

Pathways and Strategies for Training Special Education Teachers in Higher Normal Universities from the Perspective of Inclusive Education

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Abstract: The training of special education teachers in higher normal universities faces challenges such as a lack of interdisciplinary faculty, an imperfect curriculum system, and insufficient international exchange and cooperation. This paper proposes five effective pathways for special education teacher training including the collaborative governance between government, universities, and schools (kindergartens) to improve the professional talent training model, the joint development of curriculum resources and enhancement of the application level of informational resources, the leading by master teachers to build a team of innovative teaching faculty, the shared construction of practice bases to enhance the professional competitiveness of normal university students, the expanding the social service function to deepen the field of international exchange and cooperation. Strategies such as establishing professional clusters in normal universities, optimizing internal management processes, sharing government-university cooperation platforms, and improving team collaboration capabilities will comprehensively enhance the quality of special education teacher training in higher normal universities.

Keywords: Special Education, Pathways, Resource Library, Strategies

1. Introduction

Inclusive education, as a global concept promoting educational equity and inclusiveness, is profoundly driving the reform of basic education. It ensures that every child, regardless of gender, race, or ability, can enjoy equal educational opportunities and access to high-quality educational resources in a mainstream educational environment. It particularly focuses on ensuring that students with special needs receive tailored educational support and services, promoting their comprehensive development and social integration.

Against this backdrop, both "Double First-Class" universities and high-quality higher vocational colleges under the "Double High" plan emphasize the training of high-quality, multidisciplinary special education teachers. How to accurately position the direction of special education programs and develop scientifically reasonable pathways and strategies based on the core training requirements of inclusive education teachers has become a key issue in deepening the construction of the teaching framework and shaping the characteristics of teacher education.

Aligning with the comprehensive reform requirements of basic education and implementing the fundamental task of fostering virtue through education to cultivate excellent special education teachers is not only a beneficial practice in response to educational equity but also an essential path for higher normal universities to enhance their competitiveness and establish their professional uniqueness.

2. Research Objectives

Ensure that every child, regardless of gender, ethnicity or ability, has equal access to educational opportunities and high-quality educational resources in a regular educational setting. In particular, it focuses on ensuring that students with special needs have access to tailored educational support and services to promote their holistic development and social inclusion. The specific objectives of this research are as follow:

- i. Issues in Training Special Education Teachers at Higher Normal Universities
- ii. Implementation Pathways for Training Special Education Teachers in Higher Normal Universities

iii. Strategies for Advancing the Training of Special Education Teachers in Higher Normal Universities

3. Funding Projects

This paper is a phase research outcome of two projects: the research project of the China Education Association for International Exchange titled "Research on the Online Teaching Support System for 'Chinese + Vocational Skills' in Higher Vocational Colleges: A Case Study of Xiangyang Vocational Special Education High-level Professional Group" (Project No. GJZJ2023-07), and the 2022 Hubei Provincial Higher Education Teaching Research Project titled "Research on the Reform of the Talent Training Model for Special Education Professional Groups in Higher Vocational Colleges from the Perspective of Inclusive Education" (Project No. 2022568).

4. Research Methodology

4.1 Issues in Training Special Education Teachers at Higher Normal Universities

4.1.1 Enhancing Interdisciplinary Faculty Strength and Optimizing Quality and Structure

Most special needs children face various challenges after entering regular schools and require specialized teachers for targeted assistance. These teachers are responsible not only for teaching regular children but also for providing individual tutoring, remedial and supportive teaching to special needs children, as well as offering consultation and guidance to regular classroom teachers and parents. Currently, the quantity and quality of special education teachers in higher normal universities are insufficient to meet the needs of professional development.

On one hand, there is a shortage of professional teachers, especially in newly established undergraduate normal universities, where highly qualified teachers with frontline special education teaching and rehabilitation practice experience are particularly scarce. On the other hand, existing special education teachers have limited opportunities for professional training and continuing education, resulting in slow updates of professional knowledge. In higher vocational colleges, the structure of teachers in education and rehabilitation disciplines is often unreasonable. Faculty issues have become a significant factor constraining the development of special education programs from expanding in scale to achieving connotative growth.

