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Challenges Special Education Teachers Encounter in Using Artificial Intelligence Techniques to Teach Students with Disabilities in Inclusive Schools

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Abstract

Objectives: This study aimed to identify the challenges special education teachers face when employing artificial intelligence (AI) techniques to teach students with disabilities in inclusive schools in Jordan, and to examine the relationship between these challenges and selected variables.

Methods: A descriptive approach was used. The sample included 137 male and female teachers conveniently selected from inclusive schools. A scale was developed to assess challenges of AI use, consisting of 30 items distributed across three dimensions: knowledge, training, and support; logistics and infrastructure; and preparation and implementation of educational programs.

Results: Findings revealed significant challenges across all scale dimensions. Significant differences emerged based on educational qualification, with diploma holders facing greater challenges than those with a bachelor's degree or higher. Teachers with less than five years of experience reported fewer challenges than those with more than five years. Private school teachers encountered fewer challenges than public school teachers.

Conclusions: The study recommends developing supportive policies and legislation to promote AI use in inclusive schools.

Keywords: Challenges, Special Education Teachers, Artificial Intelligence, Students with Disabilities, Jordanian Inclusive Schools.

التحديات التي يواجهها معلمو التربية الخاصة لتوظيف تقنيات الذكاء الاصطناعي في تدريس الطلبة من ذوي الإعاقة في المدارس الدامجة

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ملخّص

الأهداف: هدفت الدراسة إلى الكشف عن درجة التحديات التي يواجهها معلمو التربية الخاصة في توظيف تقنيات الذكاء الاصطناعي في تدريس الطلبة من ذوي الإعاقة في المدارس النظامية الدامجة في الأردن وعلاقتها ببعض المتغيرات.

المنهجية: اتبعت الدراسة المنهج الوصفي حيث تكونت عينة الدراسة من (137) معلمًا ومعلمة اختيروا بالطريقة المتيسرة في المدارس الدامجة، ولتحقيق أهداف الدراسة قام الباحثون بتطوير مقياس تحديات توظيف تقنيات الذكاء الاصطناعي، حيث تكون المقياس من (30) فقرة، وزعت على ثلاثة أبعاد بالتساوي، الأول: يتضمن بعد المعرفة والتدريب، والبعد الثاني: يتضمن بعد الخدمات اللوجستية والبنية التحتية .والبعد الثالث: يتضمن بعد إعداد البرامج التربوية وتنفيذها.

النتائج: أظهرت النتائج أن التحديات التي يواجهها معلمو التربية الخاصة في توظيف تقنيات الذكاء الاصطناعي جاءت بدرجة مرتفعة على أبعاد المقياس ككل، كما أشارت النتائج إلى وجود فروق ذات دلالة إحصائية في التحديات التي يواجهها معلمي التربية الخاصة في توظيف تقنيات الذكاء الاصطناعي تبعًا لمتغير المؤهل العلمي، وجاءت لصالح من يحمل مؤهل علمي من الدبلوم أكثر من المعلمين ذوي المؤهل العلمي من البكالوريوس فأعلى. وبالنسبة لمتغير سنوات الخبرة، فقد جاءت التحديات لدى معلمي التربية الخاصة الذين تقل خبرتهم عن 5 سنوات أقل من التحديات لدى المعلمين الذين تزيد خبرتهم عن 5 سنوات. وفيما يتعلق بمتغير قطاع المدرسة النظامية جاءت التحديات لدى معلمي المدارس الخاصة أقل من التحديات لدى معلمي المدارس الحكومية.

الخلاصة: بناءً على هذه النتائج، يوصي الباحثون بتطوير سياسات وتشريعات داعمة لتعزيز استخدام الذكاء الاصطناعي في المدارس الدامجة.

الكلمات الدالة: التحديات، معلمو التربية الخاصة، الذكاء الاصطناعي، الطلبة ذوي الإعاقة، المدارس الدامجة الأردنية.

Introduction

Artificial Intelligence (AI) is a powerful tool for enhancing the role of educators and developing new teaching strategies. It allows teachers to focus on more creative and instructive tasks by reducing the workload associated with repetitive duties. AI can analyze student data to identify strengths and weaknesses and create customized lesson plans tailored to each student's needs, thereby increasing instructional effectiveness. It also enables teachers to receive rapid and accurate feedback on student performance, helping them refine their teaching methods. Applications such as intelligent AI systems can further improve teaching strategies and expand the role of educators. By automating routine tasks, AI allows educators to dedicate more time to the innovative and instructive aspects of their profession.

