



## Assessing the Preparedness of Future Special Education Teachers for Inclusive Classrooms in Kazakhstan

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### ABSTRACT

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**Purpose:** This study investigates the preparedness of future special education teachers in Kazakhstan to work in inclusive educational settings, addressing an urgent need to enhance teacher preparedness for inclusive education in response to the growing demand for inclusion across Kazakhstani schools. The study examines disparities in teachers' preparedness to support children with various developmental disabilities. **Method:** A comprehensive survey was conducted among 1,005 students enrolled in special pedagogy programs across eight purposefully selected universities representing Kazakhstan's diverse regions and educational contexts. The participants' self-reported preparedness to work with children with diverse disabilities in inclusive classrooms

was assessed using a structured questionnaire. Data were analyzed using descriptive statistics and thematic analysis to identify patterns in preparedness across different types of disabilities. **Findings:** The results indicate that while students felt confident in addressing specific disabilities, such as speech and hearing disorders, they reported lower preparedness for working with children with multiple or severe disabilities. Concerns about communication between children with and without disabilities, academic performance, and parental apprehensions were also prominent. **Implications for Research and Practice:** These findings highlight the need for targeted improvements in teacher training programs to better equip future special educators for inclusive education. The study underscores the need to develop specialized competencies and offer practical experience in inclusive environments to bridge training gaps. **Limitations:** The study is limited by its reliance on self-reported data, which may not fully capture actual preparedness levels.

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## Introduction

Inclusive education is a relatively new area of scholarly inquiry in Kazakhstan, gaining importance as the country shifts from post-Soviet traditions of segregated special schools toward inclusive education models (Human Rights Watch, 2018; UNICEF Kazakhstan, n.d.). While some organizations such as Nazarbayev University, Abai Kazakh National Pedagogical University, UNICEF, HRW, and several others have examined the overall barriers to inclusive education, studies have made limited efforts to explore teachers' attitudes toward inclusion. For example, Agavelyan et al. (2020) surveyed 416 in-service teachers in one region of Kazakhstan, and focused on positive attitudes toward inclusion. Abdizhamalova et al. (2023), published reviews highlighting the challenges faced by future special education teachers. Kazakh researchers studying the issues of training future special education teachers have noted the need to change and improve teacher education, which is associated with including special education teachers in kindergartens and schools of general education in the last two or three years (Allan & Omarova, 2022; Denivarova & Abdresheva, 2015; Kozlova & Ryabichenko, 2024; Makoelle & Burmistrova, 2020; Passeka & Somerton, 2024; Turlubekova et al., 2021; Zhetpisbayeva & Shalbayeva, 2019). Since they previously worked mainly in special educational institutions for the correction of disorders and with only one category of developmental disorders in children (hearing, vision, speech, intelligence, motor skills, etc.) following their specialization of professional training, the conditions of inclusion impose other requirements on their professional competencies: the focus of activities on the socialization of children with special educational needs, the ability to work in a team of specialists, children and parents, the ability to create an inclusive environment, to provide professional consultations and much more (Movkebayeva et al., 2017).

Despite growing interest, no large-scale, multi-regional research assessing the preparedness of future special education teachers has been conducted in Kazakhstan, leaving a significant gap in understanding the specific competencies and challenges facing educators. Addressing this gap, the present study conducted a large-scale investigation, surveying over a thousand students across various regions to assess their preparedness for working in inclusive education environments. The findings gave the understanding that teacher preparedness is a cornerstone of successful inclusion efforts, ensuring that educators are equipped to address diverse developmental needs.

## Literature Review

This study is grounded in the understanding that various dimensions of preparedness are essential for future special education teachers, a concept that is consistently highlighted in the global literature on inclusive education. This creates a framework and structure for our study as well as its research instrument. The analysis of theoretical sources on the issue under study indicates that scientists mainly study three main aspects of the activities of a special education teacher with students with disabilities: 1) the peculiarities of teaching and the necessary competencies of special educators related to Special Educational Needs Service (SENS) (Arvelo-Rosales et al., 2021; De Vroey et al., 2023; Hamm & Mousseau, 2023; Klefbeck, 2023; Mann & Gilmore, 2023); 2) obstacles and difficulties of special educators in inclusive education (Duzelbaeva et al., 2023; Takala et al., 2009); and, 3) professional training, the needs of professional development and self-improvement of special educators

(Arvelo-Rosales et al., 2021; Budin, 2024; Landon-Hays et al., 2020; Lopes & Oliveira, 2021; Mena et al., 2023; Movkebayeva & Dyusenbayeva, 2023; Woodcock et al., 2023). As these aspects create the conceptual framework for the present study, it merits a detailed explanation of these various factors.

