

Challenges and Support Needs of Special Education Teachers in Implementing Inclusive Digital Education in Jordan

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Abstract

Inclusive education is vital for equitable learning, yet digital and hybrid environments present ongoing challenges for students with disabilities in Jordan. The shift to online and blended learning has complicated the roles of special education teachers. This study explores the challenges and support needs perceived by these teachers, highlighting the impact of digital learning tools. Using a quantitative, descriptive approach, a structured questionnaire was administered to 120 special education teachers across Jordan. Key challenges included a lack of training in digital pedagogy, insufficient assistive technologies, limited resources, and difficulties managing diverse student needs online. Differences were found by gender, experience, and location, with less-experienced and rural teachers facing more difficulties. Teachers called for professional development, institutional support, and collaborative structures. The findings highlight the urgent need to equip teachers with inclusive digital education and recommend context-sensitive policy reforms to support sustainable, inclusive practices in Jordan.

Keywords: inclusive education, special education teachers, support needs, challenges, professional development, Jordan.

1. Introduction

As the education landscape evolves beyond traditional delivery methods, instructional designers and learning facilitators must create dynamic and inclusive learning environments to enhance students' readiness for e-learning and their engagement in teaching and learning processes (Ramos et al., 2025). Inclusive education, grounded in the principles of equity, access, and social justice, upholds the right of all learners, including those with disabilities, to receive quality education in mainstream settings (UNESCO, 2023a). This model has been widely adopted at the policy level in both developed and developing countries, including Jordan. However, its practical implementation, especially within digital and blended learning environments, continues to pose substantial challenges.

The shift to online and hybrid learning, accelerated by the COVID-19 pandemic, has heightened both opportunities and barriers to inclusion. While digital platforms can expand access to education, they can also introduce new forms of exclusion for learners with disabilities and the teachers who support them. Special education teachers often face unique difficulties in adapting content, managing digital tools, and responding to the diverse needs of students in virtual settings (Zhang et al., 2021). These challenges are further intensified in low-resource contexts, such as rural and public schools in Jordan, where infrastructure, internet connectivity, and access to assistive technologies remain limited (Alabdallat et al., 2021).

The role of special education teachers is central to the success of inclusive education. As Florian and Black-Hawkins (2011a) suggest, these educators are key agents in translating inclusive

policy into practice. Their responsibilities span differentiated instruction, behavioral support, collaboration with general educators, and ensuring accessibility through various pedagogical and technological strategies. However, when support systems are fragmented or lacking, teachers often report stress, low job satisfaction, and reduced instructional efficacy (Thomas, 2022).

From an international perspective, studies consistently indicate that a lack of digital training, administrative support, and technical resources are major barriers to inclusive education. In Jordan, these concerns have been confirmed. Special education teachers were found to often experience professional isolation and severe psychological stress, driven by weak collaboration structures and orientations toward digital and distance learning. The lack of assistive technologies, adapted curricula, and digital professional development are additional major barriers to inclusive practices in Jordanian schools (Benson, 2023).

In the digital context, access to assistive technology is critical to effective inclusive teaching. Although technological tools promote educational differentiation and student autonomy in general, including those with special needs, many teachers lack the necessary training to use them effectively. The digital divide persists in Middle Eastern schools, where access to and mastery of digital tools remains insufficient (Khazaleh et al, 2023).

Research also underscores the importance of collaborative school cultures. Teachers who work in isolation are less likely to maintain inclusive educational practices. Therefore, inclusive collaborative teaching in its various forms traditional, hybrid, and structured digital—and joint instructional planning between special education and general education teachers improve teacher morale and student outcomes. Therefore, effective collaboration between supportive leadership and clear institutional frameworks that support inclusive education is essential (Clausen et al., 2023).

Despite the expanding global literature, localized research capturing the lived experiences of special education teachers in Jordan, particularly in digital or blended learning environments, remains limited. This gap hinders the development of contextually relevant support mechanisms and policy reforms. Accordingly, this study aims to explore the challenges and support needs of special education teachers implementing inclusive education in Jordan through digital and distance learning. It seeks to answer the following research questions:

1. What are the main challenges faced by special education teachers working in inclusive classrooms in Jordan?
2. What types of support do these teachers consider essential for effective practice in digital and hybrid environments?
3. Are there statistically significant differences in perceived challenges and support needs based on demographic factors such as gender, school type, years of experience, and geographic location?

