

Prepared for Uncertainty? Future Special Educators and Inclusive Practice in Times of Change

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ABSTRACT:

Special education increasingly operates in environments shaped by rapid social change, growing learner diversity, and rising professional complexity. Under such conditions, future special educators are expected to do more than master disciplinary knowledge or established intervention strategies. They must also learn to act professionally in situations where certainty is limited and clear solutions are not always available. This study examined how future special educators perceive uncertainty in relation to inclusive practice. The analysis draws on data from a quantitative survey conducted within a Visegrad-funded international research project focused on inclusive education in Central Europe. The sample included 144 university students enrolled in special education programmes, many of whom had already gained practical experience in educational settings. Questionnaire data were analysed using descriptive procedures supplemented by interpretive analysis of open-ended responses. The findings suggest that uncertainty is not a marginal concern but a substantial feature of anticipated professional practice. Participants reported uncertainty particularly in relation to increasing learner diversity, the complexity of special educational needs, and changing societal expectations regarding inclusion. The study argues that preparedness in special education should not be understood solely as competence or confidence. Preparing future professionals may also require professional flexibility, reflective judgment, and the capacity to act responsibly under partially unknown conditions.

Keywords: Special education, uncertainty, preparedness, inclusive practice, pre-service special educators.

1. Introduction

Inclusive education has become a central principle of contemporary educational systems, reflecting broader commitments to equity,

participation, and meaningful access to learning for all students, regardless of disability, social background, or individual educational needs (Ainscow, 2020; Slee, 2018; UNESCO, 2020).

Across Europe, schools are increasingly expected not only to accommodate learner diversity but also to create educational environments in which all students can actively participate and succeed (European Agency for Special Needs and Inclusive Education, 2025, 2026). Beyond its educational dimension, inclusion also carries wider social significance, contributing to the reduction of social exclusion and the strengthening of long-term social cohesion (Daněk & Klugerová, 2023).

These developments have substantially reshaped expectations placed on educational professionals, particularly those working in special education. Traditionally, special educators have been associated with assessment, intervention, and individualized support delivered within relatively stable professional frameworks (Friend, 2021; Kauffman et al., 2018). Contemporary educational practice, however, is increasingly shaped by heterogeneous classrooms, overlapping educational needs, behavioural and emotional challenges, and continuously changing institutional demands (Francisco et al., 2020; Mitchell, 2014). Under such conditions, professional preparedness can no longer be understood solely through disciplinary knowledge, instructional competence, or familiarity with evidence-based practices (Aceves & Kennedy, 2024; Cook et al., 2020).

Although teacher preparedness has been widely examined through competence, self-efficacy, and attitudes toward inclusion (Collins et al., 2025; Sharma et al., 2012; Tiwari, 2024), considerably less attention has been devoted to uncertainty as an explicit construct within special education. This gap appears particularly relevant in Central and Eastern Europe, where inclusive education continues to develop within educational systems shaped by post-socialist transformation, uneven institutional capacity, and persistent disparities in professional support. In such contexts, tensions between policy expectations and everyday educational realities may become especially pronounced. The issue is therefore highly relevant for future special educators preparing to enter professional environments marked by

increasing diversity, growing complexity, and evolving expectations.

The present study addresses this gap by examining how future special educators perceive professional uncertainty in inclusive educational practice. Particular attention is devoted to identifying major sources of uncertainty, examining perceived professional preparedness in the context of uncertainty, and discussing the implications of these findings for the preparation of future professionals in special education. The study was guided by the following research questions:

RQ1: *What are the major sources of professional uncertainty perceived by future special educators in inclusive educational practice?*

RQ2: *How does perceived professional preparedness relate to experienced uncertainty in inclusive educational settings?*

RQ3: *To what extent is professional uncertainty associated with individual preparedness, and to what extent does it reflect structural conditions of inclusive education?*

2. Literature Review

Special education has long been associated with assessment, targeted intervention, and individualized support for learners whose educational needs require forms of provision extending beyond standard classroom instruction. Professional preparedness in this field has traditionally been linked to diagnostic literacy, instructional competence, legal awareness, and the ability to apply evidence-based interventions in pedagogically appropriate ways (Friend, 2021; Kauffman et al., 2018). Over the past decades, growing emphasis has been placed on narrowing the gap between research and everyday educational practice, particularly in areas where intervention quality directly affects student outcomes (Carnine, 1997; Cook et al., 2008, 2020). Recent work has further highlighted the importance of high-leverage practices, not only as technical procedures but as professional actions requiring judgment, adaptation, and contextual sensitivity (Aceves & Kennedy, 2024; Collins et al., 2025). This shift complicates how preparedness is understood. Formal knowledge

remains essential, yet it offers only part of the picture. Readiness for practice is also shaped by professional experience, situational demands, and the capacity to make informed decisions in conditions that rarely resemble ideal training scenarios (Bateman & Yell, 2019; Lancaster & Bain, 2020; Tiwari, 2024).

