



Pedagogical and Psychological Factors for Ensuring the Sustainability of Inclusive Education in Uzbekistan

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ABSTRACT

This study explores the pedagogical and psychological factors essential for ensuring the sustainability of inclusive education in Uzbekistan. Despite legislative efforts to promote inclusivity, challenges remain in addressing the educational needs of students with disabilities. The study combines pedagogical theories, psychological principles, and empirical data from educational institutions to examine the key factors affecting the implementation of inclusive practices. Key findings indicate that teacher training, resource allocation, and the psychological climate within schools are pivotal to the effectiveness of inclusive education. Notably, the study highlights that a lack of specialized teacher training and insufficient resources hinder the widespread adoption of inclusive practices. The research suggests that overcoming these barriers requires a multifaceted approach, involving policy reform, improved teacher development, and the integration of assistive technologies. These efforts are crucial for building a more inclusive, accessible, and sustainable education system in Uzbekistan.

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1. INTRODUCTION

Inclusive education has become a cornerstone of modern educational reforms worldwide, aiming to provide equal opportunities for all students, regardless of their abilities or disabilities. It emphasizes the integration of students with special educational needs (SEN) into mainstream classrooms, ensuring they receive a quality education alongside their peers (Glushchenko, 2025; Azizah et al., 2022; Egbedeyi & Babalola, 2023; Al Shaban & Hanafi, 2024; Rizqita et al., 2024). In this context, inclusive education is not only about physical integration but also about fostering social inclusion, psychological well-being, and academic success for all learners (Faddillah et al., 2024; Musayaroh et al., 2023; Adesokan & Bojuwoye, 2023).

Uzbekistan has shown a strong commitment to inclusive education, reinforced by legislative measures such as the 2021 Presidential Decree "On Inclusive Education". This decree aims to improve access to education, promote quality teaching for diverse learners, and ensure that students with disabilities are fully integrated into the educational system (Ergashev, 2022; Karimova, 2019; Rashidov, 2020; Yuldasheva, 2023; Glushchenko, 2025; Azizah et al., 2022; Egbedeyi & Babalola, 2023; Al Shaban & Hanafi, 2024; Rizqita et al., 2024; Muhabbat et al., 2023; Mirzabek, 2023). However, despite the legal framework and governmental efforts, Uzbekistan faces significant challenges in achieving sustainability in inclusive education. These challenges primarily lie in addressing the pedagogical and psychological factors essential for creating an environment that supports all learners (Faddillah et al., 2024; Musayaroh et al., 2023; Adesokan & Bojuwoye, 2023).

Teacher training remains one of the most significant obstacles. Data show that a large proportion of teachers in Uzbekistan lack specific training in inclusive pedagogical strategies, hindering their ability to meet the diverse needs of students. Furthermore, the psychological climate within schools, influenced by societal attitudes toward disability and diversity, plays a crucial role in the integration of students with SEN. Teachers' perceptions and their ability to foster a supportive, inclusive classroom environment are key factors in the success of inclusion (Sergey et al., 2024).

In addition to these pedagogical and psychological challenges, the availability of resources—such as teaching materials, assistive technologies, and trained support staff—remains uneven across the country. While urban areas may have access to better infrastructure, rural schools often lack the necessary tools and facilities to support inclusive education effectively (Reicher, 2010; Haug, 2017).

The emergence of technological advancements, particularly artificial intelligence (AI), presents new opportunities to support inclusive education. AI can tailor educational resources to suit individual needs, simplify complex information, and enhance learning experiences for students with intellectual and developmental disabilities. However, concerns remain about the potential reduction of human interaction and empathy in the classroom.

To mitigate these challenges, it is essential to provide comprehensive training for educators on how to effectively integrate AI tools into the educational process while ensuring that these technologies remain aligned with the principles of inclusion (Al-Khassawneh, 2023; Al Husaeni et al., 2024; Rochman et al., 2024; Solihat et al., 2024; Rahayu & Ismail, 2023; Fiandini et al., 2023; Nurhasanah & Nugraha, 2024; Alimi et al., 2021; Rahmiyanti, 2024; Agarry et al., 2022; Nagaraju & Ramakrishna, 2025)

This study aims to analyze the pedagogical and psychological factors influencing the continuity of inclusive education in Uzbekistan. By integrating empirical data, theoretical frameworks, and global best practices, this research seeks to identify strategies that can enhance the effectiveness of inclusive education. Additionally, the study aims to provide actionable recommendations that

will ensure equitable and quality educational experiences for all students, regardless of their abilities.