This study contributes both theoretically and practically. Theoretically, it adds to the limited body of knowledge on inclusive education in digitally mediated contexts in the Global South. Practically, it provides evidence-based insights for policymakers, school leaders, and teacher training institutions to develop more effective, equitable, and sustainable inclusive education systems.

2. Literature Review

Recent literature since 2018 has significantly enriched our understanding of the complex challenges and multifaceted support needs encountered by special education teachers operating within inclusive education frameworks, particularly under the growing reliance on digital and distance learning modalities. In alignment with the goals of the current study, the reviewed literature is synthesized around three central dimensions: (1) professional training and capacity

building, (2) administrative and collaborative support systems, and (3) access to assistive technology and digital resources. These dimensions are critical for enabling equitable and effective inclusive educational practices in Jordan and similar contexts.

2.1. Professional Training and Capacity Building

Teacher preparation is a cornerstone of implementing inclusive education, especially in modern digital learning environments. Subban et al. (2021) noted that comprehensive training programs, both pre- and in-service, are essential for fostering pedagogical beliefs that support inclusion, as well as developing the necessary practical competencies among teachers. This is particularly important in contexts where inclusive education is still being established as a policy and implementation priority. Teachers' beliefs about their self-efficacy also play a pivotal role in determining their willingness, motivation, and ability to adopt inclusive teaching practices in classrooms. Consequently, some secondary school teachers are observed to resist implementing these practices, which in turn negatively impacts their sense of self-efficacy related to integrating students with disabilities into the educational process.

Professional development for novice teachers, particularly in special education, remains an under-researched field, despite its vital role in improving the quality of teaching and classroom practices. Papi (2018) analyzed the challenges these teachers face to understand their professional development trajectories through the participation of teachers working in SRM classrooms within public schools. The study used a qualitative, critical, and dialectical approach to examine the participants' experiences. The results revealed shortcomings in the professional development programs provided to novice teachers, who face multiple difficulties, ranging from teaching challenges to bureaucratic pressures, despite having received prior specialized training. Furthermore, it demonstrated that many teachers feel alienated within the school environment, which prompts them to seek professional alternatives to compensate for the lack of support and guidance available to them during their early careers. In the Jordanian context, the results of a study (Sakarneh, 2020) revealed that the most important challenges facing teachers in the integration process are infrastructure, resources, funding, classroom size, limited time, lack of training and knowledge, weak parental involvement, educational evaluation and supervision, and negative attitudes towards the integration of students with special needs. The study recommended the need to provide more funding to provide teachers with the necessary training for integration and the use of educational technology with students, reduce the number of students in inclusive classrooms, and enhance positive attitudes of teachers towards students with disabilities in basic schools. Alabdallat et al. (2021) also noted that limited access to continuing professional learning exacerbates teacher burnout and undermines confidence in managing inclusive digital classrooms.

2.2. Administrative and Community Support and a Culture of Cooperation

The social and cultural context, particularly the attitudes of school leaders and the wider community, has been shown to significantly influence the confidence and preparedness of both pre-service and beginning teachers. As highlighted by Chhetri et al. (2023), school leadership plays a pivotal role in shaping inclusive teaching practices either by fostering collaboration and professional support or by perpetuating traditional, exclusionary approaches (p. 310).

Building on this, effective school leadership, collaborative teamwork, and participatory decision-making processes are recognized as essential drivers of teacher resilience and motivation in inclusive educational environments. These leadership dimensions become even more critical in the face of mounting challenges related to remote and technology-mediated teaching. Leaders who actively promote co-teaching models and cultivate inclusive school cultures contribute meaningfully to sustained collaboration between general education and special education teachers (Papi, 2018).

However, systemic limitations persist. A study conducted within the Jordanian context (Alabdallat et al., 2021) underscores the absence of formal structures to support teacher collaboration, as a significant barrier to the implementation of inclusive practices. Specifically, the lack of co-teaching frameworks, limited time allocated for joint planning, and weak leadership support were identified as key constraints, particularly within digital or hybrid learning environments.

In light of these findings, Florian and Beaton (2018) stress the importance of inclusive leadership, noting that: “Inclusive pedagogy requires leadership that promotes a school culture of collaboration, trust, and shared responsibility. Teachers are more likely to develop inclusive practices when school leaders actively support professional dialogue and collective inquiry into inclusive teaching” (p. 876).