The expansion of inclusive education has intensified these demands. Inclusion is no longer framed simply as placement in mainstream settings, but as a broader commitment to participation, belonging, and equitable access to learning (Ainscow, 2020; Slee, 2018). This has altered the everyday reality of special educators. Their work increasingly unfolds in heterogeneous classrooms where behavioural variability, family expectations, institutional limitations, and policy requirements intersect, often in ways that resist straightforward pedagogical solutions (Francisco et al., 2020; Mitchell, 2014). The quality of inclusive practice therefore depends on more than individual competence. It is shaped by the availability of support systems, the functioning of counselling services, interdisciplinary cooperation, and institutional capacity to respond to diversity in meaningful ways (Stárek & Klugerová, 2025). In this sense, inclusive education cannot be understood solely as a pedagogical project. It also reflects broader social responses to inequality, exclusion, and vulnerability. Special education increasingly occupies this wider space, functioning not only as an educational domain but also as a mechanism of social change (Daněk & Klugerová, 2023; Stárek, 2023, 2026).

Within such environments, uncertainty becomes difficult to treat as a marginal phenomenon. Early theoretical work approached uncertainty mainly through ambiguity tolerance and individual psychological disposition (Budner, 1962; Frenkel-Brunswik, 1949). More recent scholarship offers a different view, treating uncertainty as an inherent condition of complex professional decision-making. Research in healthcare and other high-stakes professions shows that uncertainty often persists even among highly competent professionals when decisions

must be made under incomplete information, conflicting demands, and unstable conditions (Han et al., 2011; Hillen et al., 2017). Comparable dynamics are increasingly recognized in education. Teaching is now widely understood as relational, adaptive, and context-dependent, far removed from any simple procedural application of methods (Berliner, 2002; Davis & Sumara, 2006; Fullan, 2020). Recent studies in teacher education suggest that uncertainty should not automatically be interpreted as evidence of insufficient competence. Under some conditions, it may reflect deeper professional awareness, support reflective practice, and contribute to adaptive expertise (Bonnet & Glazier, 2023; Fine & Wizman-Man, 2025). Adaptive expertise, with its emphasis on flexibility, principled transfer, and thoughtful adaptation in unfamiliar situations, appears especially relevant to special education, where stable solutions are often unavailable (Hatano & Inagaki, 1986; Moran et al., 2023; Schwartz et al., 2005). In the present study, uncertainty is therefore understood as a multidimensional professional response emerging at the intersection of individual competence, relational demands, and structural conditions within inclusive educational practice.

3. Methodology

This study employed an exploratory cross-sectional survey design to examine professional uncertainty among future special educators in the Czech educational context. Although the primary analytical framework was quantitative, the inclusion of open-ended responses provided additional qualitative insight into participants' lived experiences. This design made it possible to capture not only broad response patterns but also contextual meanings attached to uncertainty in inclusive educational practice. Survey-based approaches are widely used in educational research when examining attitudes, self-reported preparedness, and professional experiences across larger participant groups (Creswell & Creswell, 2018; Cohen et al., 2018).

The final sample consisted of 144 participants enrolled in part-time special education programmes at two higher education institutions

in the Czech Republic. Participants were selected using purposive sampling, with inclusion criteria requiring current enrolment in a special education programme and voluntary participation in the study. Part-time students were intentionally selected because the study aimed to examine uncertainty not as an abstract expectation of future professional practice, but as a phenomenon already experienced in real educational settings. Unlike full-time students, many participants were simultaneously employed in educational roles, including mainstream schools, special schools, counselling centres, and related support services. Their dual position as university students and practicing professionals provided a valuable perspective situated at the intersection of academic preparation and everyday professional practice. This was particularly relevant for the present study, as perceptions of uncertainty are often shaped not only by formal training but also by direct encounters with complex and unpredictable educational situations (Lancaster & Bain, 2020; Walker et al., 2022). The sample was not intended to provide nationally representative estimates; instead, it was designed to capture analytically relevant perspectives from participants combining formal study with active professional engagement.