4.1.2 Enhancing the Standards for Training Multidisciplinary Talents and Improving the Curriculum System

In 2017, China issued the revised "Regulations on the Education of Persons with Disabilities," which proposed "promoting inclusive education to ensure that persons with disabilities can attend regular kindergartens and schools." The China Disabled Persons' Federation and other departments issued a notice on "Promoting Inclusive Education Actions." Local governments have formulated local policies and implementation plans suitable for their specific situations based on national guidelines. With the implementation of the rehabilitation project for disabled children aged 0-15 and the comprehensive rollout of two phases of special education enhancement plans, the enrollment rate of disabled children has been increasing annually, and the student composition in special education schools has changed accordingly.

Some provinces and cities have begun to adjust the layout of special education schools, gradually expanding the types of disabilities they admit and extending from compulsory education to both preschool and vocational education. As the student population structure changes, including those with visual, hearing, speech, and intellectual disabilities, the limitations of the special education curriculum in higher normal universities have become apparent. The current curriculum system struggles to fully meet the diverse educational needs of these student groups and the requirements of inclusive education positions.

4.1.3 Expanding International Exchange and Cooperation Pathways and Building Shared Resource Platforms

In line with serving the national "Belt and Road" initiative and adhering to the professional development approach of being "indispensable locally, recognized within the industry, and internationally exchangeable," integrating international cooperation into professional development ensures that the training of special education teachers meets both domestic needs and international standards. Strengthening cooperation with overseas universities, developing relevant inclusive education curriculum resources, enriching the forms and content of academic exchanges, and promoting the internationalization of the special education curriculum are directions for innovative development in higher normal universities.

Many higher normal universities are gradually building diverse cooperation networks that include educational institutions, enterprises, and non-governmental organizations from various countries and regions. They enhance interactions with foreign special education institutions through international conferences, seminars, academic alliances, and other forms of collaboration, facilitating teacher exchanges, academic discussions, and project cooperation. However, in recent years, some higher normal universities have shown a lack of proactive awareness in international exchanges, a deficiency in cooperation pathways, and a limited number of teachers substantially participating in overseas academic conferences.

4.2 Implementation Pathways for Training Special Education Teachers in Higher Normal Universities

4.2.1 Collaboration among Government, Universities, Industries, and Schools (Kindergartens) to Improve the Professional Talent Training Model

The collaboration among government, higher normal universities, the education and rehabilitation industry, and special education schools (rehabilitation centers or kindergartens) refers to a close cooperation framework. This alliance creates a teacher development community by bringing together universities, local governments, kindergartens, elementary schools, and special education schools to meet the urgent societal demand for high-quality special education teachers (Yang, J.,2023).

Following the relevant requirements of the national "Professional Standards for Special Education Teachers (Trial)" and "Professional Standards for Primary School Teachers (Trial)" and incorporating the concept of inclusive education (Wang, J.,2024), the government should lead efforts to increase the training of free special education normal students or cooperate with local governments to sign "order-based training agreements," forming a new mechanism for targeted training of normal students.

Implementing the development strategy of "Special Education and General Education" professional groups involves creating "normal university professional groups" (hereinafter referred to as professional groups). Within these groups, resources, personnel, curriculum, and practical training bases are highly shared, constructing a "mutual integration of general and special education, and integrated education and training" talent training model.

"Mutual integration of general and special education" means incorporating essential and elective courses from special education into the general normal education programs to enhance the special education professional competence of general normal students. In the "integrated education and training" model, the teaching skills of general normal education and the specialized practice of special education are unified, strengthening the special education skills of normal students and cultivating high-quality multidisciplinary teachers capable of inclusive education.

4.2.2 Joint Development of Curriculum Resources to Enhance the Application Level of Informational Resources

Form a resource development team centered on the special education major and composed of members from multiple disciplines. This team should bring together domestic and international experts in education, psychology, information technology, special education, and rehabilitation medicine, along with frontline key special education teachers, creating a cross-disciplinary collaboration Bo Zhao's team (2023).This team will jointly develop professional talent training programs, ensuring the comprehensiveness, scientific basis, and advanced nature of the curriculum content.

The team will co-lead the construction of a national-level special education professional teaching resource library, developing practice teaching resources based on the concept of inclusive education throughout the process, thus enhancing the social application value of the resource library. Higher normal universities can collect high-quality special education curriculum resources from both domestic and international sources, including video tutorials, interactive software, virtual reality, and augmented reality learning resources. These resources can be localized and integrated to form digital curriculum resource packages for various types of learners.

