabled students” (The State Council, 2014). These directives raised higher requirements for the competence of inclusive early childhood educators, which might have contributed to the increased research activity from 2014 on wards.

**The third stage: Phase of Heightened Attention (2017-2023).** As depicted in Figure 2, starting from 2017, researchers’ focus on pre-service training for inclusive early childhood educators noticeably increased compared to the preceding stages. This phase coincided with a time when the nation placed significant emphasis on the pre-service training of inclusive early childhood educators, and a series of policies were enacted accordingly.

In 2017, the revised “Regulations on Education for Persons with Disabilities”(The State Council, 2017) and “The Second Phase of Special Education Promotion Program (2017-2020)” (MOE and other six departments, 2017) explicitly encouraged and supported higher education institutions and early childhood teacher training schools (programs) to offer inclusive (special) education courses. These policies aimed to equip early childhood educators with the specialised knowledge and abilities in inclusive (special) education. The policies even proposed the inclusion of special education-related content in teacher qualification examinations. The issuance of these policies reflected the nation’s strong determination to

cultivate a wide range of teacher candidates with a comprehensive understanding of inclusive education, there by enhancing the overall quality of inclusive education development in China (Chen 2019) .

Consequently, since 2017, researchers have placed significant importance on pre-service training for inclusive early childhood education, and the cultivation of inclusive education competence among pre-service early childhood educators has emerged as a prevailing research trend in this field.

### Keyword co-occurrence analysis

The keyword co-occurrence network knowledge map of pre-service training for inclusive early childhood educators in China was generated using Cite Space 6.2 R4 (64-Bit) Basic Software based on literature data from 2009 to June 2023. The time interval was set to 1, and the node type selected was “keywords.” The resulting map comprises 118 nodes (N=185) and 285 edges (E=343). Please refer to Figure 3 for the visualization of the knowledge map.

Figure 3 presents the co-occurrence network of keywords. The size of each keyword node represents the keyword’s frequency, The more frequently the keyword appears, the larger the keyword node and the more attention the topic will receive from researchers.