Data were collected using an online questionnaire administered through the Survio platform. The questionnaire was adapted from a broader research instrument originally developed within the international Visegrad-funded project Structures of Uncertainty: Inclusive Education in Central and Eastern European Countries. The original instrument was transformed into an online format to support accessible and efficient data collection across participating institutions.

The final questionnaire consisted of 27 items. Three items served as descriptive variables and collected information regarding participants' workplace, professional role, and length of professional experience. The remaining items focused on perceived preparedness, sources of professional uncertainty, institutional support, and structural barriers related to inclusive

educational practice. The instrument combined multiple response formats, including multiple-choice questions, open-ended responses, and five-point Likert scales. It was designed to capture not only perceived competence but also areas in which participants experienced hesitation, ambiguity, or reduced confidence when translating inclusive principles into everyday educational practice.

Data collection was conducted over a two-month period in 2026. The questionnaire was distributed electronically through cooperating higher education institutions. Participation was voluntary and anonymous. Prior to participation, respondents were informed about the purpose of the study, the anonymous handling of data, and their right to withdraw at any stage without consequences. Given the reflective nature of several questions, particular emphasis was placed on anonymity in order to reduce social desirability bias and encourage candid responses regarding professional insecurity, perceived limitations, and challenging aspects of inclusive practice.

The collected data were analysed primarily using descriptive procedures. Frequency distributions, percentages, and response patterns were used to identify major trends related to perceived preparedness and professional uncertainty. Open-ended responses served an important complementary role in the analysis. These responses were analysed interpretively to contextualize quantitative patterns and to identify recurring themes related to legislative ambiguity, institutional constraints, and communication challenges. The analytical approach did not aim to establish causal relationships or inferential statistical significance. It focused on identifying meaningful patterns and interpretive themes emerging from the dataset.

4. Results

The results are organized according to the three research questions. The analysis first identifies the major sources of professional uncertainty, then examines perceived professional preparedness, and finally explores the relative

contribution of individual and structural factors to experienced uncertainty.

4.1 Major Sources of Professional Uncertainty

The first research question examined the major sources of professional uncertainty perceived by future special educators in inclusive educational practice. Respondents reported uncertainty across several domains, although notable differences emerged between specific areas of

practice. The highest level of uncertainty was associated with behavioural and emotional difficulties, followed by work with students on the autism spectrum. In contrast, substantially lower levels of uncertainty were reported in relation to learning disabilities, sensory impairment, and physical disability. A detailed overview of reported sources of uncertainty is presented in Table 1.

Table 1. Major Sources of Professional Uncertainty

Source of uncertainty	n	%
Behavioural and emotional difficulties	86	59.7
Autism spectrum disorder	49	34.0
Learning disabilities	14	9.7
Sensory impairment	14	9.7
Physical disability	11	7.6
Other	12	8.3

Note. Percentages represent the proportion of respondents identifying each category as a significant source of professional uncertainty. Multiple responses were permitted; percentages therefore exceed 100% when summed.

4.2 Perceived Professional Preparedness

Data analysis revealed a paradox that was difficult to ignore and was not anticipated at the beginning of the study. Respondents generally reported relatively high levels of perceived preparedness for working with students with special educational needs, with a mean preparedness score of 3.7 out of 5. Most participants rated their preparedness in the upper range of the scale, and confidence in adapting teaching to individual

student needs remained consistently high. At the same time, substantial uncertainty persisted in several demanding areas of inclusive practice, especially in situations involving behavioural and relational complexity. These findings indicate that perceived preparedness and professional uncertainty did not function as opposing constructs. Instead, both coexisted within the same professional experience. A summary of this relationship is presented in Table 2.

Table 2. Coexistence of Professional Preparedness and Experienced Uncertainty

Indicator	%
High perceived preparedness (4–5/5)	62.5
Reported ability to adapt teaching	90.3
High uncertainty in behavioural difficulties	59.7
High uncertainty in ASD-related situations	34.0
Reported structural barriers	32.6

Note. Percentages are based on different questionnaire items and illustrate the coexistence of self-perceived preparedness and professional uncertainty. Values are not cumulative.