2. LITERATURE REVIEW

2.1. Pedagogical Factors in Inclusive Education

The pedagogical aspect of inclusive education focuses primarily on teaching methodologies that cater to the diverse needs of all students. According to [Glushchenko \(2025\)](#) inclusive education requires flexible, student-centered teaching strategies that adapt to individual learning needs. In many countries, including Uzbekistan, teachers are often unprepared to apply these strategies, primarily due to a lack of specialized training in inclusive pedagogy. A study by [Aziz et al. \(2022\)](#) and [Musayaroh et al. \(2023\)](#) highlights the importance of teacher preparation programs that equip educators with the necessary skills to teach students with special educational needs (SEN). This is particularly important in developing countries, where systemic challenges such as resource constraints and limited access to professional development persist.

In Uzbekistan, a survey by the [Sergey et al. \(2024\)](#) revealed that 68% of teachers had not received formal training in inclusive education practices. This gap in professional development is one of the main barriers to successfully implementing inclusive education across the country. Researchers such as [Adesokan and Bojuwoye \(2023\)](#) emphasize that inclusive education cannot be sustained without systematic investments in teacher training and pedagogical flexibility.

Additionally, the role of assistive technologies is gaining recognition in inclusive education. Technologies such as speech-to-text software, audio books, and interactive digital learning tools can significantly enhance the learning experience for students with disabilities. According to [Adesokan and Bojuwoye \(2023\)](#), the integration of assistive technology into classrooms helps remove barriers to learning, offering students personalized educational experiences. In Uzbekistan, however, the availability of assistive technologies remains limited, with only 35% of schools equipped to support inclusive practices, as reported in the 2022 National Center for Inclusive Education survey.

2.2. Psychological Factors in Inclusive Education

The psychological well-being of students with disabilities plays a significant role in their ability to succeed in an inclusive educational environment. Social integration and emotional support from both peers and teachers are critical for students with special educational needs (SEN). Research by [Egbedeyi and Babalola \(2023\)](#) found that peer relationships and a positive classroom climate significantly affect the academic performance and psychological adaptation of students with SEN. Inadequate integration and a lack of emotional support can lead to social isolation and reduced self-esteem, which hinders students' overall development ([Manghano et al., 2022](#); [Mwala & Lyakurwa, 2022](#); [Putri, 2023](#); [Riteshkarmarker, 2023](#); [Braquez & Morbo, 2024](#); [Eshbekovich & Sayfullayevna, 2024](#); [Khimmataliyev & Ergashevna, 2025](#))

In Uzbekistan, [Nuralieva et al. \(2024\)](#) found that over 54% of students with SEN reported feelings of isolation in school settings, primarily due to insufficient support from teachers and limited integration with their peers. These findings suggest that while physical integration into mainstream classrooms may be achieved, the psychological and emotional aspects of inclusion are often overlooked. [Järvis et al. \(2022\)](#) argue that the psychological integration of students with SEN should be seen as an essential component of inclusive education, calling for increased teacher awareness and emotional support to ensure successful inclusion.

2.3. Teacher Attitudes and Social Perceptions

Teachers' attitudes toward disability and their willingness to embrace inclusive education have a profound impact on the success of inclusion efforts. Sheppard & Wieman (2020) emphasize that educators' attitudes play a central role in shaping the classroom climate and can either foster or hinder the integration of students with disabilities. In Uzbekistan, as noted by Nam (2019) there remains a significant negative perception of disabilities, particularly among teachers. The lack of training, combined with these prejudices, contributes to a reluctance to adopt inclusive practices.

In contrast, positive teacher attitudes are linked to improved social and academic outcomes for students with disabilities. Khudaybergenova (2024) suggests that fostering a positive school culture through professional development and social inclusion initiatives can help change negative perceptions and improve both teacher-student and student-peer relationships.

2.4. International Perspectives on Inclusive Education

Internationally, inclusive education has seen significant advancements, particularly in the European Union and North America, where inclusive education policies are more established. Studies by Stepaniuk (2019) indicate that countries with comprehensive inclusive education policies see higher levels of social cohesion and reduced bias. These countries have also implemented supportive infrastructures, such as resource rooms, specialized support staff, and inclusive teaching practices.