Artificial intelligence technologies are advanced tools that can support the education of students with disabilities in inclusive mainstream schools. They enhance teacher-student interaction and participation by fostering an environment that promotes creativity and provides enjoyable and effective learning experiences (Sharma et al., 2021). These technologies help overcome disability-related barriers and offer a comprehensive and personalized educational experience. They are considered essential for improving educational quality, continuously enhancing instruction for students with disabilities, and providing better opportunities for their academic growth and development (Barua et al., 2022).

The role of special education teachers in utilizing AI technologies includes encouraging students to explore their abilities and fostering collaboration with parents and the local community to create a stimulating and supportive learning environment (Zdravkova, 2022). They are also responsible for providing appropriate reports and feedback on the use of AI technologies and their integration into the teaching and learning process to ensure a meaningful and enriching educational experience for their students (Nalbant, 2021). Thanks to AI, lessons and educational resources can be customized to suit each student's abilities, with specific guidance provided to enhance educational performance and support better academic outcomes (Salas-Pilco et al., 2022).

Inclusive school teachers must understand both the theoretical and practical concepts of AI technologies and stay informed about current trends in the field. This knowledge is essential to help move students with disabilities from a state of dependence to one of empowerment and integration within their schools. Achieving this requires a deep understanding of each student's learning difficulties and the ability to identify and apply appropriate strategies and techniques. It is also crucial to recognize the differences between students without disabilities and their peers with disabilities, and to adopt an educational curriculum that effectively accommodates these differences in inclusive mainstream schools (Kharbat et al., 2021).

The services and programs provided aim to enhance the learning of students with mental, physical, behavioral, or emotional disabilities, who may require AI technologies different from those used in general education (Bhatti et al., 2024). These include machine learning systems for adapting the curriculum, interactive training programs based on augmented reality to motivate learning and skill development, and the use of AI to design individualized assessment and follow-up systems for each student (Kharbat et al., 2021). These tools support teachers in implementing educational plans, offering specialized teaching methods, monitoring student progress, and continuously evaluating students' understanding and skills. This enables educators to tailor educational programs to the unique needs of students with disabilities (Garg & Sharma, 2020), and to make data-driven decisions independently using AI and machine learning technologies (Hopcan et al., 2023).

However, special education teachers face significant challenges in implementing AI technologies in inclusive classrooms. These challenges are critical to address in order to provide effective, appropriate, and responsive education for students with disabilities. Key issues include the need for psychological and technical support to help teachers build their competencies in using AI, as well as ongoing professional development on emerging technologies and effective teaching methods. Additionally, providing an adequate educational environment and logistical support to enable the effective use of AI in classrooms remains a major challenge that must be overcome (Gasaymeh et al., 2024).

Inclusive schoolteachers face significant challenges in employing AI technologies. The most prominent of these are technical issues, such as a lack of experience and training in using AI tools, and the limited integration of these

technologies into the unique educational environments of inclusive schools. Additionally, many institutions suffer from inadequate financial resources and insufficient technological infrastructure (Nalbant, 2021).

Effectively utilizing AI technologies for teaching students with disabilities requires advanced technical skills and a robust infrastructure. Teachers must be equipped to keep pace with rapid technological advancements, including the continuous updating of AI software and devices. A critical challenge lies in customizing and adapting these technologies to meet the diverse needs of students based on the nature of their disabilities—an area that demands a high level of technical competence (Salas-Pilco et al., 2022).

Another major hurdle is navigating the legal and legislative frameworks surrounding the use of AI in education. Teachers need a clear understanding of applicable laws and policies to implement AI tools ethically, safely, and effectively for students with disabilities (Nalbant, 2021).

Study Problem and Questions

Understanding the challenges special education teachers face in using artificial intelligence (AI) technologies to teach students with disabilities is crucial. Recognizing these difficulties is a necessary step toward providing the required support and developing effective solutions to overcome them, ultimately contributing to progress in the field of special education. It is equally important to explore how these challenges can be addressed through the provision of technical support and appropriate training for special education teachers (Garg & Sharma, 2020; Barua et al., 2022).

The significance of this study lies in the potential of AI technologies to enhance special education by customizing educational programs to meet individual student needs. AI can support the development of tailored teaching methods and resources that promote learning among students with disabilities. It also enables more accurate assessments of student progress and provides immediate, personalized feedback. Moreover, AI fosters a practical and engaging educational environment that can improve students' academic performance as well as their social and emotional development (Barua et al., 2022; Hopcan et al., 2023).