The body of scholarship assigned to the first group, considering the peculiarities of teaching and the necessary competencies of special education teachers related to SENS, attracts the attention of scientists who note the need for teachers to have specific professional competencies and accept the fundamental values of inclusion in order to work in its conditions (De Vroey et al., 2023). Among such particular competencies are the fundamental ones: appreciating the diversity of students, supporting all students, working as part of a team, and developing their professional and personal qualities. Several authors (Denivarova & Abdresheva, 2015; Hamm & Mousseau, 2023; Kozlova & Ryabichenko, 2024; Mann & Gilmore, 2023; Zhetpisbayeva & Shalbayeva, 2019; Zholtayeva et al., 2013) note the importance of communication skills for establishing and maintaining a trusting relationship between a special educator and parents of children with special educational needs, since productive partnership between parents and teachers is crucial for positive student outcomes. The research of some scholars (Makoelle, 2020; Makoelle & Burmistrova, 2020; Passeka & Somerton, 2024) indicate the critical role of special educators' perceptions in combining theory and practice, improving the training of future teachers to work with various contingents of students since this aspect can contribute to improving student learning, especially children with autism.

The study of the works assigned by us to the second group, studying various obstacles, including the alleged ones, and difficulties of special education teachers in inclusive education, indicates that most special education teachers are ready to work in an inclusive education environment. Finnish scientists Marjatta Takala, Raija Pirttimaa, and Minna Törmänen have determined that the work of special education teachers consists of three elements: teaching, counseling, and support work (Takala et al., 2009). At the same time, teaching is aimed at supporting children with difficulties in mastering basic academic subjects, and the purpose of counseling is to involve in cooperation and discussion of methods of activity and the results obtained. However, using the example of Finnish schools, the authors note common problems in Kazakh schools related to the support of a special education teacher for students with severe learning difficulties and behavioral/emotional disorders. The difficulties special educators face in the context of inclusion are also noted, due to insufficient time for consultations and cooperation, an unclear work profile and too much work (Takala et al., 2009).

Kazakhstani researchers additionally note that most future special educators have a certain fear for the physical and personal health and well-being of students with special educational needs in co-education with other children, experience some difficulties in the interaction between teachers and parents, not having sufficiently developed communication skills to establish and maintain a trusting relationship with them. These difficulties contribute to the emergence in some cases of the fact that the work of special education teachers may be partially inclusive but may also contain segregation elements. Accordingly, there is a need to plan and discuss further steps in the training of special education teachers in the direction of inclusivity, as well as possible changes in the organization of the activities of a special education teacher in inclusive schools (Duzelbaeva et al., 2023).

The study of the issues of professional training, the need for professional development, and self-improvement of special education teachers, united in the third group, indicates that scientists generally consider it very important to organize constant work on developing professional skills. Thus, the researchers point out the high importance of special vocational training, as a result of which the necessary competencies are developed to provide inclusive education to all students. These competencies help teachers successfully implement inclusive learning strategies with children with SENS, increase their confidence and faith in their abilities in inclusive classrooms, and form a belief in the effectiveness of inclusive education for all. Some researchers note the need in the professional training process of teachers, including special education teachers, to use the method of modeling the learning environment (Budin, 2024; Landon-Hays et al., 2020). This method allows for the theoretical training of future specialists in a practical environment, applying various learning strategies, implementing cooperation with other participants in the educational process, and using differentiated techniques and methods. The modeling method provides feedback, coaching and opportunities for practical application of theoretical knowledge, bridging the gap between research and practice. Undoubtedly crucial in the context of the active development of digitalization of education are the studies of scientists who propose to use augmented reality (AR) in the training of teachers, including special education teachers, justifying this by the fact that digital tools are increasingly used to enrich traditional personal communication (Shalbayeva et al., 2021). Summing up the research that we have assigned to the third group, it can be noted that many authors note the preparedness and significant needs of all teachers, including special ones, for professional development and are optimistic about the quality of professional development (Makoelle, 2020). In this regard, researchers justify the need to make significant improvements aimed at training and specialization of teachers in the field of inclusion (Movkebayeva & Dyusenbayeva, 2023).