2.3. Technology Integration and Assistive Technology Availability in Inclusive Education

Technology integration is widely recognized as a key component of modern inclusive education, particularly in distance and blended learning contexts. However, significant disparities remain in both the availability and effective use of assistive technologies. Abu-Alghayth et al. (2020) identified significant infrastructure gaps and inadequate teacher training regarding digital tools in Saudi Arabia, reflecting similar challenges in neighboring education systems in the Middle East. Complementing these findings, Al-Quraini (2012) and Al-Bouin (2019) highlighted the persistent shortage of adapted learning materials and assistive devices, particularly in Jordan and Saudi Arabia. These shortcomings pose significant barriers for educators striving to provide personalized and differentiated instruction through digital platforms, particularly for students with complex learning needs. Consequently, limited access to educational technologies directly limits special education teachers' ability to personalize instruction and promote inclusive participation in online learning environments.

Based on the synthesis of the reviewed literature, the significance of the present study stems from the integrative understanding that successful inclusive education, particularly in digital and remote delivery modes, depends critically on the interplay between teacher training, administrative support, and technological infrastructure. These interconnected factors have been consistently identified as pivotal in shaping the effectiveness of inclusive practices. Drawing on these insights, this study aims to investigate the lived experiences of special education teachers in Jordan, with a focus on their perceived challenges and support needs within digitally mediated inclusive educational settings. By grounding the inquiry in the specific contextual realities of Jordanian inclusive schools, the study seeks to generate actionable, context-sensitive recommendations to inform policy development and professional practice, thereby contributing to the enhancement of inclusive education implementation in the region.

3. Theoretical Framework

The rapid expansion of digital and distance learning accelerated by the COVID-19 pandemic has reshaped the landscape of inclusive education and placed new demands on special education teachers (UNESCO, 2023). This framework integrates inclusive education theories, technology integration models, and teacher competency building, with a focus on equity, access, and digital literacy.

3.1. Inclusive Education and Equity

Inclusive education, grounded in the principles of equity, participation, and access, requires transforming teaching methods and differentiated instruction to support all learners (Florian and Black-Hawkins, 2011b). This approach goes beyond mere spatial inclusion, emphasizing responsive learning environments that uphold the dignity and opportunity of every learner.

3.2. Challenges in the Digital Context

In digitally mediated educational environments, the demands of inclusive education become significantly more complex. Special education teachers are tasked with providing personalized and differentiated instruction while simultaneously managing digital tools and ensuring equitable access for diverse students often under conditions of constrained infrastructure and limited training (IIEP-UNESCO, 2021; UNESCO, 2020). During the COVID-19 pandemic, UNESCO's 2020 Global Education Monitoring Report highlighted that technology-first responses disproportionately disadvantaged learners with disabilities, particularly in low- and lower-middle-income countries, where 40% failed to support vulnerable students during school closures (UNESCO, 2020).

Empirical studies also confirm that the digital divide includes more than just access to devices and connectivity; it also reflects gaps in teachers' digital proficiency, inadequate technology maintenance, and systemic inequalities in infrastructure—especially in rural, low-income, or under-resourced schools (OECD, n.d.; UNESCO-IIEP, 2021). For example, IIEP-UNESCO (2021) reported that many schools lack reliable internet access, appropriate assistive devices, or technical support, making distance education for learners with disabilities extremely challenging. Similarly, the OECD warns that disparities in digital proficiency and connectivity can exacerbate pre-existing inequalities offline, limiting educational opportunities for vulnerable groups (OECD, n.d.). In short, the shift to online and hybrid learning amplifies existing structural constraints which range from unequal resource distribution and poor administrative support to inadequate teacher training and technology maintenance. These challenges significantly limit special education teachers' ability to promote inclusive and effective learning experiences in digital environments.

3.3. The TPACK Framework and Principles of Universal Design for Learning

To examine teachers' interactions with technology, this study adopted the Technological Pedagogical Content Knowledge (TPACK) framework (Mishra & Koehler, 2006). TPACK focuses on the seamless integration of content knowledge, pedagogical strategies, and technological tools to ensure effective teaching. In inclusive digital environments, TPACK is informed by the principles of Universal Design for Learning (UDL) (CAST, 2018), which advocate proactively designing for learner diversity through flexible content, assistive technology, and student-centered pathways.

3.4. Adoption and Change through the Concern-Based Adoption Model (CBAM)

The Concern-Based Adoption Model (CBAM) (Hall and Hord, 2011) provides insight into teachers' emotional and cognitive responses to digital inclusion reforms. This report highlights individual concerns, institutional culture, and levels of support, particularly in contexts where infrastructure, leadership, and training may be inconsistent or absent (OECD, 2023).