Several studies have explored the challenges educators face in integrating AI technologies in education, including those by Nalbant (2021), Salas-Pilco et al. (2022), and Sharma et al. (2021). However, a specific question has emerged among researchers regarding the unique challenges encountered by special education teachers in employing AI technologies with students with disabilities integrated into mainstream schools. This study aims to address the following research questions:

1. What is the level of perceived challenges faced by special education teachers in using artificial intelligence technologies to teach students with disabilities in inclusive schools?
2. Are there significant statistical differences in the level of challenges that special education teachers face when employing artificial intelligence techniques to teach students with disabilities in inclusive schools based on their academic qualifications, years of experience, and school sector?

Goals of the Study

This study aims to identify the challenges faced by special education teachers in using artificial intelligence (AI) technologies to teach students with disabilities in inclusive schools in Jordan. The findings are expected to support supervisors and administrators in developing training programs that are tailored to the actual needs and experiences of these teachers concerning the use of AI in education.

Methods

The methodology of this study outlines the study's purpose, research design, participants, data collection methods, and data analysis procedures.

Participants

A total of 137 teachers working in inclusive schools in Amman and Ajloun participated in the study. They were selected using the accessible sampling method. Table 1 presents the distribution of participants based on their academic qualifications, years of experience, and school sector.

Table 1. Sample Demographic Characteristics

	n	**%**	***n***	**%**
Academic qualification				
Diploma	36	36.3	17	34
University or postgraduate degree	101	73.7	30	60
Years of experience				
Less than 5 years	55	40.1	5	10
More than 5 years	82	59.9	7	14
School sector				
Government	74	54	18	36
Private	63	46	13	26

Instrument

To achieve the objectives of the study, the researchers developed the *Scale of Challenges of Employing Artificial Intelligence Technologies*. This scale consisted of two main parts. The first part collected demographic information from the participants, including their gender, educational level, and years of teaching experience. The second part focused on gathering data regarding the challenges faced in employing artificial intelligence (AI) technologies in teaching students with disabilities.

The scale included 30 items, which were formulated based on a review of relevant literature and previous studies (Garg & Sharma, 2020; Marino et al., 2023; Barua et al., 2022; Kharbat et al., 2021). These items were categorized into three key domains: (1) knowledge, training, and support; (2) logistics and infrastructure; and (3) preparation and implementation of educational programs. Responses were measured using a five-point Likert scale, with options ranging from: 5 – Always, 4 – Very Often, 3 – Sometimes, 2 – Rarely, and 1 – Never.

To ensure the content validity of the instrument, ten Jordanian professors specializing in special education reviewed the scale. They evaluated the clarity of the items and the appropriateness of their formulation in relation to the study's purpose. The suggested improvements from this expert review were incorporated into the final version of the scale, enhancing its validity and relevance.

For construct validation, the Pearson correlation coefficient was calculated between each item, its corresponding domain score, and the overall scale score. The results showed that all correlation coefficients were statistically significant at the 0.05 level. Specifically, the correlations between the items and their respective domain scores ranged from 0.528 to 0.862, while the correlations between the items and the total scale score ranged from 0.394 to 0.854. These findings indicate a high level of internal consistency and confirm the reliability of the instrument used in the study.

Scale Stability

To ensure the reliability of the scale, it was administered to a pilot sample of 30 teachers working in inclusive schools, drawn from the study population but not included in the main sample. Cronbach's alpha coefficient was calculated to assess the internal consistency of the scale, yielding a result of $\alpha = 0.95$. This high coefficient indicates excellent reliability and suggests that the scale consistently measures the challenges associated with employing artificial intelligence technologies in inclusive education settings.

Scale Scoring

The scale items were rated on a 5-point Likert scale with the following weights: "always" (5 points), "often" (4 points), "sometimes" (3 points), "rarely" (2 points), and "never" (1 point). To interpret the arithmetic mean of the responses, the following criteria were used: 1.00 to less than 2.33 indicates low levels, 2.33 to less than 3.67 indicates medium levels, and 3.67 to 5.00 indicates high levels.

Procedure

Meetings were arranged with the principals and teachers of inclusive schools during the second semester of the 2024 academic year. The objectives of the study were explained in detail, and the scale was clarified to ensure understanding. Following this, the scale was distributed to the teachers, and they were given approximately 20 minutes to complete it.