Collaborate with assistive technology companies for people with disabilities to use cloud computing, big data, and artificial intelligence technologies to establish or optimize digital learning platforms for special education. These platforms should provide online courses, virtual laboratories, remote assessments, and consultations, using big data and learning analytics to track the learning process of normal students and support personalized teaching (Zhao, B. et al.,2023)Utilize existing national smart education platforms and promote the national-level special education professional teaching resource library by putting all core course e-textbooks online, synchronizing with the teacher's teaching space, and improving student learning efficiency.

4.2.3 Leading the Construction of Teacher Teams and Building Innovative Teaching Teams

Adhering to the principles of moral integrity in personal conduct, academic pursuits, and teaching practices, the Master Teacher Development Program should be implemented. This program establishes a three-tiered system of school-level, provincial-level, and national-level master teacher studios to cultivate a group of high-level academic leaders. Strict selection criteria for academic leaders should be enforced, comprehensively evaluating factors such as teaching ability, research achievements, educational innovation, and social impact to select master teachers with significant accomplishments and influence in the field of special education.

Opportunities for domestic and international study, academic exchanges, and project leadership should be provided to support master teachers above the school level in their continuous learning, maintaining their exemplary leading positions in their professional fields. The entry system for full-time and part-time teachers should be optimized, increasing the proportion of excellent frontline education and rehabilitation teachers in part-time teaching roles to comprehensively improve the professional level of part-time teachers.

Hiring international academic leaders to participate in the construction of special education programs is essential. Team cohesion can be enhanced through political theory study, external training, master teacher guidance, and performance assessments. Establishing and improving the system for cultivating teaching innovation teams above the school level is crucial. Teachers should be selected to participate in the "National Training Program" for advanced training, domestic normal university visiting programs, job practice exercises, and doctoral degree programs. These efforts will comprehensively enhance teachers' professional abilities and dual-qualification qualities. Emphasizing the cultivation of young teachers through mentorship programs, workshops, and other forms will promote their professional growth.

4.2.4 Shared Construction of Practice Bases to Enhance the Professional Competitiveness of Normal Students

Collaborate with primary and secondary schools and kindergartens that have successfully implemented inclusive education in the 37 national special education reform pilot zones to jointly build inclusive education reform experimental schools. Improve the software and hardware construction of the base teaching facilities to establish exemplary bases that integrate educational internships, educational research, teaching demonstrations, and teacher training, providing guidance for promoting inclusive education nationwide.

Establish a multi-party cooperation network, uniting special education schools, rehabilitation centers, community service centers, government departments, and related enterprises to create a comprehensive practice base network (Huo, D. J. & Wang, R., 2023). Design practice courses and training projects in collaboration with the practice bases according to the professional development needs of special education normal students. For example, set up specialized practice modules such as special children assessment, individualized education plan development, assistive technology use, and social skills training to enhance normal students' practical abilities in inclusive education.

Implement a "dual-mentor system," where students receive guidance from both on-campus mentors and practice base mentors (i.e., experienced special education teachers or rehabilitation technicians). This approach ensures a close integration of theory and practice, allowing students to gain professional knowledge while learning modern special education teaching skills and rehabilitation techniques. Set up simulated classrooms, rehabilitation rooms, and research projects within the practice bases, enabling normal students to engage in role-playing, teaching simulations, case analysis, and research in a simulated environment. This enhances their teaching abilities, problem-solving skills, psychological adjustment capabilities, and teamwork skills.

4.2.5 Expanding Social Service Functions and Broadening the Field of International Exchange and Cooperation

Establish close cooperative relationships with local governments, education departments, special education schools, medical institutions, and non-profit organizations to jointly conduct special education project research, rehabilitation personnel training, and curriculum resource sharing activities. Higher normal universities should actively participate in provincial and higher-level special education teacher training projects, continuously provide training for inclusive education teachers in regular primary and secondary schools and kindergartens, accumulate training experience, and promote it nationwide. They should also participate in or lead cross-provincial special education research projects, focusing on common issues and regional-specific issues in the construction and development of special education schools in China, and collaborate with key special education teachers to develop teaching resources and promote the application of research findings.