Given the pressing need for inclusive education preparedness, this study seeks to address the existing research gap by undertaking a large-scale, multi-regional investigation across Kazakhstan. Through a comprehensive survey of over a thousand students enrolled in special pedagogy programs, this research assesses their preparedness to work in inclusive educational environments, focusing on their confidence, competencies, and perceived challenges in supporting children with diverse developmental needs. In doing so, the study aims to pinpoint specific areas where current teacher training programs may require enhancements, ultimately offering insights that could inform the development of more effective and targeted training approaches.

## Methodology

### *Research Design*

A mixed method research design was used to investigate the preparedness of future special education teachers in Kazakhstan concerning their work in inclusive educational settings. In the quantitative phase, a questionnaire was designed to target individuals from various regions to develop a comprehensive understanding of preparedness levels among these teachers to support diverse learners in inclusive classrooms. In the qualitative phase, different aspects of preparedness were examined, such as self-assessed competencies, confidence, and perceptions of inclusive teaching. Insights were sought into specific areas where additional support or

training may be beneficial. This approach allowed us to assess how well students in special pedagogy programs are equipped for the practical demands of inclusive education. Approval for all data collection procedures was obtained prior to conducting the research.

### Sampling

To ensure a comprehensive understanding of the preparedness of future special education teachers across Kazakhstan, a purposeful sampling strategy was employed. Purposeful sampling, as described by Patton (1990), is a technique that selects participants based on specific characteristics or qualities central to the research question. Following this approach, eight universities with established special pedagogy programs were chosen to represent Kazakhstan's various regions and educational contexts viz., South-East region, North-East region, Central region, North-West region, West region, South region, and North region. This selection was guided by several critical criteria: (1) each university had a significant presence of teacher training programs or operated primarily as pedagogical universities; (2) the universities collectively represented a wide geographical range across South, North, West, and East regions; and (3) each institution had substantive programs in special education. This method ensured that we captured diverse perspectives and experiences among students enrolled in special education training programs. Purposeful sampling is also essential to achieving a representative snapshot of special education teacher preparedness across different institutional settings in Kazakhstan, supporting the study's goal of understanding variation across different regional and institutional contexts (Creswell & Poth, 2018; Maxwell, 2012).

**Table 1**

#### Sample Distribution

University	Frequency	Percentage
1 Abai Kazakh National Pedagogical University	198	19.7
2 Kazakh National Women's Teacher Training University	174	17.3
3 Alkay Margulan Pavlodar Pedagogical University	43	4.3
4 Karaganda Buketov University	133	13.2
5 Akhmet Baitursynov Kostanay State University	88	8.8
6 Zhubanov University	103	10.3
7 Zhanibekov South Kazakhstan Pedagogical University	182	18.1
8 Manash Kozybayev North Kazakhstan University	84	8.3
Total	1005	
Year of Study	Frequency	Percentage
1 1st Year	206	20.5
2 2nd Year	280	27.8
3 3rd Year	200	19.9
4 4th Year	319	31.74
Total	1005	

Table 1 provides a breakdown of study participants by their university affiliation and year of study within the Special Pedagogy program. The total sample size was 1,005 students, representing a broad cross-section of institutions across Kazakhstan. This distribution demonstrates that students from all four years of study were included, with

the highest representation from fourth-year students (31.74%), indicating a strong presence of individuals nearing program completion. Additionally, the data reveal that the majority of participants come from prominent universities specializing in teacher training, such as Abai Kazakh National Pedagogical University (19.7%), Kazakh National Women's Teacher Training University (17.31%), and Zhanibekov South Kazakhstan Pedagogical University (18.11%), which account for and of the sample, respectively.

### *Research Instrument*

A questionnaire was designed based on previous literature to students at various universities via Google Forms, ensuring the responses' anonymity and voluntariness. This approach facilitated data collection on participants' perceptions and experiences in a structured manner while adhering to personal data protection regulations and digital rights standards. For the qualitative data, the responses to open ended questions provided the identification of themes, encompassing organizational issues, confidence, dedication, purposefulness, responsibility, and interaction challenges, collectively representing the multidimensional aspects of preparedness among future special education teachers for inclusive environments.

### *Data Analysis*

The data analysis was conducted using inductive methods that focused on a comprehensive examination and synthesis of responses related to six key areas, namely organizational challenges in inclusive education, confidence levels among future educators, commitment to special pedagogy, issues in teacher-to-teacher interactions within inclusive settings, and responsibilities towards the health and well-being of students. This methodological approach allowed for a detailed exploration of the complexities of preparing educators for inclusive educational environments. The data collected through the survey was decoded and analyzed using a program designed for conducting qualitative research, QDA Miner. Quantitative indicators were recorded in MS Excel using Data Analysis Toolpack.