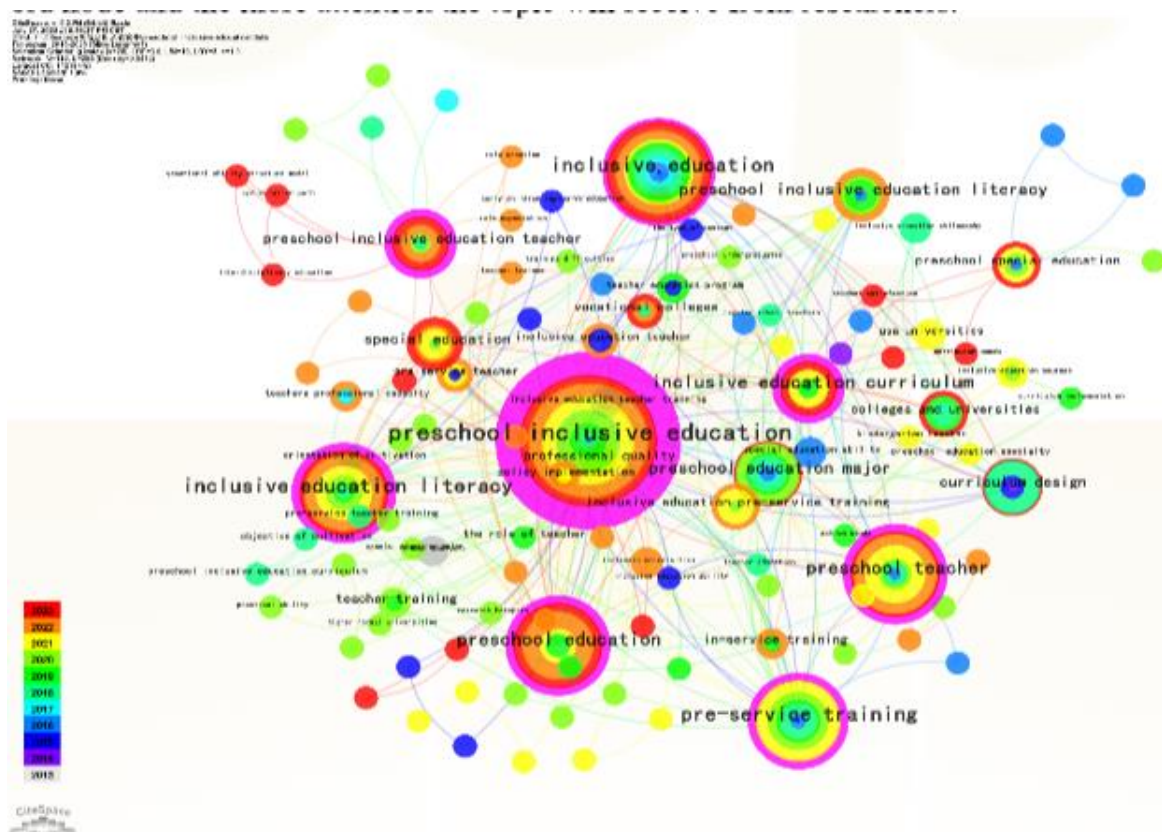


Figure 3. Co-occurrence network of keywords.

As showed in Figure 3, the most significant nodes were “Preschool inclusive education”; “Inclusive education”; “inclusive education literacy”; “preschool teacher”; “preschool education”; “pre-service training”; “inclusive education curriculum”. Preliminary indications suggest that research on pre-service training for inclusive early childhood educators primarily revolves around fostering competencies in inclusive early childhood education, developing inclusive education curriculum, and pre-service training.

Table 1 presents the top 15 keywords with higher frequency and centrality, respectively. Keywords with

both higher frequency and centrality include: “Preschool inclusive education”; “Inclusive education”; “Inclusive education literacy”; “Preschool teacher”; “Preschool education”; “Pre-service training”; “Preschool education major”; “Curriculum design”; “inclusive education curriculum”; “preschool inclusive education literacy”; “preschool inclusive education teacher”; “preschool inclusive education teacher”; “special education”; “preschool special education”; “inclusive education pre-service training”; “colleges and universities”.

Table 1. Top 15 keywords with higher frequency and centrality in the co-occurrence network

Number	Count	Centrality	Year	Keywords
1	43	1.06	2013	preschool inclusive education
2	26	0.2	2013	inclusive education
3	19	0.2	2015	inclusive education literacy
4	18	0.21	2015	preschool teacher
5	16	0.2	2015	preschool education
6	15	0.2	2015	pre-service training
7	12	0.04	2013	preschool education major
8	10	0.02	2013	curriculum design
9	7	0.27	2016	inclusive education curriculum
10	7	0.08	2016	preschool inclusive education literacy
11	7	0.23	2017	preschool inclusive education teacher
12	7	0.01	2019	special education
13	5	0.1	2016	preschool special education
14	4	0.07	2020	inclusive education pre-service training
15	4	0.02	2018	colleges and universities

In other words, these keywords have received the most attention in the field, playing the most pivotal role in the field, and constituting the highlights of pre-school training of preschool teachers research in China over the recent 15 years.

### Keyword clustering analysis

For the purpose of assessing the rendering impact of the map, Cite Space offers two indexes that are module value (Q value) and average contour value (S value). These are based on the network structure and the clarity of the clustering.

In general, as suggested Y. Chen, Chen, Liu, Hu, and Wang (2015) to determine the clustering is significant; the Q value should exceed 0.3, and when the Q value reached 0.5, it becoming reasonable. And for the S value, the clustering is significant, efficient and persuasive, when the S value exceeds 0.7.

For this study, the keywords in CNKI were clustered and the Q value was 0.5333 while the S value was 0.8433. This indicating that the clustering structure was significant and reasonable (Chaomei Chen, 2006).

Using Cite Space 6.2 R4 (64-Bit) Basic Software, the “Cluster” command was employed to conduct a



cluster analysis of keywords in the field of pre-service training for inclusive preschool educators (as shown in Figure 4). The keywords were divided into six categories through a cluster analysis, #0 for preschool inclusive education; #1 for preschool special education, #2 for pre-service training, #3 for inclusive education literacy, #4 for preschool education major, #5 preschool inclusive education teacher.