4.3 Individual and Structural Dimensions of Uncertainty

The third research question examined individual and structural dimensions of professional uncertainty in inclusive educational practice. Although respondents generally evaluated their own professional preparedness positively, concerns related to institutional support and working conditions remained clearly visible. Participants reported limitations in access to professional support, educational resources, and practical guidance for inclusive practice. Uncertainty was also evident in relation to

legislative requirements and their application in everyday educational settings. Responses to open-ended questions repeatedly referred to administrative burden, insufficient staffing, funding limitations, and difficulties associated with translating formal inclusion requirements into routine school practice. Open-ended responses revealed four recurring themes: difficulties translating legislation into practice, limited institutional resources, challenges in communication with parents, and tensions between inclusive ideals and classroom realities. A summary of these individual and structural dimensions is presented in Table 3.

Table 3. Individual and Structural Dimensions of Professional Uncertainty

Dimension	Key source of uncertainty	Typical manifestation
Individual	Professional confidence in complex situations	Hesitation in high-demand or unpredictable cases
Structural	Limited institutional resources	Insufficient staffing, lack of specialist support
Legislative	Difficulties implementing formal support measures	Policy-practice gap
Relational	Communication with parents	Conflicting expectations and difficult collaboration
Ethical	Tensions within inclusive practice	Balancing individual and collective educational needs

Note. The table integrates quantitative findings with recurring themes identified in open-ended responses to illustrate the multidimensional nature of professional uncertainty.

5. Discussion

Is professional uncertainty necessarily a sign of insufficient preparedness? The findings of the present study invite a more nuanced answer than is commonly assumed in discussions of special educator preparation. Most participants reported moderate to high levels of perceived professional preparedness, yet substantial uncertainty remained visible across multiple domains of inclusive educational practice. As one participant noted, “*I feel prepared, but every day brings situations that cannot be fully anticipated.*” This tension

challenges a persistent assumption in professional education: that greater knowledge and stronger preparation should naturally produce greater certainty in practice. Existing research has largely conceptualized preparedness through competence, self-efficacy, and mastery of evidence-based interventions (Aceves & Kennedy, 2024; Collins et al., 2025; Cook et al., 2020). The present findings suggest that these constructs, while essential, do not fully capture the realities of contemporary special educational practice. Professional preparedness and

professional certainty appear connected, but they cannot be treated as equivalent.

An equally important finding concerns the uneven distribution of uncertainty across domains of practice. The highest levels of uncertainty were associated with behavioural and emotional difficulties, followed by autism spectrum disorder, whereas learning disabilities were linked to substantially lower uncertainty. This distinction points to qualitative differences between educational challenges. As one participant observed, *“A single emotional outburst can change the entire dynamics of the classroom within seconds.”* Another respondent noted that *“When several children require intensive support at the same time, it becomes difficult to give each child the attention they need.”* The domains generating the greatest uncertainty were not necessarily those requiring the greatest amount of formal knowledge, but those demanding rapid judgment, relational sensitivity, and continuous adaptation in unstable situations. In such contexts, procedural knowledge alone offers only limited guidance. This observation is consistent with previous research suggesting that inclusive practice increasingly depends on context-sensitive professional judgment and less on the routine application of standardized interventions (Francisco et al., 2020; Mitchell, 2014).

The findings also complicate purely individual interpretations of uncertainty. Participants generally evaluated their own preparedness positively, while simultaneously describing uncertainty related to institutional support, resource availability, administrative burden, and legislative complexity. Open-ended responses added an important layer to this picture. Recurrent themes included difficulties translating legislative requirements into everyday practice, limited staffing and financial support, tensions in

communication with parents, and concerns regarding the balance between inclusive ideals and classroom realities. One participant captured this tension with striking clarity: *“The law says inclusion is mandatory, but look at television. Do you actually see inclusion there?”* This shifts attention from individual capability toward the broader structural conditions in which inclusive education is implemented. Inclusive practice does not unfold in isolation; it is shaped by organizational capacity, interdisciplinary cooperation, policy coherence, and available support systems (European Agency for Special Needs and Inclusive Education, 2025; Stárek & Klugerová, 2025). Under such conditions, uncertainty may persist even among highly competent professionals, not because they lack expertise, but because educational practice itself remains only partially predictable.