3.5. Jordanian Policy and Systemic Context

Although the Jordanian Ministry of Education has developed comprehensive frameworks, such as the Ten-Year Inclusive Education Strategy (2019–2029) and the Education Strategic Plan to advance inclusive education, empirical investigations (e.g., Al Khateeb et al., 2023; Education 3-13 research, 2022) consistently reveal that systemic barriers persist. Principals and educators report critical shortcomings in the allocation of financial and human resources, weak administrative support structures, and inadequate teacher preparation (AlKhateeb et al., 2023; Education 3-13 research, 2022). These deficiencies are especially pronounced in rural and resource-constrained regions, where the lack of accessible infrastructure (including resource rooms and assistive devices), overcrowded classrooms, and insufficient professional development opportunities compound the inequities faced by students with disabilities. Such systemic limitations significantly impede the implementation of policy intentions, highlighting

an urgent need for targeted investment and capacity-building to ensure meaningful inclusion in practice.

3.6. Professional Learning for Inclusion

The Professional Learning Framework for Teachers for Inclusion developed by the European Agency for Special Needs and Inclusive Education (2022) emphasizes the importance of building professional development that is sustained, context-responsive, and collaborative. This framework encourages cooperation between teachers and educational professionals at the school and community levels to enhance both pedagogical competence and professional identity within inclusive education settings. This aligns with findings by Darling-Hammond et al. (2017), who argue that the most effective professional development is content-focused, interactive, grounded in collegial collaboration, guided by expert mentoring, and sustained over time to enable the internalization of best practices. Furthermore, the study by Um and Kim (2021) demonstrated that combining instructional coaching with collaborative training in early childhood education significantly increases the implementation of inclusive classroom practices.

4. Method

4.1. Research Design

This study employed a descriptive research design to explore the challenges and support needs of special education teachers working in inclusive classrooms in Jordan. The descriptive approach was selected as it facilitates an in-depth understanding of participants’ experiences within authentic educational settings (Muwanguzi et al, 2021). This design allows for detailed information gathering on current practices and perceptions without experimental intervention.

4.2. Population and Sample

The target population consisted of all special education teachers working in inclusive classrooms in public and private schools across Jordan during the 2024–2025 academic year. A purposive sampling method was systematically employed to select a representative sample of 120 teachers. The selection process was guided by official lists and teacher databases obtained from the Jordanian Ministry of Education, ensuring that participants actively engaged in inclusive teaching environments. To enhance the representativeness and generalizability of the findings, the sample was stratified by key demographic variables, including geographic location (urban and rural) and school type (public and private). The final sample included both male and female teachers with varying levels of professional experience, thus capturing diverse perspectives on the challenges and support needs in inclusive classrooms. Table 1 illustrates the results.

Table 1. Demographic characteristics of the study sample (N = 120)

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	52	43.3%
	Female	68	56.7%
School Type	Public	78	65.0%
	Private	42	35.0%
Years of Experience	Less than 5 years	26	21.7%
	5–10 years	47	39.2%
	More than 10 years	47	39.2%
Geographic Location	Urban	74	61.7%
	Rural	46	38.3%

The study sample consisted of 120 special education teachers, with a relatively balanced gender distribution: 56.7% were female (n = 68) and 43.3% were male (n = 52). Regarding school type, the majority of participants (65.0%, n = 78) were employed in public schools, while 35.0% (n

= 42) worked in private schools. In terms of professional experience, teachers with 5–10 years and more than 10 years of experience each comprised 39.2% of the sample ($n = 47$ for each group), whereas teachers with less than 5 years of experience made up 21.7% ($n = 26$). Geographically, a greater proportion of participants were based in urban areas (61.7%, $n = 74$), compared to 38.3% ($n = 46$) from rural areas. This distribution reflects a diverse and representative sample that captures a wide range of perspectives across gender, institutional type, teaching experience, and geographic location, providing a robust foundation for the analysis of challenges and support needs in inclusive educational settings.

4.3. Research Instrument

A structured questionnaire was developed specifically for this study to collect data on the challenges and support needs of special education teachers working in inclusive classrooms. The instrument consisted of four main sections: (1) demographic information, including gender, years of experience, school type, and geographic location; (2) challenges in inclusive classrooms, such as lack of digital training, lack of resources, difficulties managing a digital classroom, and limited administrative support; (3) perceived support needs, including opportunities for professional development, collaboration with general education teachers, and access to digital educational resources and assistive technologies; and (4) open-ended questions that allowed participants to explain their experiences and suggest additional support mechanisms.