In contrast, many developing countries, including Uzbekistan, continue to face challenges related to policy implementation, resource constraints, and teacher readiness. Haug (2017) advocates for inclusive policy reforms that not only focus on physical integration but also emphasize the quality of interactions and the psychosocial integration of students with SEN.

2.5. The Role of Technology in Inclusive Education

The integration of assistive technologies into inclusive education is an evolving area that promises to enhance the learning experience for students with diverse needs. AI-driven tools, such as personalized learning software and educational apps, can support students with intellectual disabilities, providing them with tailored content at their pace. AI has been shown to simplify complex information, making it more accessible for students with learning difficulties (Al-Khassawneh, 2023; Al Husaeni et al., 2024; Rochman et al., 2024; Solihat et al., 2024; Rahayu & Ismail, 2023; Fiandini et al., 2023; Nurhasanah & Nugraha, 2024; Alimi et al., 2021; Rahmiyanti, 2024; Agarry et al., 2022; Nagaraju & Ramakrishna, 2025). However, concerns about the reduction of human interaction and empathy in classrooms due to increased reliance on technology must be addressed. Alimi et al. (2020) highlights that technology should complement, not replace, human-centered education, ensuring that human interaction remains central to the inclusive education process.

3. METHODS

3.1. Research Design

The study adopts a cross-sectional design that allows for a detailed analysis of the current state of inclusive education in Uzbekistan. It combines survey-based quantitative research with qualitative insights from interviews and focus group discussions, providing a holistic perspective on the factors that impact the sustainability and effectiveness of inclusive education.

3.2. Participants

The study surveyed a total of 500 teachers across various regions of Uzbekistan, including urban and rural areas. Participants were selected through stratified random sampling to ensure the representation of different school types, regional differences, and teacher experience. The sample consisted of:

- (i) 300 primary and secondary school teachers who are directly involved in inclusive education practices.
- (ii) 100 school administrators responsible for implementing inclusive policies.
- (iii) 100 parents of students with special educational needs (SEN) to gather insights on their perspectives regarding the inclusivity of their children's educational environment.

In addition, semi-structured interviews were conducted with 30 teachers, including a mix of experienced and novice educators, school administrators, and policymakers to explore deeper insights into their attitudes, challenges, and practices related to inclusive education.

3.3. Data Collection

The research employs a triangulation of data sources to ensure a robust and comprehensive analysis of the pedagogical and psychological factors affecting inclusive education:

- (i) Surveys

A stratified random sample of 500 teachers completed a survey that assessed:

 - (a) Teacher Preparation: The level of training and professional development received by teachers in inclusive education pedagogy.
 - (b) Resource Availability: The availability of teaching aids, assistive technologies, and physical infrastructure to support inclusive education.
 - (c) Attitudinal Factors: Teachers' attitudes towards students with SEN, including their perceived challenges and perceived effectiveness of inclusive practices. The survey included both closed-ended questions (e.g., Likert scale) for quantitative analysis and open-ended questions for qualitative feedback.
- (ii) Semi-Structured Interviews

Thirty teachers, school administrators, and policymakers participated in semi-structured interviews. The interviews were designed to explore:

 - (a) Challenges faced in implementing inclusive education policies.
 - (b) The effectiveness of current teacher training programs.
 - (c) The role of school culture in supporting students with special needs.
 - (d) The impact of attitudes and social perceptions on the inclusivity of the learning environment.
- (iii) Focus Group Discussions

Focus group discussions were held with parents of students with SEN to understand their perspectives on the inclusiveness of the educational environment. These discussions aimed to gather insights into:

 - (a) The level of peer integration experienced by their children.
 - (b) Parental involvement in inclusive education practices.
 - (c) Support mechanisms available to students with special needs in the school system.
- (iv) Observations

Observational data were collected from classroom settings in 10 selected schools (5 urban and 5 rural) to assess how inclusive education practices were implemented in real-time. Observations focused on:

 - (a) The level of student engagement in inclusive classrooms.

- (b) How teachers differentiated their teaching methods to meet diverse learning needs.
- (c) The extent of peer integration and collaboration between students with and without disabilities.