## **Results**

The findings from a sociological survey of 1,005 students from 8 universities in Kazakhstan on their preparedness for work as special education teachers in inclusive education indicate that most students, constituting 60%, acknowledge their partial preparedness for such work while highlighting the need for further professional development. This suggests that these students are cognizant of the significance of inclusive education and are willing to participate. However, they also recognize that they require additional training and the acquisition of inclusive professional skills to be better prepared for this role. Meanwhile, only 22% reported feeling adequately prepared to navigate inclusive organizational environments. This may suggest that these students possess the necessary knowledge and competencies attained during their learning experiences to effectively confront the challenges posed by inclusive education. A minority of students (9%) perceive themselves as either unprepared or somewhat unprepared to work in inclusive organizations. Overall, the survey findings indicate that most students acknowledge the necessity for further training to work in inclusive preschool and school settings. This underscores the significance of creating and refining training programs to

guarantee that future special education teachers possess the requisite professional competencies to function effectively in an inclusive educational environment and provide equal opportunities for all children.

**Table 2**

*Identified Themes*

<b>Themes</b>	<b>Corresponding questions</b>
1. Organizational issues	1. How are you prepared at the university to work in an inclusive environment? 2. What do you think needs to be done to be ready to work in inclusive education? 3. During your studies at the university, did you have an internship in general education organizations that implement inclusive education? 4. Are you satisfied with the amount of time spent practicing in inclusive organizations while studying at the university?
2. Confidence in working in inclusive education organizations	1. How ready do you think you are to work as a special education teacher in inclusive preschool and school organizations? 2. What are your biggest concerns about inclusive education?
3. Dedication to special education specialties	1. Why did you choose the profession of a special education teacher? 2. How, in your opinion, can the training of special education teachers at the university be improved for effective work in inclusive organizations? 3. What do you do to improve your inclusive competence in future professional activities?
4. Purposefulness	1. Plans after finishing your studies at the university. 2. I plan to work as a special education teacher in: 3. How do you assess your prospects in the labor market (in inclusive organizations)?
5. Taking responsibility for the health and well-being of children	1. Assess your level of knowledge about the developmental characteristics of children with each type of developmental disability 2. How ready are you to teach children with SEN with the following types of disabilities together with other children (in inclusive education)? 3. What kind of support for your activities do you expect in the process of working with children with SEN in inclusive education? 4. What knowledge do you consider most important when working with children with SEN in inclusive organizations? 5. What are the personal qualities of a special education teacher? Do you consider it in demand to work with children with SEN in an inclusive education environment?
6. Problems of special interaction between teachers and schoolteachers	1. What attracts you to the work of a teacher in inclusive kindergartens and schools? 2. What, in your opinion, reduces your desire to work as a special education teacher in inclusive organizations?

Table 2 presents the six main themes derived from the thematic analysis of qualitative survey data, which guided the development of a questionnaire for the subsequent research

phase. The themes, encompassing organizational issues, confidence, dedication, purposefulness, responsibility, and interaction challenges, collectively represent the multidimensional aspects of preparedness among future special education teachers for inclusive environments. For example, the first theme, "Organizational issues," reflects participants' perspectives on the adequacy of university training and hands-on experience in inclusive settings. Collectively, these themes provide a structured approach to evaluating critical aspects of teacher preparedness, with each theme's corresponding questions capturing insights into both personal attributes and external factors influencing preparedness for inclusive education.