The questionnaire was constructed based on a comprehensive review of recent literature (Abu-Alghayth et al., 2020; AlKhateeb et al., 2023; Papi, 2018), which informed the selection and phrasing of items relevant to inclusive education contexts. To ensure linguistic clarity and cultural appropriateness, the entire instrument was developed in Modern Standard Arabic, the participants' native language, thus enhancing both comprehension and response accuracy. Furthermore, the tool was reviewed by five academic experts in special education and inclusive teaching to assess its content validity, and their feedback was incorporated into the final version of the instrument. Responses to the closed-ended items were measured using a 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree).

4.4. Validity and Reliability

To establish the content validity of the questionnaire, a panel of five specialists in special education and inclusive pedagogy reviewed the instrument. These experts evaluated each item in terms of clarity, relevance, and comprehensiveness, ensuring alignment with the study's objectives and the local educational context. Based on their feedback, several items were refined linguistically and conceptually to enhance precision and cultural appropriateness.

Additionally, a pilot study was conducted involving 20 special education teachers who were not part of the main sample. The purpose of the pilot was to assess the instrument's reliability and internal consistency. The results yielded a Cronbach's alpha coefficient of 0.87, which indicates a high level of internal reliability across the questionnaire items. These procedures confirmed that the instrument was both valid and reliable for measuring the challenges and support needs of special education teachers in inclusive classrooms.

4.5. Data Collection Procedures

Following approvals from the Ministry of Education and relevant school administrations, questionnaires were distributed electronically and in paper format to maximize accessibility and response rates. Participants were fully informed about the study's objectives, confidentiality, and voluntary participation. Written informed consent was obtained before data collection.

4.6. Data Analysis

Data were analyzed using the Statistical Package for the Social Sciences (SPSS) version 26. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were utilized to summarize the demographic characteristics of the participants and to describe overall trends in responses related to challenges and support needs. To determine whether statistically significant differences existed based on demographic variables such as gender, school type, years of experience, and geographic location, inferential statistical tests were employed. Specifically, independent-samples t-tests were used to compare mean differences between two groups, while one-way ANOVA was applied to assess variations across three or more groups. These tests are commonly used in social science research to explore group-level differences in Likert-scale data, particularly when assumptions of normality are met (Field, 2018). The significance level was set at $p < 0.05$, which is standard for testing hypotheses in educational research.

5. Results

5.1. Results Related to the First Research Question: What are the Main Challenges Faced by Special Education Teachers Working in Inclusive Classrooms in Jordan?

To answer this research question, descriptive statistical analyses were conducted, including the calculation of means and standard deviations for each item related to the challenges experienced by special education teachers in inclusive classrooms. These analyses aimed to identify the most significant challenges from the participants' perspectives, based on their level of agreement on a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree).

Table 2. Means and standard deviations of challenges faced by special education teachers

No.	Item	Mean	Std. Deviation	Challenge Level
1	Lack of training in digital pedagogy	4.41	0.69	Very High
2	Shortage of educational digital resources and assistive technologies	4.29	0.73	Very High
3	Overcrowded classrooms	4.15	0.82	High
4	Difficulties managing diverse student needs in virtual environments	4.09	0.78	High
5	Limited time to prepare individualized digital instruction	3.98	0.85	High
6	Lack of administrative support	3.87	0.92	High
7	Weak collaboration with general education teachers	3.75	0.88	Moderate
8	Negative attitudes from peers or school staff	3.61	0.95	Moderate

Overall Mean = 4.02 (High)

The results presented in Table 2 offer critical insights into the challenges encountered by special education teachers within inclusive educational settings, particularly in the context of digital and distance learning environments. The overall mean score ($M = 4.02$) falls within the "High" category, indicating that, on average, participants experience considerable challenges that may hinder their effectiveness in delivering inclusive instruction.

The most prominent challenge, with a mean of 4.41 and a relatively low standard deviation ($SD = 0.69$), was the *lack of training in digital pedagogy*. This suggests a widespread and consistently perceived gap in professional preparation for leveraging digital tools and pedagogical strategies tailored to diverse learners' needs. This aligns with findings from recent global studies (Aldabas, 2020), which emphasize the necessity for structured and ongoing professional development in inclusive digital education.

Closely following this is the *shortage of educational digital resources and assistive technologies* ($M = 4.29$, $SD = 0.73$), also rated as "Very High." The narrow dispersion in responses indicates a shared concern across participants, reflecting infrastructural deficiencies that directly impact the ability of teachers to accommodate students with varied disabilities in virtual settings. This finding resonates with UNESCO's (2021) call for equity in access to educational technology as a prerequisite for inclusive digital learning.

