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Emerging Trends of Using Artificial Intelligence in Developing Strategies to Handle the Students with Learning Disabilities in the Subject of Mathematics

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Abstract

The study explores emerging trends in leveraging artificial intelligence (AI) to develop strategies for addressing the needs of students with learning disabilities in mathematics. It used a quantitative research design, making use of a structured questionnaire in data gathering from 225 special education teachers selected through simple random sampling. This study highlighted the transformative capabilities of AI-driven tools, such as personalized learning platforms, real-time feedback mechanisms, and adaptive technologies in mathematics education for students with special needs. AI can provide tailored instruction, reduce mathematics anxiety, and enhance students' confidence. Consequently, this means that AI is fundamentally important in inclusive education. The findings are that educators consider AI critical in helping reduce workloads and in the development of custom-made teaching approaches. We identify challenges like cost, teacher preparedness, and contextual barriers, highlighting the need for targeted policies and professional development programs. This research contributes to the growing discourse on AI's impact in special education, advocating its integration to bridge learning gaps and promote equity in mathematics education.

Keywords: *Artificial Intelligence, mathematics education, learning disabilities, special education, adaptive technologies*

Introduction

Artificial Intelligence (AI) is changing education, as it responds to critical problems. Artificial Intelligence (AI) is generating innovative solutions in the fields of teaching and learning, particularly for students who require additional learning support. For example, in mathematics education, there have been problems on teaching efficiency or lack thereof, motivation of learners, and other related problems through AI-driven tools (Hwang & Tu, 2021). AI-driven individualized learning has been especially useful for students with learning disabilities because it makes the individual instruction specific according to their needs and style of learning. As Bond et al. reveal in 2024, this Technology enhances the understanding of mathematical concepts of students. In addition to addressing widespread issues such as mathematics anxiety, this technology significantly improves the understanding of mathematical concepts among students who face learning difficulties. This means that AI will allow immediate feedback and guiding corrections so students know where their errors are and can correct mistakes in formulas and calculations (Son, 2024). All of this demonstrates how AI is paving the way for inclusive and effective mathematics instruction.

This category of AI technologies ITS, gamified learning platforms, and adaptive assessment are important for supporting mathematically learning disabled students in mathematics. These solutions, based on Kölemen (2024), include such ITS as ALEKS, Carnegie Learning, which could provide support somewhat similar to a human tutor step-by-step guidance tailored for individual needs. According to Papakostas et al. (2024), gamified learning environments and interactive educational software have also been shown to keep students of all learning styles actively engaged. Adaptive technologies improve equity. Further, adaptive technologies tailor instructional content to each student's level of proficiency, ensuring that students with learning disabilities are neither overwhelmed nor lack adequate challenge (Sun, 2024). Also, tests that are run by AI give teachers useful information about how their students are doing, which lets them use data-driven teaching methods to meet the unique needs of disabled students (Roll et al., 2021).

Despite the vast potential of AI in fulfilling the needs of students with learning disabilities in mathematics, several challenges prevent its full integration

and impact. Issues such as data privacy concerns, high implementation costs, and the need for specialized teacher training, present significant barriers to the adoption of AI tools (Joseph & Uzondu, 2024; Jack & Higgins, 2019). Another major issue is that, in regions that practice unique educational ways, cultural and contextual factors most of the time limit the adoption and effectiveness of AI technologies (Egara & Mosimege, 2024). Most studies on AI focus on its abstract applications without much empirical data on its sustainability and scalability over time in realistic educational settings (Govea et al., 2023). Addressing these gaps is important to unlock the full potential of AI in developing strategies for supporting students with learning disabilities in mathematics. The point of this study is to look into new trends and give useful information on how to close the gap between AI's theoretical abilities and its use in inclusive math education. This research focusses on the use of AI in designing targeted strategies, thereby contributing to the advancement of equitable learning opportunities for all students.

Objective of Study

To explore the emerging trends of using artificial intelligence in developing strategies to handle the students with learning disabilities in the subject of mathematics.

Literature Review

AI has revolutionized a number of sectors, including education, by opening up new possibilities for better instruction and learning. When working with kids who have learning difficulties in mathematics, it has been discovered that AI-based tools and platforms greatly enhance teaching methods, student engagement, and learning outcomes (Hwang & Tu, 2021). By offering techniques tailored to the requirements of children with learning disabilities, these technologies advance inclusion and equity in education. One of the developments in AI is personalized learning. The AI algorithms evaluate the person's learning styles, strengths, weaknesses, and areas in which they need assistance.

According to Bond et al. (2024), such personalization would result in an improved understanding of mathematical ideas for a youngster with a learning disability without the obstacle of arithmetic anxiety. A student can gain confidence and develop fundamental mathematical skills with a customized method. Another crucial element in assisting pupils with learning impairments is the quick feedback that AI offers. Real-time error responses help pupils better understand difficult concepts without having to wait for teacher feedback (Son,

2024). For students who learn and repeat in order to eliminate misunderstandings, the real-time error feedback feature is particularly beneficial.