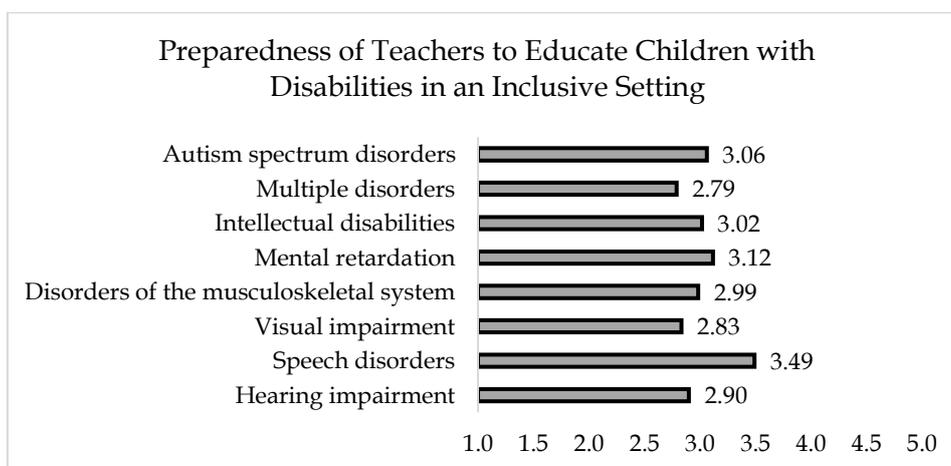
The quantitative study analyzed the intensity of variables that influence the choice of profession by students of the educational program of special pedagogy. Analysis of the validity and frequency of data after data collection was conducted using the Data Analysis Toolpack in Microsoft Excel program. Each respondent's attitude score and numerical values were calculated using the Microsoft Excel Forms platform. This study provides a broader perspective on how students in the special education program choose a special teaching career and how their intrinsic motivation influences their career decisions.

One of this study's key findings was the high motivation level among students enrolled in the special pedagogy educational program, who are primarily driven by their dedication to the special education profession. The commitment of special education students to their chosen career was evident from their career preferences, as 55.4% of participants expressed an interest in this field of study, and 30% indicated a desire to assist individuals with disabilities. This study suggests that the majority of students enrolled in the special pedagogy program are eager to pursue a special teaching career and wish to align their current training with their future professional endeavors.

The findings derived from the student responses suggest that approximately half of the respondents hold an optimistic outlook regarding their future prospects in inclusive organizations. In contrast, the remaining half comprises those uncertain about their preparedness. Furthermore, it is noteworthy that only a quarter of the students surveyed consider themselves fully equipped for the challenges of the labor market in inclusive organizations. These findings highlight the necessity of providing additional inclusive-oriented training and professional development opportunities to improve the student's chances of securing employment and achieving success in this field. It is crucial to emphasize the importance of enhancing educational programs to equip students with the necessary knowledge and skills to work effectively in inclusive organizations. Such programs may include specialized disciplines, practical training, and teaching practices in inclusive settings, all aimed at developing competent and self-assured professionals capable of implementing inclusive approaches in educational environments.

Figure 1 reflects the responses from students regarding their preparedness to educate children with various disabilities in an inclusive setting. The question posed to the students was: "How ready are you to teach children with the following types of disorders along with other children (in inclusive education)? Please select an appropriate value for each type of disorder, where 1 represents minimal preparedness, and 5 represents maximal preparedness." The results indicate varying preparedness levels among the students, with the highest confidence in teaching children with speech disorders, scoring an average

preparedness of 3.49. In contrast, teachers feel least prepared to educate students with visual impairments, as indicated by the lowest score of 2.83. The preparedness scores for other disabilities, such as autism spectrum disorders (3.06), intellectual disabilities (3.12), and hearing impairments (2.90), suggest a moderate level of preparedness. These findings point to a differential preparedness highlighting specific areas where additional training might be necessary to improve students' confidence and effectiveness in managing diverse needs within an inclusive educational environment.



**Figure 1:** Teachers' Preparedness to Teach Children with Special Education Needs with Different Disabilities (in Inclusive Education).

Analysis of the survey results enables an assessment of the preparedness of future special educators and university students to instruct children with disabilities within inclusive educational settings. The students evaluated their preparedness to instruct children with various types of disabilities on a scale from one to five points. The highest levels of preparedness for instructing children with (SEN of 1 to 5 points) were observed in categories as presented in Table 3.

**Table 3**

*Assessment of the Preparedness of Future Special Educators in the Context of Inclusion*

Disability Type	Very Low (Score 1)	Somewhat Low (Score 2)	Average (Score 4)	High (Score 3)
1. Hearing disorders	14%	24%	18%	32%
2. Speech disorders	5%	17%	27%	26%
3. Musculoskeletal disorders	11%	23%	23%	31%
4. Mental retardation	10%	22%	21%	29%
5. Visual impairment	15%	25%	-	-
6. Multiple violations	17%	25%	-	-
7. Autism spectrum disorders	13%	22%	-	-