Challenges such as *overcrowded classrooms* ($M = 4.15$) and *difficulties managing diverse student needs in virtual environments* ($M = 4.09$) were rated as "High." These results reflect the compounded nature of instructional challenges when classroom management intersects with heterogeneity in learner profiles, particularly in remote or hybrid contexts where behavioral cues and instructional responsiveness may be harder to implement (Zhang et al., 2021).

Interestingly, *limited time to prepare individualized digital instruction* ($M = 3.98$) and *lack of administrative support* ($M = 3.87$) also scored highly, emphasizing both time constraints and systemic leadership gaps as impediments to inclusive practice. These results underscore the importance of organizational commitment and time allocation policies that allow special education teachers to plan and execute differentiated instruction effectively (Florian & Black-Hawkins, 2011a).

Conversely, *weak collaboration with general education teachers* ($M = 3.75$) and *negative attitudes from peers or school staff* ($M = 3.61$) were perceived as moderate challenges. While less pressing compared to infrastructural and pedagogical concerns, these factors still represent significant cultural and interpersonal barriers to inclusion. Such findings suggest the need for school-wide interventions aimed at fostering inclusive values and professional learning communities (Alabdallat et al., 2021).

In summary, the data reveal a hierarchy of challenges, with technical and pedagogical readiness issues taking precedence, followed by organizational and attitudinal factors. These patterns point to a systemic need for investment in teacher training, technological infrastructure, and inclusive leadership. Addressing these areas in a comprehensive and sustained manner is vital for enhancing the efficacy and sustainability of inclusive digital education practices.

5.2. Results Related to the Second Research Question: What Types of Support Do These Teachers Consider Essential for Effective Practice in Digital and Hybrid Environments?

Descriptive statistical analyses were conducted to calculate means and standard deviations for each item related to the types of support needed by special education teachers working in inclusive classrooms. Teachers rated each item on a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree). The goal was to identify which support types were most valued. Table 3 illustrates the results.

Table 3. Means and standard deviations of support needs perceived by special education teachers

No.	Support Need Description	Mean	Std. Deviation	Rank
1	Professional development and training digital opportunities	4.65	0.52	1
2	Availability of assistive technologies	4.38	0.71	2
3	Administrative support and encouragement for the use of digital environments	4.25	0.68	3
4	Collaboration with general education teachers	4.18	0.75	4

5	Access to teaching resources tailored for digital inclusion	4.10	0.66	5
6	Smaller digital class sizes for better management	3.89	0.79	6

The findings presented in Table 3 shed light on the perceived support needs of special education teachers operating in inclusive digital learning environments. The overall trend reflects a consistent and high demand for multi-layered institutional, pedagogical, and technical support. Topping the list of support needs is *professional development and training opportunities in digital education* ($M = 4.65$, $SD = 0.52$), which not only received the highest mean score but also the lowest standard deviation, suggesting strong consensus among respondents. This underscores the growing recognition among educators that continuous professional learning, especially in digital pedagogy and inclusive practices, is fundamental to navigating the complexities of teaching students with diverse learning needs. This finding aligns with global recommendations emphasizing digital competence as a key pillar for inclusive education in the post-pandemic era (Darling-Hammond et al., 2017; European Agency for Special Needs and Inclusive Education, 2022).

The second highest-ranked need pertains to the *availability of assistive technologies* ($M = 4.38$, $SD = 0.71$), highlighting the instrumental role of technological aids in supporting differentiated instruction and accessible learning environments. The slightly higher variability in responses may reflect disparities in access to these technologies across different educational contexts, as documented in recent comparative studies (OECD, 2023).

Administrative support and encouragement ($M = 4.25$) ranked third, emphasizing the importance of leadership engagement in enabling inclusive digital teaching. This includes not only material support but also moral and policy-level reinforcement that affirms the value of inclusion. Supportive administration has been linked to greater teacher efficacy, job satisfaction, and the implementation of evidence-based inclusive practices (Avramidis & Norwich, 2020).

Collaboration with general education teachers ($M = 4.18$, $SD = 0.75$) was also perceived as a critical support need. This reflects an understanding that inclusion is a shared responsibility, and effective co-teaching and interdisciplinary dialogue are essential for addressing the diverse needs of students with disabilities (Friend et al., 2010). The emphasis on collaboration also suggests a demand for more structured and systemic models of teamwork within schools.