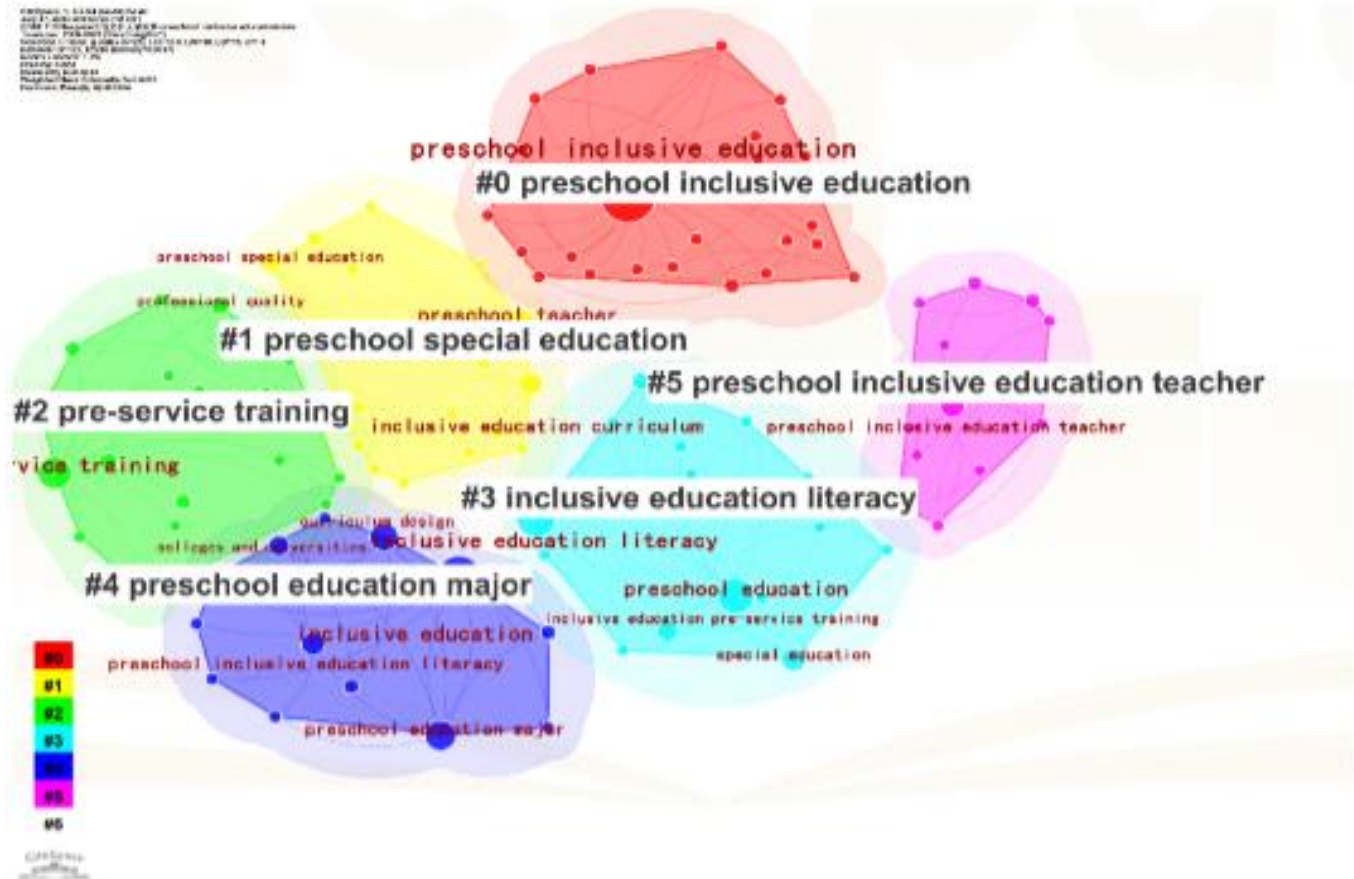


Figure 4. Network map of keyword clustering

### Keyword burst analysis

Cite Space can utilize the burst detection algorithm to track the dynamic changes of salient terms in titles, abstracts, and keywords of literature. Through keyword burst analysis, it is possible to predict the academic research frontiers and future development trends of a particular research field in a scientifically and reasonable manner (Kleinberg, 2002).