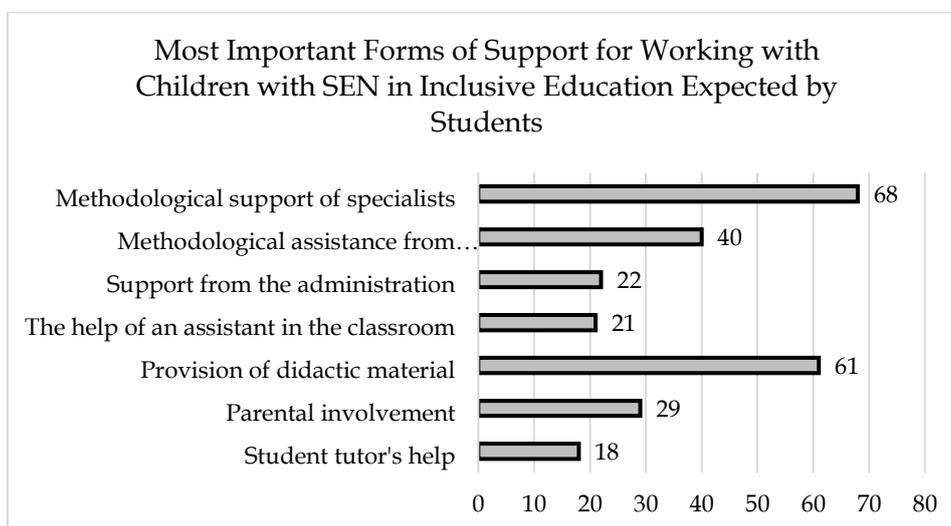
The findings presented in Table 3 underscore the varying degrees of preparedness among

future special educators – university students in Kazakhstan’s special education programs – to work with children who have different types of developmental disabilities within inclusive educational settings. This nuanced assessment reveals areas of strength and gaps that require targeted intervention in teacher preparation programs. Notably, students reported the highest levels of preparedness for addressing hearing disorders, with 32% achieving high preparedness (Score 3) and 18% rating themselves as very prepared (Score 4). Similarly, musculoskeletal disorders received high preparedness scores, with 31% of students indicating high preparedness and 23% expressing very high preparedness. This pattern suggests that the existing curriculum may adequately cover these areas, equipping future educators with essential skills to support students with these specific needs. Speech disorders also received substantial high preparedness ratings, with 26% indicating high confidence, further reinforcing the effectiveness of current training in preparing students to work with these disabilities.

In contrast, the data reveal lower levels of preparedness for other disabilities, suggesting areas where training programs may need enhancement. For example, only 22% of students reported moderate preparedness (Score 2) for working with children with autism spectrum disorders, while the proportion with high preparedness was markedly lower, pointing to a gap in the training provided. Similarly, multiple violations and mental retardation received relatively low preparedness ratings, with 25% and 22% of students, respectively, expressing somewhat low preparedness (Score 2) and smaller percentages achieving high preparedness. These figures indicate a potential need for more focused instruction or practical experiences in working with these complex disabilities, as future educators may feel less confident in these areas.

The lowest levels of preparedness were observed in areas requiring specialized approaches, such as autism spectrum disorders and multiple violations, where 13% and 17% of students, respectively, reported very low preparedness (Score 1). This pattern highlights significant gaps in preparedness that warrant further attention. Additionally, 15% of students reported very low preparedness for addressing visual impairment, suggesting that additional resources or training modules may be necessary to build competencies in supporting visually impaired students in inclusive settings. This information offers a general understanding of which categories of children with special needs are more or less prepared for special educators. However, it must be noted that the preparedness levels of individual students can vary significantly. Furthermore, these findings may be influenced by the characteristics of the sample, such as the number of respondents specializing in speech therapy.

The findings in [Figure 2](#) show the expectations of students in working with children with SEN, indicating that the primary forms of support they anticipate are methodological guidance from specialists (68%) and the provision of instructional resources (61%). This highlights the necessity of receiving clear guidelines and access to a wide range of materials to structure the education of children with SEN effectively. Furthermore, a substantial proportion of students expressed the need for assistance from their peers regarding methodology (40%) and support from the administration (22%). This suggests the significance of collaboration and administrative backing in creating an appropriate environment for working in inclusive education. Other forms of support, including classroom assistance (21%), parental involvement (29%), and tutoring (18%), were also mentioned, albeit to a lesser extent.