One implication stands out. Some degree of uncertainty may not only be inevitable, but professionally valuable. In environments shaped by rapid social change, increasing diversity, and evolving educational expectations, complete certainty may be neither realistic nor desirable. Future special educators will inevitably encounter situations for which no training programme can provide fully stable answers, simply because the precise challenges have not yet emerged. Professional preparation must therefore extend beyond knowledge transmission and technical competence. Greater emphasis should be placed on adaptive expertise, reflective decision-making, tolerance of ambiguity, and the capacity to act responsibly under conditions of incomplete information (Bonnet & Glazier, 2023; Fine & Wizman-Man, 2025; Moran et al., 2023). Key implications for special educator preparation are summarized in Table 4.

Table 4. Implications for Special Educator Preparation in Conditions of Uncertainty

Area	Current emphasis	Recommended shift
Knowledge	Evidence-based methods	Adaptive decision-making
Training	Stable scenarios	Ambiguous case-based learning
Legislation	Normative knowledge	Applied legal reasoning
Practice	Technical competence	Reflective uncertainty tolerance

Inclusion

Compliance

Context-sensitive adaptation

Note. The table synthesizes key implications emerging from the present findings and outlines conceptual directions for strengthening special educator preparation in contexts characterized by professional uncertainty.

The central challenge of special educator preparation may therefore no longer lie in eliminating uncertainty. A more realistic goal may be preparing professionals to navigate uncertainty thoughtfully, ethically, and with sufficient professional confidence to make context-sensitive decisions in situations where no fully stable solution exists.

5.1 Limitations

Several limitations should be acknowledged when interpreting the findings of this study. First, the sample was limited to part-time university students enrolled in special education programmes in the Czech Republic. Although this group provided analytically valuable insights due to the combination of academic preparation and ongoing professional practice, the findings remain context-specific and cannot be generalized to all future special educators or to other national educational systems. Inclusive education is strongly shaped by legislative frameworks, institutional structures, and cultural expectations, all of which differ substantially across countries.

Second, the study relied on self-reported questionnaire data, which may be influenced by subjective perception, social desirability bias, and differences in individual interpretation of key concepts such as preparedness or uncertainty. Reported perceptions therefore cannot be treated as direct indicators of actual professional competence or classroom effectiveness.

Third, the study employed an exploratory descriptive design and did not aim to model statistical associations or causal relationships between preparedness and uncertainty. The findings should therefore be understood primarily as descriptive and interpretive, highlighting meaningful patterns and tensions that warrant further investigation. Future research could build on these findings through comparative cross-national studies, longitudinal

designs, or more advanced statistical modelling of factors contributing to professional uncertainty.

6. Conclusion

This study examined professional uncertainty among future special educators in the context of inclusive educational practice. The findings revealed three central observations. First, professional uncertainty was not distributed evenly across domains of practice, with the highest levels associated with behavioural and emotional difficulties and autism spectrum disorder. Second, respondents generally reported moderate to high levels of perceived preparedness, indicating that uncertainty coexisted with relatively strong professional confidence. Third, uncertainty appeared to be linked not only to individual preparedness but also to structural factors, including institutional support, resource availability, and legislative complexity. These findings challenge the assumption that stronger professional preparation necessarily leads to greater certainty in practice. In contemporary inclusive education, uncertainty emerges not simply as a consequence of insufficient competence, but as a natural feature of increasingly complex professional environments.

The study suggests that special educator preparation may need to move beyond models focused primarily on knowledge acquisition and procedural mastery. Future professionals must be prepared not only to apply established methods, but also to navigate ambiguity, adapt to changing conditions, and make responsible decisions in contexts where clear solutions may not exist. Future research should further examine how professional uncertainty develops over time, particularly during the transition from pre-service preparation to full professional practice, and whether targeted educational interventions can strengthen adaptive expertise and reflective decision-making. As inclusive education

continues to evolve, the central challenge may no longer be how to eliminate uncertainty, but how to prepare professionals to work competently and ethically within it.

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Data Availability Statement

The data supporting the findings of this study are not publicly available due to ethical restrictions and the need to protect participant anonymity. Aggregated data may be available from the corresponding author upon reasonable request.

Author Declaration

The authors declare that this manuscript represents original work and has not been published previously, in whole or in part, nor is it under consideration by any other journal. All authors have reviewed and approved the final manuscript and consent to its submission. The authors declare no financial, institutional, or personal conflicts of interest related to this research.

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