In a burst analysis graph, Begin and End represent the start and end times of the keyword burst during the study period. Strength represents the burst intensity; the red line reflects the duration of the keyword burst, and the blue line is the time slice in a year.

From the perspective of the burst keywords in the CNKI literature in Figure 5, the “preschool special education teacher” have duration of 4 years, while the three burst words “curriculum design”, “preschool education major”, “policy implementation” and “pre-service teacher” have duration of 3 years, Regarding blast intensity, “curriculum design”, “preschool special education teacher”, “preschool education major”, “inclusive education”, “colleges and universities” and “inclusive education teacher training” have burst intensities of more than 1.

### Top 12 Keywords with the Strongest Citation Bursts

Keywords	Year	Strength	Begin	End	2009 - 2023
preschool special education teacher	2009	1.35	2009	2012	
curriculum design	2013	2.57	2013	2015	
inclusive education teacher training	2015	1.09	2015	2016	
pre-service training	2015	0.51	2015	2016	
preschool education major	2013	1.72	2016	2018	
inclusive education	2013	1.64	2016	2017	
colleges and universities	2018	1.32	2018	2019	
teacher training	2019	0.92	2019	2020	
inclusive education pre-service training	2020	0.94	2020	2021	
inclusive education courses	2020	0.81	2020	2021	
policy implementation	2021	0.76	2021	2023	
pre-service teacher	2015	0.44	2021	2023	

Figure 5. Top 12 keywords with the strongest citation bursts in the CNKI

Based on the three-stage analysis of the publication trend in Figure 5, the initial phase of research (2009-2014) is characterized by prominent keywords such as “preschool special education teacher” and “curriculum design.” This highlights the emerging focus on special education within the preschool education stage, indicating the recognition that specialised preschool special education teachers are essential to address the learning needs of children with special education requirements in mainstream kindergartens.

In 2012, the “Opinions on Strengthening the Construction of Special Education Teacher Workforce” issued by the Ministry of Education and five other departments proposed to “support normal universities and other higher education institutions in widely offering special education courses in teacher education programs, cultivating pre-service teachers with the educational and instructional capacity to guide disabled students in inclusive classroom settings”(MOE and other five departments, 2012). This could be a significant factor contributing to the prominence of these two keywords.

During the Period of Gradual Development (2014-2017) the primary research hotspots included keywords such as “inclusive education teacher training,” “pre-service training,” “preschool education major,” and “inclusive education.” These keywords indicate a heightened focus on fostering inclusive education competencies among pre-service early childhood educators.

During the highly focused period (2018-2023), concentrated keywords included “colleges and universities,” “teacher training,” “inclusive education pre-service training,” “inclusive education courses,” “policy implementation,” and “pre-service teacher.” This burst indicates that research on pre-service inclusive teacher education has been concentrated on the development of inclusive education courses for preschool in higher education institutions, the implementation of policies related to inclusive teacher education, and pre-service training for inclusive preschool teachers.

In summary, as depicted in Figure 5, it can be observed that since 2020, “inclusive education pre-service training,” “inclusive education course,” “policy implementation,” and “pre-service teacher” have emerged

as the latest research focal points. Furthermore, as of 2023, research on “pre-service teacher” is still ongoing.

## RESEARCH HOTSPOT

Drawing upon a comprehensive analysis of trends in literature publication, keyword co-occurrence, keyword clustering, and keyword burst, as well as a thorough review and comprehension of the extensive literature in this field, it can be concluded that the prominent research themes in pre-service training for inclusive preschool teachers in China are centered around three main aspects: fostering inclusive education competency among preschool teachers, talent cultivation models, and the design of inclusive education curricula. The research themes and key topics are illustrated in Table 2.

Table 2. Research fields and major keywords related to special education in China, 2009–2023.