Data Analysis

Data were analyzed using SPSS version 24. To address the first research question, descriptive statistics including the arithmetic mean and standard deviation were calculated. For the second research question, a multivariate analysis of variance (MANOVA) was conducted to identify differences in responses based on the study variables.

Research Results, and Discussion:

The results addressing the first research question—"What is the level of perceived challenges faced by special education teachers in using artificial intelligence technologies to teach students with disabilities in inclusive schools?"—were analyzed by calculating the arithmetic means and standard deviations of the teachers' responses regarding the challenges of employing AI techniques in special education. These results are summarized in Table 2.

Table 2: Arithmetic Means and Standard Deviations of Special Education Teachers' Responses to the Challenges of Implementing Artificial Intelligence Technologies

Dimension			The Level
	M	SD	
Knowledge, training, and support	3.86	.66	High
Logistics and infrastructure	3.76	073	High
Preparing and implementing educational programs	3.53	.91	Medium
Total	3.72	071	High

Table 2 clearly shows that the arithmetic means for the challenges of employing artificial intelligence technologies are high, ranging between 3.53 and 3.86. The dimension of Knowledge, Training, and Support ranked first, with an arithmetic mean of 3.86, indicating a high level of perceived challenge. Logistics and Infrastructure came in second place, with a mean of 3.76, also at a high level. Lastly, Preparing and Implementing Educational Programs ranked third, with a mean of 3.53, reflecting a moderate level of challenge. The overall mean for the total scale was 3.72, indicating a high level of perceived challenges across all dimensions.

The researchers interpret these findings across the three dimensions as follows:

1. **Knowledge, Training, and Support:** This dimension had the highest mean (3.86), emphasizing an urgent need for specialized training and continuous support for teachers in AI technologies. The lack of sufficient knowledge and skills presents a major barrier to the effective use of AI in special education, underscoring the necessity for intensive training programs and ongoing technical and professional assistance.
2. **Logistics and Infrastructure:** Ranking second with a mean of 3.76, this dimension highlights challenges related to the availability of essential tools and equipment, such as computers, high-speed internet, and supporting infrastructure for AI applications. Weak logistical support and infrastructure hinder the practical implementation of AI technologies, making improvements in this area critical to enhancing AI's effectiveness in special education.
3. **Preparing and Implementing Educational Programs:** This dimension ranked third with a moderate mean score of 3.53. While some efforts exist to develop curricula and educational programs compatible with AI applications, they remain insufficient to fully meet the needs of teachers and learners. The challenge lies in designing and adapting educational content that aligns with AI technologies and addresses the unique requirements of students with disabilities.

Overall, these results highlight the need for comprehensive and integrated development efforts—including enhanced training, technical support, improved infrastructure, and curriculum development—to ensure the effective use of artificial intelligence technologies in improving special education services

The second research question asked: *"Are there significant statistical differences in the level of challenges that special education teachers face when employing artificial intelligence techniques to teach students with disabilities in inclusive schools based on their academic qualifications, years of experience, and school sector?"* To answer this question, the arithmetic means and standard deviations of the perceived challenges were calculated according to the variables of academic qualification, years of experience, and school sector. The results are presented in Table 3.

Table (3) Arithmetic Mean and Standard Deviations of the Level of Special Education Teachers' Responses to the scale of challenges of employing artificial intelligence technologies according to study variables by Study Variables

Variable	N	M	SD
Academic qualification			
Diploma	36	4.34	0.49
University or postgraduate degree	101	3.50	0.64
Years of experience			
Less than 5 years	55	3.25	0.67
More than 5 years	82	4.03	0.54
School sector			
Government	74	4.02	.57
Private	63	3.36	0.70

As observed in Table 3, there are variations in the arithmetic means of the study sample's responses regarding the level of challenges special education teachers face when using artificial intelligence techniques to teach students with disabilities in inclusive schools. To assess the statistical significance of these differences based on the variables of academic qualification, years of experience, and school sector, an Analysis of Variance (ANOVA) was conducted. The results of this analysis are presented in Table 4.