Establish an international special education resource-sharing platform and develop cross-national cooperative special education service projects, such as remote consultation for the education and rehabilitation of children with disabilities across countries, international special education volunteer services, and the creation of online courses, to provide broader consultation and services for individuals with special needs (Liang, J., 2023).

Expand international training pathways for special education normal students by conducting exchange and study abroad programs. Facilitate these by signing cooperation agreements, participating in international conferences, engaging in joint research, and sending teachers for overseas study and training. This approach serves to enhance students' academic qualifications and cultivate international technical and skilled talents, thereby promoting international exchange and cooperation among various specialties.

4.3 Strategies for Advancing the Training of Special Education Teachers in Higher Normal Universities

4.3.1 The purpose Building Normal University Professional Clusters to Enhance Innovative Development Capabilities

The introduction of a series of policy documents on teacher education in China has provided an excellent opportunity for comprehensive reform aimed at high-quality, balanced development in basic education. This reform presents a significant development opportunity for teacher education. Leveraging the traditional advantages of teacher education and combining them with the unique characteristics of special education programs

in various higher normal universities, professional clusters can be constructed at the school level to achieve resource sharing, complementary advantages, and collaborative innovation.

On one hand, incorporating the special education major into the normal university professional clusters will integrate special education knowledge and skills into primary education, preschool education, and pedagogy programs, thereby optimizing the layout and structure of the professional clusters. On the other hand, these clusters can directly liaise with local education authorities to strengthen the interdisciplinary faculty training system. This approach can lead to the establishment of regional inclusive education research centers, inclusive teacher development centers, and master teacher studios. It encourages teachers and students within the professional clusters to engage in scientific research and rehabilitation technology innovation, publish high-quality papers, apply for patents, or develop assistive tools. The research findings can be transformed into teaching content and practical strategies, promoting the deep integration of special and general education. This innovative education model will drive the sustainable and forward-looking development of the profession.

4.3.2 Optimizing Internal Management Processes to Enhance Comprehensive Governance Capabilities

Currently, various higher normal universities in different regions offer majors such as preschool education, primary education, and special education. These programs are generally managed through a departmental system, utilizing top-down administrative methods for resource allocation and administrative management (Sun, X. Y., 2024). This approach is no longer sufficient to meet the needs of training teachers for inclusive education.

Establishing a specialized teaching management team and developing plans for the construction and development of special education programs are essential. Based on the tasks outlined in the plans, such as team building, curriculum reform, school (kindergarten) cooperation, international exchanges, the construction of practical teaching bases, and skills competitions, schools need to optimize their internal organizational structures and standardize procedures to improve teaching management efficiency.

Creating a cross-departmental collaboration mechanism is crucial to promote effective coordination between teaching, administrative, and logistical departments to support the comprehensive needs of special education teacher training. Positions should be filled based on professional expertise and management capabilities, with a performance-oriented approach, establishing monitoring mechanisms and information reporting systems, and implementing vertical management (Ma, J. Q., 2022) to promptly address difficulties and problems encountered by departments in the construction of professional clusters.

In terms of the teaching quality feedback mechanism, include teaching quality, research achievements, student feedback, and contributions to teaching reform projects in the performance evaluations to motivate faculty and staff to fully participate in program development, continuously improving educational quality.

4.3.3 Sharing Government-School-Industry-School (Kindergarten) Cooperation Platforms to Enhance Social Service Capabilities

Proactively communicate with government departments to understand the latest national and local policy directions regarding special education, and jointly build an information database to achieve resource sharing. Establish an online service platform through government-school-industry-school (kindergarten) collaboration, utilizing modern information technologies such as cloud computing and big data to enhance the functionalities of remote special education, consultation services, and case sharing.

Higher normal universities can open their sensory integration training rooms, physical therapy rooms, occupational therapy rooms, play therapy rooms, speech therapy rooms, and multi-sensory training rooms to special children and their parents in the region. They can set up services such as special children education screening, academic assessment, and educational rehabilitation training, providing consultation to local special education institutions and resource teachers, ultimately serving students in inclusive education settings (Hou, J. Q., 2022).