Research fields	Major keywords
Pre-service Training for Inclusive Education Literacy of Preschool Teachers	Professional Development of Preschool Teachers, Inclusive Early Childhood Education Educators, Inclusive Early Childhood Education Literacy, Inclusive Education Attitude, Inclusive Education Philosophy, Inclusive Education Practice, Educational and Teaching Abilities
Pre-service Talent Cultivation Models for Preschool Inclusive Education	Talent Cultivation Models, Development of Early Childhood Education Programs, Cultivation Schemes, Professional Standards
Design of Preschool Inclusive Education Course	Course Objectives, Inclusive Course Content , Education Practice Courses, Inclusive Education Curriculum Framework, Special Education Courses

### Pre-service Training for Inclusive Education Literacy of Preschool Teachers

preschool teachers, inclusive early childhood education educators, pre-service training for inclusive education literacy of preschool teachers, inclusive education attitudes, inclusive education philosophies, inclusive education practices, and educational teaching abilities, among other keywords.

### Research on the concept and connotation of Inclusive Education Literacy of Pre-Service Early Childhood Educators

The cultivation of the inclusive education quality of preschool education majors is the requirement of the development of preschool inclusive education and national laws and regulations (Yuan, 2016). Physical and mental development characteristics, master the teaching methods of inclusive education, and adapt to the needs of inclusive education work (W. Liu & Li, 2023). Preschool inclusive education teacher literacy refers to the inclusive characteristics and qualities of teachers to achieve common progress and effective development of all children in the same field in the teaching context of inclusive education (D. Zhou & Wang, 2017).

Sun and Sun (2018) based on the similarities and differences between “Professional Standards for Preschool Education Teachers (Trial)” and “Professional Standards for Special Education Teachers (Trial)” constructed the connotation of the professionalism of preschool inclusive teachers: including inclusive education professional Concept and ethics of teachers, professional knowledge of inclusive education, and professional skills of inclusive education. Many researchers also hold the same view (Chen 2019; Guo, 2019; Sun & Sun, 2018; Zeng, 2015), and some researchers believe that in addition to the above three aspects, the ability to obtain professional support should also be included (S. Wang, 2021; Wu, 2017).

## **Current Study on Inclusive Education Literacy of Pre-Service Preschool Teachers**

Article 23 (Special Education) of the “Preschool Education Law of the People’s Republic of China” promulgated in August 2023. Local people’s governments at or above the county level shall coordinate the implementation of various forms of education based on the number, type and distribution of disabled preschool children in the region. Preschool special education, promoting inclusive education (MOE, 2023). As of 2019, the total number of disabled children aged 3-6 in my country is about 135,900, of which 58,600 disabled children are in kindergartens, and the admission rate is only 43.12% (Liang et al., 2020). The survey showed that 67.7% of preschool teachers had observed a child with special educational needs in the class, and 32.9% of the surveyed kindergarten classes had children with special needs (Cui, 2016). It can be seen that the development of inclusive preschool education is not only a realistic demand for the development of special children, but also an inevitable trend in the development of preschool education.

In recent years, my country has successively issued educational policies related to preschool inclusive education, and the research on preschool inclusive education has gradually received attention. However, teachers, who are the main force of inclusive education, face many problems. They generally lack special education professional background. There are deficiencies in educational concepts, characteristics of physical and mental development of children with special needs, teaching strategies for inclusive education, and individualized training, making it difficult to carry out high-level inclusive education and unable to meet the professional and complex needs of preschool inclusive education (S. Wang, 2021).

The overall level, attitude, skills, knowledge, and ability to obtain support for preschool teachers in my country are not ideal (Wu, 2017). The early inclusive education literacy level of college students majoring in preschool education is also average, and the development of each dimension is unbalanced: the concept of inclusive education and the level of teacher ethics are relatively high, but the level of inclusive education knowledge and skills is relatively low. The understanding of inclusive education is not deep enough (W. Liu & Li, 2023).

The cultivation of inclusive education literacy for pre-school and pre-service teachers faces difficulties such as insufficient market demand, unclear training goals, imperfect systems, and lack of resources (Sun & Sun, 2018; C. Zhou, 2017). Ordinary preschool educators have little understanding of the characteristics of special children, low acceptance of special children, and insufficient professional knowledge of inclusive education (H. Chen & Chen, 2017). Kindergarten teachers’ acceptance of inclusive education, the cultivation of preschool inclusive teachers, the use of effective teaching methods and teaching aids, and the formulation and implementation of individualized education plans are huge challenges to the implementation of preschool inclusive education (Y. Wei et al., 2022).