**Figure 2:** Types of Support for Working with Children with SEN.

The analysis results suggest that it is necessary to offer students of special education programs appropriate guidance and pedagogical support in their professional activities in inclusive education. This involves providing them with pedagogical support, access to resources, peer collaboration, administrative help, parental engagement, and expert assistance (Shalbayeva et al., 2021).

Several prevalent issues emerged in analyzing responses to inquiries regarding concerns in inclusive education. A significant portion of respondents (62%) highlighted negative feedback from parents of children without disabilities, underscoring potential challenges in interactions and perceptions that may hinder the development of a comprehensive, inclusive environment. Furthermore, nearly half (49%) pointed out difficulties in communication between children with disabilities and their peers without disabilities, raising questions about social adaptation and interaction within a shared educational setting. Concerns regarding the academic performance of children with disabilities were also notable, with 33% of participants worrying about these children's ability to keep pace with their peers, potentially due to learning difficulties. Additionally, the parents' apprehension regarding the enrollment of their children with disabilities into general education schools was noted by 32% of respondents, emphasizing the need for educational efforts to highlight the advantages of inclusive education. Other noted issues included teacher resistance, a lack of interest from educational managers toward inclusion, and some students voicing skepticism about the effectiveness of inclusive education, showing a preference for specialized institutions for children with specific needs.

Inclusive education is essential, and its benefits must be conveyed to parents of children without disabilities. This can be achieved through information campaigns, parent meetings, and discussions on the advantages of inclusive education. Communication between inclusive children and those without disabilities should be improved through supportive and inclusive educational environments, social skills development, and

understanding of differences. It is essential to provide individualized support and adaptation of educational programs for children with disabilities to ensure their academic success. Teachers and heads of educational organizations must be trained and informed about the benefits of inclusive education, and specialized educators should share their knowledge and experience with their colleagues.

To ensure the successful implementation of inclusive education, it is imperative to provide specialists with methodological support, assistance from colleagues, backing from the administration, and access to necessary resources and materials. Additionally, parents must be actively involved in the educational process, and each child's unique needs must be considered. In order to address difficulties and solve emerging problems, ongoing training and development should be provided to develop skills in an inclusive environment, and platforms should be created to exchange experience and cooperation between specialists. Continued research is also necessary to develop effective methods and approaches to create a more inclusive and welcoming educational environment for all students.

### Discussion

The findings indicate that future special educators lack the cognitive competencies necessary to apply learning methods, means, and forms in an inclusive educational setting. In our study of barriers faced by future teachers in inclusive education, we surveyed 1,005 respondents during the academic year to identify the challenges faced by future special educators. The identified barriers to future professional activities in inclusive settings included insufficient knowledge of the special teacher's activities in a general education school, lack of familiarity with class management strategies for various categories of children, ignorance of general education programs and textbooks, narrow professional knowledge of working with only one category of children with developmental disabilities, potential rejection of children with disabilities by children without disabilities and their parents, increased responsibility for raising children with disabilities in inclusive settings, possible rejection of special teachers by general education teachers and parents of children without disabilities, and the need to collaborate with school teachers who lack knowledge about children with special educational needs. Additionally, a lack of resources represents another significant social and personal barrier. This deficiency often manifests as a lack of administrative support, inefficient legislation, an inadequate supply of adapted teaching materials, and low availability of teaching assistants.

The study explored the preparedness of future special educators to meet the demands of inclusive education, highlighting three key areas where additional support and development could enhance their preparedness: academic knowledge, professional application, and institutional support. First, in terms of academic preparedness, many future special educators exhibit gaps in foundational knowledge regarding inclusive education. This includes a limited understanding of its core concepts, principles, and effectiveness, as well as the cognitive and personal development needs of children with special needs. Strengthening academic preparation by providing more comprehensive instruction on these elements would enable future educators to build a solid knowledge base essential for fostering an inclusive classroom environment.

Second, professional application represents another area for growth. While students may acquire theoretical knowledge about inclusive education, they often face challenges in translating these principles into practical teaching strategies. Specifically, they may struggle with applying inclusive values, methods, and forms in real-life classroom settings. Enhancing teacher training to include more practical, hands-on experiences in inclusive environments would allow future educators to develop the confidence and skills needed to address specific pedagogical challenges effectively. Lastly, institutional support is a crucial factor in bolstering preparedness. Future educators' preparedness for inclusive education is influenced by the availability of resources and support systems, such as administrative backing, adapted educational materials, and teaching assistants. These resources are often limited, which can affect students' motivation and ability to fully engage with inclusive teaching practices. Ensuring that teacher preparation programs and educational institutions provide adequate support structures can empower future educators to thrive in inclusive settings. These findings are in concurrence with several contemporary studies (Kozlova & Ryabichenko, 2024; Makoelle, 2020; Makoelle & Burmistrova, 2020; Passeka & Somerton, 2024; Shalbayeva et al., 2021; Turlubekova et al., 2021) that have also reiterated the need for addressing these areas – academic knowledge, professional application, and institutional support – teacher preparation programs can enhance the overall preparedness of future special educators. This holistic approach not only equips them with the necessary knowledge and skills but also fosters a supportive environment that encourages engagement and confidence in inclusive educational practices.