Furthermore, *access to digital teaching resources tailored for inclusion* ($M = 4.10$) and *smaller class sizes for better management in digital settings* ($M = 3.89$) were ranked lower but still within the moderately high range. These responses suggest that while digital infrastructure and content customization remain relevant, they may be seen as secondary to teacher capacity building and institutional support. Nonetheless, smaller class sizes have been widely cited in the literature as a practical facilitator of inclusive instruction, especially when combined with adaptive technologies and responsive teaching strategies (Mitchell, 2020).

Collectively, these findings point to a holistic conception of support that special education teachers deem necessary, one that integrates ongoing professional learning, access to digital and assistive tools, leadership support, inter-professional collaboration, and manageable learning environments. Designing policy responses that address these interconnected needs can enhance not only teacher performance but also the overall quality and equity of inclusive digital education.

5.3. Results Related to the Third Research Question: Are There Statistically Significant Differences in Perceived Challenges and Support Needs Based on Demographic Factors Such as Gender, School Type, Years of Experience, and Geographic Location?

To answer this question, inferential statistical analyses were performed. Independent-samples t-tests were used to examine differences based on gender, school type (public vs. private), and geographic location (urban vs. rural). One-way ANOVA was used to assess differences according to years of teaching experience. The significance level was set at $p < 0.05$. Table 4 shows the results.

Table 4. Differences in perceived challenges and support needs by demographic variables

Variable	Group	Mean (Challenges)	t / F	p-value	Mean (Support Needs)	t / F	p-value
Gender	Male	3.85	2.31	0.023*	4.30	1.60	0.112
	Female	4.05			4.45		
School Type	Public	3.98	0.85	0.397	4.20	2.04	0.044*
	Private	3.90			4.50		
Geographic Area	Urban	3.85	2.57	0.011*	4.32	1.43	0.153
	Rural	4.10			4.38		
Years of Experience	Less than 5 years	4.15	4.12	0.019*	4.40	2.12	0.087
	5–10 years	3.90			4.30		
	More than 10 years	3.75			4.25		

(*) Significant at $p < 0.05$

Table 4 presents the outcomes of inferential statistical analyses (independent-samples t-tests and one-way ANOVA) conducted to examine whether perceptions of challenges and support needs among special education teachers differ significantly according to demographic variables, with significance established at $p < .05$.

- **Gender Differences:** The results reveal a statistically significant difference in the perceived challenges based on gender. Female teachers reported higher levels of perceived challenges ($M = 4.05$) compared to their male counterparts ($M = 3.85$). This may suggest the presence of gender-specific stressors, possibly linked to differential societal expectations, caregiving responsibilities, or disparities in access to institutional support. However, no statistically significant differences were observed between genders regarding perceived support needs, indicating that both male and female teachers share similar expectations and demands for support in inclusive educational contexts.
- **School Type:** No significant differences emerged in the level of perceived challenges between teachers working in public and private schools, suggesting that systemic instructional and infrastructural barriers may be comparably experienced across both sectors. Nevertheless, teachers in private schools reported significantly higher support needs ($M = 4.50$) than those in public schools ($M = 4.20$). This finding may reflect sector-based discrepancies in access to professional development, technological resources, or administrative support, which could influence perceived needs for external assistance and institutional reinforcement.
- **Geographic Location:** Teachers employed in rural areas perceived significantly more challenges ($M = 4.10$) than those teaching in urban settings ($M = 3.85$), highlighting the enduring impact of geographical disparities on the implementation of inclusive education. Factors such as limited connectivity, insufficient digital infrastructure, and lower access to specialized training may contribute to this gap. Despite these differences in perceived challenges, no significant differences were found in support needs based on geographic

location, suggesting a converging perspective among teachers regardless of location on the fundamental supports required for inclusive practice.

- **Years of Teaching Experience:** Statistically significant differences were observed in perceived challenges across experience levels. Teachers with less than five years of experience reported the highest levels of challenge ($M = 4.15$), followed by those with 5–10 years ($M = 3.90$), and those with more than 10 years of experience ($M = 3.75$). This gradient suggests that accumulated professional experience may serve as a protective factor, enhancing coping strategies and reducing perceived instructional and managerial stress in inclusive settings. However, the differences in perceived support needs across experience levels did not reach statistical significance, indicating a broadly shared understanding of necessary supports across novice and veteran teachers alike.

In summary, these findings demonstrate that perceptions of challenges and support needs among special education teachers are influenced by certain demographic factors, particularly gender, school type, geographic location, and years of experience. The results underscore the importance of context-sensitive professional development and targeted policy interventions that account for these differences to promote equity and effectiveness in inclusive education systems.