Therefore, some researchers put forward countermeasures and suggestions on curriculum construction and teacher admission for the cultivation of inclusive literacy (Yuan, 2016). It is necessary to set up compulsory courses related to inclusive education for preschool normal students to ensure that normal students have the time and teaching opportunities to have direct contact with students with special needs (G. H. Chen & Zan, 2018).

## **Pre-Service Training Research on Inclusive Education Literacy of Preschool Teachers**

Domestic scholars have explored the pre-service training of inclusive education literacy for preschool teachers from different levels. There are not only comparative studies on the contents and approaches of pre-service training of inclusive education literacy for preschool teachers in the United States from the macro level (R. Wang, 2018); Theoretical discussions (Huang, 2020; Y. Y. Li & Zhao, 2019); and action research on the development and implementation of inclusive education curriculum for preschool education majors at

the micro level (Ying Liu & Liu, 2019). Overall, these studies have responded to the question of “how to effectively improve the pre-service training quality of preschool teachers’ inclusive education literacy”. Studies have confirmed that inclusive education training will affect preschool teachers’ inclusive education literacy, and pre-service the impact of education is more cost-effective, more efficient, and more profound than post-vocational education. Therefore, both the breadth and depth of research content need to be further explored (Jing Wang & Fan, 2021).

### **Research on Pre-Service Training Models for Preschool Inclusive Education**

The key to the cultivation of inclusive education teachers lies in the formulation of talent training models. As shown in Table 2, this dimension includes keywords such as “professional construction”, “talent training mode”, “training program”, and “professional standards”. Research shows that teacher professional standards and accreditation play an important role in improving teacher quality and education quality (Gu, Yang, & Jiang, 2014).

In the research on the pre-service training model of preschool inclusive teachers, researchers tried to get inspiration from foreign training models. For example, the “dual-certificate” inclusive education talent training model in the United States (Y. Feng & Wang, 2015); the Korean Ministry of Education clearly requires that college students must take courses related to inclusive education in the field of teacher literacy courses, and 63 universities More than 80% of the preschool education majors in the universities have set up more than two preschool integrated education courses, and have formulated teaching plans for inclusive education courses (Jing Wang & Fan, 2021); Ni and Za (2015) New Zealand has set up a general education-based special education courses, and established a multi-level training program based on the postgraduate diploma program (Zhu & Wang, 2022). To sum up, foreign Pre-service Inclusive Teacher Education Mode mainly has two modes: “optimization mode” and “restructuring mode” (Ni & Za, 2015) .

This type of training mode has begun to influence the training of preschool inclusive education teachers in China (Liu et al., 2021b; Tang & Wang, 2021). For example, Xuzhou Early Childhood Teachers College implements the curriculum setting of “combination of special children”, which refers to the in-depth integration of preschool education courses and special education courses, and trains preschool special educators at the specialist level (Lu, 2016); The College of Preschool Education explores the talent training model of “three-three combination, campus cooperation” to meet the needs of inclusive education, which greatly promotes the improvement of the professional quality of preschool inclusive education teachers (S. Y. Zhang, 2018). The higher normal colleges and universities in Henan Province have established a “preschool + special education” preschool inclusive education talent training model. While meeting the needs of ordinary preschool education majors, they include special education and children’s rehabilitation courses to strengthen the inclusive education literacy of ordinary teachers (X. Liu, 2018; Mao, Wang, & Yang, 2022). Chongqing Normal University has built a “four-in-one” inclusive education pre-service training system of special education ability + general education ability + inclusive education ability + professional quality ability (H. S. Wei, Shen, & Wang, 2019); Fujian Preschool Teachers College Colleges have carried out research on the innovative training of preschool special education teachers under the teacher professional certification standards (X. D. Wang, 2020), and there are also studies that believe that preschool inclusive education is carried out around “interdisciplinary education” (OuYang, 2023).

In general, domestic preschool inclusive education teacher training has not yet formed an independent major, the teaching staff of colleges and universities has not yet formed, and the curriculum system has not yet been formed (S. Y. Zhang, 2018). In the talent training program for preschool education undergraduates, early inclusive education the course content is less, and it is more theoretical, lacking in practicality and operation (Ji, 2021). At present, there is a binary opposition model between general education and special education in the pre-service training system in the inclusive education ability training of preschool education majors in mainland my country, that is, special education teacher training is limited to special education

majors, and preschool education that accepts the concept of inclusiveness is required. Professional teachers often lack corresponding inclusive knowledge and skills training (Jian Wang & Quan, 2016).