The study's findings have significant implications for the future training of special educators. The analysis highlights the dual impact of the survey insights on the preparedness and efficacy of educators in inclusive education. A significant gap was identified in motivation toward working with children with special educational needs, which emphasizes the importance of inclusive-oriented competencies in enhancing educators' preparedness. Furthermore, the study also revealed the barriers that special educators face in Kazakhstan and the strategic refinement of training programs necessary to align educational practices with the demands of inclusive environments. The study's contributions are twofold: first, it offers a roadmap for improving educator preparation, and second, it facilitates a closer integration of theory and practice in special education in Kazakhstan. The study's findings underline the importance of addressing the significant gap in motivation towards working with children with special educational needs and the need to align educational practices with the demands of inclusive environments.

The findings also provided information about the lack of motivation among future special teachers for further professional activities with children with special educational needs in conditions of inclusion. Based on the expected results obtained during the study, it is concluded that the inclusive-oriented competencies of future special teachers will positively affect the formation of their motivation to work in an inclusive environment and implement practical tasks in an inclusive educational environment. Based on the identified barriers to working in an inclusive environment, future special educators will be able to determine professional competencies for working with special educational needs in an inclusive environment and modernize educational programs. In our opinion, the primary task of professional training of a special teacher in general education schools to work with

special educational needs is to form the pedagogical preparedness of a special teacher for inclusion. We have developed a number of questionnaires, which will allow the use of which will help to assess the barriers to future special teachers in conditions of inclusion in general education organizations and will allow us to develop recommendations for overcoming barriers to the preparedness of a special teacher for inclusive education in the Republic of Kazakhstan.

The outcome of the validation process was characterized by a multi-factor structure that identified six levels of difficulty in special education teachers. The study's analysis of the position revealed the reliability of the research instrument's structure. Consequently, the research tool exposed barriers for future special education teachers in the context of inclusion. Lastly, this tool is a questionnaire and analysis that effectively indicates a special education teacher's preparedness for inclusive education, particularly in preparing them for work in an inclusive educational environment.

### Conclusion

Based on students' responses, several general conclusions can be drawn. First, future special educators highlight the significance of practical experience in inclusive education as part of their training. Second, the respondents emphasize the need for the university to enhance its material and technical resources, particularly in terms of specialized equipment and provisions for working with children with disabilities in inclusive settings. Third, the involvement of practitioners with experience in inclusive education is seen as crucial in the educational process at the university. Fourth, the importance of connecting theory and practice is stressed, as it allows for more practical classes where theoretical knowledge and skills can be applied to specific techniques and methods. Lastly, there is a call for an expansion of the university's material and technical resources and specialized literature in the library, which will be beneficial for future professional activities of a special teacher in inclusive education.

To address some of the limitations of this study, future research could consider collecting both cross-sectional and longitudinal data to examine the evolution of special educators' training for inclusive education environments, focusing on the barriers identified in this research. Additionally, future studies might compare the training of educators working in specialized institutions to those in inclusive settings. Such comparisons would provide valuable insights into the effectiveness of different training approaches and inform future practices. The findings derived from the students' generalized responses indicate that enhancing special educators' training for working with children with disabilities within inclusive organizations is crucial. These students have proposed key recommendations, such as establishing special consulting and methodological centers, arranging practices in inclusive organizations, and equipping classrooms and computer labs with appropriate resources. Implementing these measures will facilitate the creation of more practical and hands-on training that supports the effective work of future special educators in inclusive education.

The analysis of these answers underscores the significance of imparting practical training to students in general education institutions that embrace inclusive education. To be effective in an inclusive environment, it is crucial to acquire experience in interacting

with children who have disabilities and to develop skills that cater to their needs. Offering students practical opportunities and exposing them to real-world scenarios in an inclusive educational setting is critical to their professional development.

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