3.4. Data Analysis

The study used a combination of quantitative and qualitative data analysis methods:

(i) Quantitative Analysis

The survey data were analyzed using descriptive statistics (e.g., frequencies, percentages) and inferential statistics (e.g., chi-square tests, correlations) to identify patterns and relationships between teacher training, resource availability, and attitudinal factors towards inclusive education.

(ii) Qualitative Analysis

The data from semi-structured interviews, focus groups, and observational notes were analyzed using thematic analysis. Key themes were identified from participants' responses, focusing on:

- (a) Teachers' attitudes towards inclusive education.
- (b) Challenges related to pedagogical flexibility and resource allocation.
- (c) The role of social perceptions in fostering an inclusive classroom environment.
- (d) Triangulation of the qualitative data ensured that the findings were consistent across different sources, which enhanced the validity of the study.

4. RESULTS AND DISCUSSION

The study's findings shed light on the current state of inclusive education in Uzbekistan, focusing on pedagogical training, resource allocation, and psychological factors affecting teachers and students.

The survey data show that a significant proportion of educators in Uzbekistan have limited experience with inclusive education. Notably, 51 percent of teachers said they "feel terrible" about their disability, which could affect their approach to inclusive education. These statistics highlight the need for comprehensive professional development programs aimed at changing pedagogical skills and attitudes towards disability.

The availability of resources needed to implement inclusive education remains uneven across the country. In 2022, the government of Uzbekistan took an important step by integrating children with disabilities into 225 mainstream schools. Despite this progress, disparities persist, especially in rural areas where access to special materials and tools is limited. The uneven distribution of resources makes it difficult to uniformly apply inclusive education practices. The psychological climate in educational institutions plays a crucial role in the success of inclusive education. The aforementioned statistics, which show that more than half of teachers report negative feelings towards the prospect of disability, reflect a broader social stigma.

This stigma can negatively affect the self-esteem and social integration of students with special educational needs (SEN). Addressing these psychological barriers is crucial to creating a conducive learning environment for all students. The government's commitment to inclusive education is evident in policy reforms and partnerships with international organizations. For example, partnerships with UNICEF have helped develop inclusive education models and train teachers.

However, implementing the policy requires sustained efforts, such as ongoing monitoring, public participation, and the allocation of adequate resources to ensure the effective implementation of inclusive education in all regions ([Glushchenko, 2025](#); [Azizah et al., 2022](#); [Egbedeyi & Babalola, 2023](#); [Al Shaban & Hanafi, 2024](#); [Rizqita et al., 2024](#)). While Uzbekistan has

made commendable strides towards inclusive education, the findings highlight the need for ongoing professional development, equitable resource allocation, and societal attitudinal change to ensure the sustainability and success of inclusive education practices (Faddillah *et al.*, 2024; Musayaroh *et al.*, 2023; Adesokan & Bojuwoye, 2023).

This study provides a comprehensive analysis of the pedagogical and psychological factors that influence the sustainability of inclusive education in Uzbekistan. The findings highlight significant progress in policy development and infrastructure development, while highlighting persistent challenges that hinder the effective implementation of inclusive practices. Uzbekistan has demonstrated a strong commitment to inclusive education through the implementation of progressive policy and legislative reforms.

The government's goal of ensuring inclusive education in 51 percent of schools by 2025 is an example of this commitment. This ambitious goal requires a multifaceted approach that includes adapting curricula, improving teacher training, and developing inclusive learning environments. However, the successful translation of policies into practice depends on addressing systemic challenges, including resource allocation and societal attitudes toward disability.

The effectiveness of inclusive education is inextricably linked to teacher training. Data show that a large proportion of teachers in Uzbekistan do not have specific training in inclusive pedagogy. This shortcoming is compounded by prevailing prejudices, as evidenced by the fact that 51% of teachers expressed negative views about it. To mitigate these problems, it is necessary to implement comprehensive professional development programs that equip teachers with the necessary skills and encourage attitudinal changes that support inclusion.

Equitable distribution of resources is essential for the sustainability of inclusive education. Despite government efforts, disparities persist, especially between urban and rural areas. The integration of children with disabilities into 225 mainstream schools represents an important milestone; however, the lack of specialized materials and accessible facilities in many institutions hinders the effective inclusion of students with special educational needs (SEN). Addressing these infrastructure gaps requires strategic investments and public and private sector mobilization.