Therefore, colleges and universities incorporate inclusive education courses into the talent training model when revising the talent training model for preschool education majors (X. X. Zhao & Wang, 2020). Preschool education majors should innovate talent training models and jointly train talents with special education majors and medical rehabilitation majors to lay a solid talent foundation for the improvement of the quality of preschool inclusive education in my country (X. X. Zhao & Wang, 2020).

### **Research on Courses Design for Pre-service Preschool Inclusive Education**

In April 2021, the Ministry of Education issued the “Professional Competence Standards for Teachers of Pre-school Education Majors (Trial)” and proposed that pre-school teachers should “know the meaning and role of inclusive education, understand the characteristics of physical and mental development of children with special needs and the educational Strategies, master the basic knowledge and related policies of studying in class, and basically have the education and teaching ability to guide students in class” (MOE, 2021). In 2021, the “14th Five-Year Plan” Preschool Education Development and Improvement Action Plan issued by nine departments including the Ministry of Education clearly proposed to “increase special education courses in preschool education majors in colleges and universities, and improve the integrated education ability of normal students” to improve kindergarten teachers. Foster training quality (MOE and other nine departments, 2021).

Therefore, it is necessary to reform the professional courses of preschool education in my country, set up an inclusive education curriculum system, and develop practical preschool inclusive education courses (Jing Wang, Han, & Wei, 2021). For example, explore multiple curriculum setting methods, including individual curriculum setting, integrated curriculum setting, mixed curriculum setting, etc., to improve the inclusive education literacy of prospective kindergarten teachers (Y. Feng & Wang, 2015). The establishment of special education courses for preschool education majors in colleges and universities should focus on three aspects: the professional concept of inclusiveness, the professional knowledge of inclusive education, and the professional skills of inclusive education, improve the curriculum, increase the number of inclusive education courses, and improve the scientific nature of the curriculum and professionalism, and truly cultivate interdisciplinary professionals who implement preschool inclusive education to meet the needs of special children (Y. L. Deng & Xia, 2018; Quan, 2016).

In this regard, researchers have begun to pay attention to the opening of inclusive education courses in preschool education in colleges and universities. All 63 universities in South Korea offer courses related to special education in their preschool education majors, and more than 80% of universities offer more than two inclusive preschool education courses (Jing Wang & Fan, 2021); Yao Wang and Zhou (2020) believed that the domestic research mainly focuses on the curriculum setting of preschool education or special education under the concept of inclusive education, including improving the curriculum structure, optimizing the curriculum content, and strengthening curriculum management (Chang Chen, 2018; Yan Liu, 2013; Ren, 2014; Y. Zhang, 2017; T. Zhou, 2018). There are also studies on the construction of preschool inclusive education majors from multiple perspectives, discussing professional curriculum settings, talent training programs, various classroom forms, and construction of training rooms and teaching materials (X. Liu, 2018).

Liu Ying and others formulated and implemented the “Introduction to Special Education” course for preschool education majors from the perspective of curriculum objectives, course content selection and organization, course implementation methods, and course evaluation methods, and tested its implementation effect through action research (Ying Liu & Liu, 2019). The Taiwan region of my country has promulgated the “Secondary Schools, Primary Schools, Kindergartens, Special Education Teachers’ Pre-service

Education Courses and Credits for Teachers' Pre-service Education Courses". Educational Curriculum (X. X. Zhao & Wang, 2020). However, the operability and guidance of the curriculum objectives of inclusive education in colleges and universities are not strong; the curriculum content lacks a unified standard; the content of knowledge is more than the content of skills; the implementation of the curriculum is mainly based on traditional lectures; there are few practical links (Y. J. Feng, Li, & Wang, 2016).

Early childhood teacher training colleges have also begun to offer special education courses in preschool education majors, but there are also problems such as less professional knowledge of inclusive education, more and more general learning content, and insufficient practical teaching (Xiao, 2020). In response to these problems, Gansu Province proposed that the development of inclusive education should focus on personnel training and reserve future inclusive education teachers; adhering to the curriculum as the center, improving the awareness of inclusive education for pre-school students; adhering to practice-oriented, training pre-school students to understand and master the skills of inclusive education; attaching importance to the infiltration of the concept of inclusive education and teacher ethics, and helping preschool students establish the belief in inclusive education (W. Liu & Li, 2023).