Table 4: Analysis of the Analysis of Variance (ANOVA) of the Study Sample

Source of variance	Sum of squares	Degrees of freedom	Mean square	F value	Sig.
Academic qualification,	3.862	1	3.862	16.837	0.000*
Years of experience,	6.023	1	6.023	26.258	0.000*
School sector	2.837	1	2.837	12.365	0.001*
Error	30.050	131	0.229		
Total	68.325	136			

*α=0.05

Table 4 clearly illustrates significant differences in participants' assessments regarding the challenges associated with implementing artificial intelligence technologies, particularly concerning the variable of academic qualification. The F value reached 837.16 at a significance level of 0.000. Notably, the arithmetic mean of responses from teachers holding a diploma was higher than that of teachers with a bachelor's degree or higher, indicating that diploma holders perceive greater challenges compared to their more highly qualified counterparts.

The results also reveal statistically significant differences based on years of practical experience. The F value was 26.258 at a significance level of 0.000. Teachers with less than five years of experience reported lower challenge levels than those with more than five years, suggesting that more experienced teachers face greater challenges when employing AI technologies.

Furthermore, the school sector variable showed significant differences, with an F value of 12.365 at a significance level of 0.001. Teachers in private schools reported lower levels of challenges compared to those in public schools, indicating that public school teachers encounter more difficulties in employing AI technologies.

To further investigate these differences across the dimensions of the Artificial Intelligence Technologies Employment Challenges Scale, the arithmetic means and standard deviations of the study sample's responses were calculated according to the study variables. Subsequently, a multivariate analysis of variance (MANOVA) was conducted, as detailed below.

Table (5) Arithmetic means and standard deviations of the study sample's responses to the dimensions of the scale of challenges of employing artificial intelligence technologies according to the study variables.

Variable	Levels	Knowledge, training, and support		Logistics and infrastructure		Preparing and implementing educational programs	
		M	*SD*	*M*	*SD*	*M*	*SD*
Academic qualification	Diploma	*4.38*	*0.46*	*4.36*	*0.56*	*4.28*	*0.65*
	University or postgraduate degree	*3.67*	*0.63*	*3.55*	*0.67*	*3.27*	*0.84*
Years of experience	Less than 5 years	*3.46*	*0.67*	*3.28*	*0.71*	*3.01*	*0.90*
	More than 5 years	*4.13*	*0.51*	*4.09*	*0.55*	*3.88*	*0.74*
School sector	Government	*4.11*	*0.51*	*4.10*	*0.58*	*3.85*	*0.80*
	Private	*3.56*	*0.70*	*3.37*	*0.69*	*3.16*	*0.90*

As observed in Table 5, the arithmetic means of the study sample's responses vary concerning the challenges special education teachers face when employing artificial intelligence, based on academic qualifications, years of experience, and school sector. To assess the statistical significance of these differences, a multivariate analysis of variance (MANOVA) was conducted. The results of this analysis are presented in Table 6.

Table (6): Multivariate analysis of the variance of the study sample members' estimates of special education teachers' challenges when employing artificial intelligence levels as domains, according to the study variables.

Source of variance	Domains	Sum of squares	Degrees of freedom	Mean square	F value	Sig.
Academic qualification, Hotelling's: 0.115 Sig :0.003	Knowledge, training, and support	1.830	1	1.830	7.993	0.005
	Logistics and infrastructure	2.367	1	2.367	9.360	0.003
	Preparing and implementing educational programs	6.699	1	6.699	13.633	0.000
Years of experience Hotelling's: 0.224 Sig :0.000	Knowledge, training, and support	3.538	1	3.538	15.458	0.000
	Logistics and infrastructure	6.740	1	6.740	26.649	0.000
	Preparing and implementing educational programs	7.915	1	7.915	16.107	0.000
School sector Hotelling's: 0.162 Sig :0.000	Knowledge, training, and support	1.813	1	1.813	7.921	0.006
	Logistics and infrastructure	4.532	1	4.532	17.919	0.000
	Preparing and implementing educational programs	1.983	1	1.983	4.035	0.047
Error	Knowledge, training, and support	29.986	131	0.229		
	Logistics and infrastructure	33.133	131	0.253		
	Preparing and implementing educational programs	64.372	131	0.491		
Total	Knowledge, training, and support	59.816	136			
	Logistics and infrastructure	72.747	136			
	Preparing and implementing educational programs	113.219	136			
	Knowledge, training, and support	59.816	136			

Table 6 clearly demonstrates statistically significant differences in the dimensions of the scale of challenges to employing artificial intelligence technologies based on the educational qualification variable. The Hotelling's T-squared value reached 0.115 at a significance level of 0.003. These differences were evident across all scale dimensions, with the arithmetic mean of responses from teachers holding a diploma being higher than that of teachers with a bachelor's degree or higher. This indicates that diploma-holding teachers perceive greater challenges than their counterparts with higher qualifications across all dimensions of the scale.