The psychological well-being of students with disabilities is profoundly affected by school climate and societal perceptions. Research has shown that the majority of teachers have negative attitudes towards disabilities, reflecting deep-rooted stigmas that can negatively impact students' integration and self-esteem. Implementing inclusive education programs that challenge stereotypes and foster empathy among teachers, students, and the wider community is essential to fostering an inclusive culture (Egbedeyi & Babalola, 2023).

The emergence of technological innovations presents both opportunities and challenges for inclusive education. Artificial intelligence (AI) has the potential to personalize learning experiences for students with diverse needs; however, concerns about diminished human interaction and empathy require a careful and balanced approach. Ensuring that AI applications are inclusive requires the active involvement of stakeholders, including people with disabilities, in the design and implementation processes (Al-Khassawneh, 2023; Al Husaeni *et al.*, 2024; Rochman *et al.*, 2024; Solihat *et al.*, 2024; Rahayu & Ismail, 2023; Fiandini *et al.*, 2023; Nurhasanah & Nugraha, 2024; Alimi *et al.*, 2021; Rahmiyanti, 2024; Agarry *et al.*, 2022; Nagaraju & Ramakrishna, 2025).

The findings of this study highlight the need for ongoing research to track the progress of inclusive education initiatives. Longitudinal studies examining the impact of teacher training programs, resource allocation strategies, and technological interventions provide valuable insights into effective practices. In addition, developing international collaboration can facilitate

the exchange of best practices and increase the capacity of Uzbekistan's education system to reach all learners. While Uzbekistan has made commendable progress towards inclusive education, sustained efforts are needed to overcome existing challenges. A holistic approach that combines policy reform, professional development, resource investment, community outreach, and technological innovation is needed to ensure that inclusive education becomes a reality for all students.

5. CONCLUSION

This study has highlighted the critical pedagogical and psychological factors necessary to ensure the continuity of inclusive education in Uzbekistan. Despite significant progress through policy reforms and legislative measures, challenges remain in fully implementing and sustaining inclusive practices across the nation. The findings underscore that the success of inclusive education is deeply tied to teacher training, the availability of educational resources, and the psychological climate within schools.

A major takeaway from this research is the urgent need for comprehensive teacher professional development. The lack of specialized training in inclusive pedagogy significantly limits teachers' ability to effectively support students with special educational needs (SEN). Moreover, the uneven distribution of resources, especially between urban and rural schools, hampers the widespread adoption of inclusive practices. To address these challenges, targeted investments in infrastructure, including assistive technologies, are crucial for ensuring that all schools can offer equitable educational opportunities.

Additionally, the study revealed that negative societal attitudes towards disability, particularly among teachers, contribute to a psychologically unsupportive environment for SEN students. Shifting these perceptions through awareness campaigns and attitudinal change initiatives is essential to fostering an inclusive school culture where students with disabilities can thrive academically and socially.

The integration of technology, particularly artificial intelligence (AI), offers significant opportunities to support inclusive education, but concerns about reduced human interaction and empathy must be carefully addressed. A balanced approach, combining innovative technologies with human-centered teaching, will ensure that AI tools enhance rather than replace the essential teacher-student relationship.

The successful implementation of inclusive education in Uzbekistan requires a multifaceted approach, involving policy reform, teacher development, resource allocation, and community engagement. Future research should focus on conducting longitudinal studies to track the progress of inclusive education initiatives over time, examining their long-term impact on both teachers and students. Additionally, it is essential to implement comprehensive teacher training programs that encompass both theoretical knowledge and practical skills in inclusive education practices, equipping educators to effectively address the diverse needs of students with special educational needs (SEN). Furthermore, the expansion of assistive technology across all schools, especially in rural areas, is crucial to bridge the existing resource gaps and ensure that all students have equal access to the tools necessary for their academic success. Finally, community-based initiatives should be prioritized to reduce the stigma surrounding disabilities and raise awareness of inclusive practices, fostering a more supportive and understanding environment for all students. By addressing the gaps identified in this study, Uzbekistan can move closer to realizing a truly inclusive education system, one that provides equitable learning opportunities for all students, regardless of their abilities or disabilities.

6. AUTHORS' NOTE

The authors declare that there is no conflict of interest regarding the publication of this article. Authors confirmed that the paper was free of plagiarism.

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