6. Discussion and Conclusions

The present study offers a comprehensive overview of the challenges and support needs experienced by special education teachers within inclusive digital and traditional classroom environments in Jordan. The findings confirm that the most salient challenges include insufficient professional training in inclusive digital pedagogy, limited access to educational and assistive resources, high student-to-teacher ratios, and weak administrative support. These challenges reflect systemic deficiencies, consistent with national and international literature (Alkhateeb et al., 2023; Al-Zboon & Smadi, 2019; UNESCO, 2021).

Critically, inferential analysis revealed that some challenges and support needs varied significantly across certain demographic variables. Female teachers perceived significantly more challenges than male teachers, a result that may be attributed to intersecting social roles, caregiving responsibilities, or workplace pressures, though both genders reported similar support needs. Teachers in rural areas reported significantly greater challenges than their urban counterparts, indicating regional disparities in infrastructure and access to professional resources, yet support needs remained consistent, suggesting shared expectations across regions. School type also mattered: teachers in private schools expressed significantly higher support needs than those in public schools, potentially due to elevated institutional demands or differing expectations regarding technology integration. Moreover, teaching experience emerged as a key factor; teachers with fewer than five years of experience reported more intense challenges and support needs compared to their more experienced peers. This reinforces the notion that professional maturity and exposure help mitigate perceived barriers (Mitchell, 2020; OECD, 2023).

These patterns highlight that while certain challenges are broadly systemic, such as limited access to resources and gaps in national policy, others are deeply shaped by local context, teacher experience, and institutional dynamics. For instance, underprepared educators operating within rapidly evolving digital environments often encounter compounded barriers involving both technological proficiency and inclusive pedagogical practices. This multidimensionality of teacher challenges is well-documented in prior literature. Friend et al. (2010) emphasized the complexity of collaboration in inclusive settings, especially where role clarity is lacking. Schroth et al. (2019) further noted that educators' responses to digital inclusion are significantly shaped by contextual and institutional factors. Within the Jordanian context, Hamadneh and

Alissa (2023) highlighted the substantial training needs among mathematics and science teachers amid digital learning reforms, pointing to critical gaps in digital pedagogical competence. Complementing this, Hamadneh et al. (2016) demonstrated the efficacy of computer-based instructional strategies in improving mathematical problem-solving among students with learning disabilities, underscoring the importance of structured digital interventions. Moreover, Hamadneh and Almogbel (2022) examined special education teachers' capacity to utilize electronic assessment tools, reinforcing the imperative for professional development programs that address both general digital skills and specialized inclusive applications. Collectively, these findings suggest that professional development must not only address technical training but also be tailored to the practical realities and contextual challenges educators face on the ground.

Moreover, the study emphasizes a near-unanimous need for ongoing professional development, particularly in digital inclusive education. Teachers consistently identified access to assistive technologies, collaboration with general education teachers, and contextualized teaching resources as essential to fulfilling their roles. These results echo recent scholarship advocating for integrated models of teacher support that combine material resources with collaborative and emotional reinforcement (European Agency for Special Needs & Inclusive Education, 2022). The study contributes valuable empirical evidence on the multifaceted realities of inclusive education in Jordan and offers several actionable insights:

- Professional development: There is an urgent need to expand pre- and in-service training, focusing on inclusive teaching methods, digital proficiency, differentiated instruction, and the integration of assistive technology. This training should be continuous and adaptive to the evolving needs of both novice and experienced teachers.

- Providing resources: Priority should be given to ensuring equitable access to inclusive teaching tools, including assistive devices and adaptive digital materials. This not only improves instructional quality but also reduces teacher workload and burnout (Al-Dababneh & Al-Zboon, 2020).

- Collaborative practices: Encouraging collaboration between special and general education teachers through co-teaching models, shared lesson planning, and professional learning communities can cultivate a supportive school culture and enhance student learning (Papay & Antecol, 2019; Williams & Ditch, 2019).

- Administrative leadership: School leaders must proactively identify teachers' needs, provide constructive feedback, maintain manageable class sizes, and distribute workload equitably. Positive administrative climates are linked to increased teacher retention and effectiveness (Ghedini & Aquario, 2020; Williams & Ditch, 2019).

- In the policy context, inclusive education policies must be context-aware and flexible, tailored to the unique challenges of urban and rural schools. Policies grounded in local data are more likely to yield sustainable and equitable outcomes.

In future research, there is a need for longitudinal and qualitative studies exploring the lived experiences of special education teachers. Future research should also assess the impact of targeted support interventions such as structured mentoring programs and digital learning tools on teaching effectiveness and student engagement.

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