According to (Johnson & Semmelroth, 2024) university teaching and research teams should regularly research the hot, difficult, and critical issues in regional special education processes, hold seminars and workshops periodically, and organize volunteer services, support for the disabled, educational teaching reforms, and student employment and entrepreneurship activities. These efforts will enhance the social service impact of the special education program.

Through practices such as taking on temporary roles in frontline special education schools and rehabilitation institutions for children with disabilities, order-based training, and short-term training, teachers can improve their professional skills and awareness of social service. These initiatives empower the construction of local special education teacher teams and create a brand for social services.

4.3.4 Emphasizing Cultural Leadership and Smooth Information Channels to Enhance Team Collaboration

The advancement of social culture, the improvement of educational legislation, and the evolving educational needs are the three driving forces behind the rapid development of special education. These factors complement each other, collectively pushing forward the cause of special education to achieve the goal of providing appropriate

education for every individual with special needs. Policies related to the education and rehabilitation of special children issued by various levels of government, such as "targeted measures and classified promotion," and high investment in the operational funds of special education schools reflect the education system's positive response to the development of special education.

As social civilization progresses, public awareness of diversity and inclusiveness is increasing. The excellent culture of supporting and assisting the disadvantaged is the cultural gene of special education. Special education, starting with inclusive education, is moving towards cultural reconstruction and regeneration. Emphasizing the inheritance of the spirit of normal universities, it is crucial to strengthen the recognition and understanding of inclusive education concepts among all teachers and students. Integrating values of respecting differences and embracing diversity into campus culture can form a consensus that supports the comprehensive development of students with special needs.

In the construction of special education programs, continually refining the spirit of normal universities and spreading teacher education culture is essential. Promoting a team spirit characterized by mutual trust, collaboration, innovation, and dedication can become the common vision and value of all members. This approach eliminates information silos between teams, fosters a correct public opinion and a psychologically harmonious atmosphere, and builds an innovative teaching team. This collective effort will comprehensively promote the high-quality development of the special education sector.

5. Conclusion

The paper concludes with several key insights and recommendations for enhancing the training of special education teachers in higher normal universities:

1. **Collaborative Governance:** Strengthening partnerships among government, universities, schools, and kindergartens is pivotal to refine professional talent cultivation models. By integrating international perspectives into local needs, this collaborative approach fosters an education ecosystem that aligns with global standards while addressing domestic demands.
2. **Resource Integration and Curriculum Innovation:** The joint development of curriculum resources and the elevation of information technology utilization are essential for nurturing competent educators. This includes enriching academic exchanges and promoting the internationalization of special education curricula to keep pace with evolving pedagogical practices.
3. **Mentorship and Team Building:** Establishing a system led by master teachers to cultivate a new generation of innovative educators helps to build a strong faculty pipeline. This mentor-led strategy bolsters teaching innovation and ensures the continuous professional growth of educators.
4. **Practical Base Sharing:** Collaborating on shared practice bases enhances the employability of student teachers by offering them hands-on experience in inclusive education environments. These bases integrate educational internships, research, teaching demonstrations, and training, thereby rounding out their professional skills.
5. **Expanded Social Service and International Collaboration:** Engaging in multidimensional partnerships with local governments, educational institutions, medical facilities, and NGOs broadens the impact of special education initiatives. Active participation in provincial and national training programs, cross-regional research projects, and resource sharing not only addresses common challenges but also promotes localized solutions and knowledge dissemination.

These findings emphasize that through multi-stakeholder collaborations, integrated resource management, mentor-guided professional development, immersive practical experiences, and expanded international horizons, higher normal universities can comprehensively upgrade the quality of their special education teacher training programs. Ultimately, these measures aim to foster a new generation of educators who are well-equipped to meet the complex demands of inclusive education, thereby advancing the cause of education equity and excellence.

The problems faced by teachers in teaching and learning science process skills in National Type (Tamil) Schools from North Kinta District have been discussed in this study. Findings from questionnaires, interviews and observations indicate that respondents face various problems in teaching and learning science process skills. The level of mastery of KPS must be improved. Therefore, this is the responsibility of all parties involved in the development of science, especially educators who teach Science to ensure that KPS is used properly so that this problem does not persist until the upper secondary level.

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Conflict of Interest

The authors declare no conflicts of interest.

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