Other researchers have proposed to cultivate the inclusive education ability of pre-school professional normal students by integrating professional courses, strengthening curriculum, increasing practical courses, and implementing a qualification system (Y. Zhao & Li, 2015).

It is not ideal for my country's mainstream colleges to offer inclusive education courses. A survey of 137 mainstream colleges and universities across the country found that only 19 (13.9%) of them offer courses related to special education (H. P. Wang, 2006), and very few preschool education majors offer special education compulsory courses or elective courses (Cui, 2016). There is currently no definitive statistical data on whether many colleges with preschool education majors offer courses on inclusive preschool education (Ying Liu & Liu, 2019). Therefore, to implement the policy requirements, "increase special education courses in preschool education majors in colleges and universities, and improve the integrated education ability of normal students" to improve the quality of kindergarten teacher training (MOE and other nine departments, 2021).

## RESEARCH TRENDS

According to the summary of the visual map and analysis, the general trend of future research on pre-school inclusive education and pre-service training in my country is: there is still a large potential space needing in-depth analysis for the research on the professionalism of pre-school inclusive teachers. The research on pre-school inclusive pre-service training has become the latest research hotspot and should be further explored based on previous research. There is not as much published research on preschool inclusive education professional courses, and the currently accessible research is concentrated in colleges and universities, which is also an important potential research point for preschool education undergraduate colleges. Therefore, future research can actively explore the following aspects:

### **First, the implementation of the policy requirements and clarification of the pre-service training program for pre-school inclusive education.**

The further study should in-depth interpretation of the "Professional Competence Standards for Teachers of Preschool Education Majors (Trial)" (MOE, 2021), "The 14th Five-Year Plan" Action Plan for the Development and Improvement of Preschool Education (MOE and other nine departments, 2021), "The People's Republic of China Preschool Education The Draft Education Law (MOE, 2023) and other national latest policy documents on inclusive education pre-employment training further clarifies the pre-school inclusive education talent training plan to establish the concept of inclusive education as an important goal of talent training; hopefully producing those who will master special education knowledge and skills as an

important part of personnel training.

According to the talent training plan and training goals, it is crucial to build a curriculum system for preschool inclusive education teacher training that meets the actual needs. Just as important as seizing the development opportunity of the new era of teacher professional certification in my country, doing a good job in the top-level design, implementing the policy requirements for preschool inclusive education, formulating the standards for preschool inclusive education teachers, and clarifying the professional quality of preschool inclusive education teachers. The training of inclusive education teachers provides a basis to cultivate the talents of multidisciplinary and compound preschool inclusive education teachers.

### **Second, analyzing the social needs for preschool inclusive education and developing and designing pre-service preschool inclusive education courses**

Needs analysis refers to the techniques for collecting and assessing information relevant to course design: it is the means of establishing the how and what of a course. The construction of the science curriculum system needs to clarify the core value orientation of the course and clarify the learning according to the needs of parents, in-service teachers and special children and their parents, for whom we develop and design pre-service courses for pre-school inclusive education.

### **Finally, pay attention to pre-service practice inclusive education and improve the pre-service curriculum system of preschool inclusive education.**

Preschool education majors in colleges and universities can actively contact local special education schools, rehabilitation centers, kindergartens that implement inclusive education, etc., so that prospective preschool teachers can build practical knowledge and abilities of inclusive education in real teaching situations. Because the inclusive education literacy of teachers can be improved by imparting theoretical knowledge and participating in practical training related to inclusive education.

The training of teachers in preschool education should focus on the practical training of inclusive education for normal students. The concept of inclusive education should be combined to improve the curriculum structure of preschool inclusive education; equal emphasis should be placed on theory and practice, and opportunities for students to integrate education practice should be increased, so that preschool normal students can better understand the physical and mental health of children with special needs in practice.

The final consideration is to develop the laws that understand preschool inclusive education, and at the same time gain experience in the process of practical teaching and improve your own inclusive education literacy.

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