The researchers attribute this result to the possibility that special education teachers with a diploma may be less familiar with the latest artificial intelligence technologies and best educational practices than teachers holding a bachelor's degree or higher. This gap in familiarity could affect their ability to use these technologies effectively, thereby increasing their perception of the challenges involved in employing AI in education. Additionally, teacher preparation programs at the diploma level may place less emphasis on the use of modern technology in education, leaving these teachers feeling underprepared and lacking the necessary knowledge and support to implement AI technologies confidently. This reduced proficiency and confidence likely contribute to the heightened challenges faced by this group in integrating AI into their classrooms.

The results also show statistically significant differences in the dimensions of the AI technology challenges scale based on the variable of years of experience. The Hotelling's T-squared value reached 0.224 at a significance level of 0.000. These differences were consistent across all scale dimensions, with the mean responses of teachers with fewer than five years of experience being lower than those of teachers with more than five years of experience. In other words, teachers with less than five years of experience report fewer challenges than their more experienced colleagues across all dimensions.

The researchers suggest that teachers with fewer than five years of experience may be more enthusiastic and willing to explore and use AI technologies in education, resulting in a lower perception of challenges. This group may also be more open to change and new technologies, reflecting their recent training and educational environments, which likely incorporate greater use of technology. Conversely, teachers with more than five years of experience may face greater challenges due to their reliance on traditional teaching methods, making them less prepared to adopt new technologies such as AI. Furthermore, their multiple responsibilities and educational demands may limit their opportunities for continuous learning or for updating their knowledge about educational technology. Thus, years of experience appear to significantly influence teachers' ability and willingness to integrate AI, with less experienced teachers demonstrating greater adaptability and innovation in their teaching methods.

The results also reveal statistically significant differences in the dimensions of the Challenges of Employing AI Technologies scale based on the school sector variable. The Hotelling's T-squared value reached 0.162 at a significance level of 0.000. These differences were evident across all scale dimensions, with the arithmetic mean of private school teachers' responses being lower than that of public school teachers. This indicates that private school teachers face fewer challenges than their public school counterparts across all dimensions of the scale.

Researchers explain this finding by suggesting that private school teachers often have access to better resources and greater institutional support for employing AI technologies. Private schools are typically more capable of investing in appropriate technology and infrastructure, which facilitates the effective integration of AI in education. Moreover, private schools may have more flexible policies and a greater openness to innovation, encouraging experimentation with new teaching methods and the adoption of AI technologies. This environment likely reduces the challenges experienced by private school teachers when using AI tools.

In contrast, public school teachers may encounter more significant constraints related to budget limitations, insufficient training, and inadequate technical support. These factors contribute to the heightened challenges public school teachers face in employing AI technologies in their classrooms. Consequently, these differences highlight the crucial role that the educational environment and institutional support play in promoting the successful use of technology in teaching.

Limitations:

This study has several key limitations to consider. Firstly, although efforts were made to collect a diverse sample of special education teachers nationwide through the survey, the relatively small sample size may limit the generalizability of the findings. Secondly, as with most survey research, there is a risk of response bias, where participants might be more likely to respond if they hold strong opinions, either positive or negative, about the subject. This could affect the representativeness of the data.

Conclusion

The study results revealed a high level of challenges faced by special education teachers in using artificial intelligence techniques to teach students with disabilities in inclusive schools. Among the sub-dimensions of the challenges scale, knowledge, training, and support emerged as the most significant obstacles, followed by logistics and infrastructure. Preparing and implementing educational programs ranked lowest in terms of difficulty. Additionally, the results showed significant differences in the level of challenges based on teachers' academic qualifications, years of experience, and school sector. These findings highlight the urgent need to provide educators with targeted training on artificial intelligence techniques, develop accessible tools and applications, and enhance the technological infrastructure in inclusive schools.

Recommendations

In light of the study's findings, the researchers propose the following recommendations:

- Facilitate the professional development of educators in artificial intelligence technologies through targeted training programs and ongoing support.
- Formulate supportive policies and legislative measures to promote the effective integration of artificial intelligence within inclusive educational frameworks and institutions.
- Conduct further research on the challenges faced by special education teachers, considering additional variables not covered in the current study, such as gender, type of disability, and attitudes toward artificial intelligence.

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