Intelligent tutoring systems powered by AI is another significant trend. By breaking down a mathematical problem into digestible parts with a scaffolded learning experience, it functions similarly to a human guide (Kölemen, 2024). Because they offer learning paths customized for each student's specific needs, ALEKS and Carnegie Learning have a reputation for being beneficial in meeting the needs of students with disabilities.

According to Papakostas et al. (2024), one of the most promising ways to get students who are having trouble with math involved is through AI-powered games. These games can turn math concepts into fun activities that keep people's attention and get them involved. Compared to traditional ways of teaching, gamification can be good for a lot of different learning styles. AI-driven adaptive learning makes math instruction even more fair by letting students choose how hard their assignments are, which is based only on how well they do on them. It is envisaged that no student will ever experience frustration or stress due to their disability while also dealing with enough challenges to keep them motivated (Sun, 2024).

AI helps with formative assessments for students with learning impairments, in addition to its educational benefits. Teachers can gain practical insights into their teaching methods by using AI-based test systems to critically examine student response patterns (Roll et al., 2021). To put it another way, there is a fantastic chance to use AI to tailor instruction to the issues that students with impairments face. In the context of teaching mathematics to kids with learning difficulties, AI also aids in the professional development of teachers. AI gives teachers evidence-based insights to adjust their teaching strategies by providing data analytics on student performance (Nguyen & Karunaratne, 2024).

Professional development programs can incorporate AI training to enhance teachers' ability to effectively support diverse learners. Students with learning difficulties are encouraged to engage with one another through AI-powered collaborative learning platforms like MathSpace. These tools facilitate critical thinking and conceptual understanding by enabling peer group problem solving with AI-guided guidance (Li et al., 2024). Students also experience a sense of inclusivity and mutual learning as a result of this process.

Notwithstanding these benefits, there are difficulties in incorporating AI into the teaching of mathematics to kids with learning disabilities. Informed consent and data collection present many ethical challenges (Joseph & Uzondu, 2024). Building trust between educators and students requires the development of clear policies and moral standards.

The cost of implementing AI-based tools is another difficulty. Institutions with limited funding might not be able to fully adopt cutting-edge AI technologies (Sain et al., 2024). Legislators ought to remove these monetary obstacles and guarantee that learning-disabled students have fair access to AI resources.

Teacher preparedness is another important factor that needs to be taken into account for the adoption of AI. More educators lack the necessary training to successfully integrate AI tools into their classrooms (Jack & Higgins, 2019). To acquire the skills required to use AI to serve kids with learning difficulties, teachers need access to extensive and successful professional development programs.

When implementing AI, cultural and contextual factors are also very important. AI tools must be tailored to fit the local educational practices and cultural context of the learners for their relevance and effectiveness to be achieved (Egara & Mosimege, 2024).

Moreover, AI-driven virtual labs and simulations provide opportunities for students to learn practically on the application of mathematical principles as described by Munoz Ubando et al., 2024. In this instance, the gaps between theoretical knowledge and practical application are addressed since these tools give kids with disabilities the opportunity to gain worthwhile experiences. Scalability is another trend in the deployment of AI. Cloud-based AI platforms assist institutions in integrate advanced instructional tools with less infrastructure, extending their accessibility to remote places (Govea et al., 2023).

This means students with learning disabilities in remote areas can enjoy the benefits of AI-driven educational resources. AI also encourages self-regulated learning in the students who are suffering from disability in learning. The intelligent system includes goal setting, progress monitoring, and time management abilities for guiding learners, which further help the learner to be autonomous in the journey of learning (Kamelia & Lynda, 2023). UNESCO's Education 2030 Agenda and other programs focus on making technology-driven learning the driving factor behind egalitarian education (Trikha, 2024).

This focuses further on how AI might revolutionize mathematics training to cater specifically to kids with math-related learning impairments. Predictive analytics based on AI can anticipate at-risk student populations with learning difficulties, at the risk of academic failure. Early interventions based on such predictions increase learning results and lower dropout numbers (Ravichandran et al., 2023).

Opportunities to develop techniques to help children with learning disabilities overcome obstacles and make significant, productive progress in mathematics are presented by this emerging field of artificial intelligence. It is feasible to take advantage of AI's benefits for teacher support, individualized learning, and instructional practice while taking ethical, financial, and cultural considerations into account. With future research and funding, AI may play a transformative role in establishing inclusive mathematics education for all.

Research Methodology

Research Design

This study employs a quantitative research design to critically investigate the attitudes of special education teachers regarding AI-driven tools in mathematics learning for children with special needs. This kind of research is suited to this study because it emphasizes counting and analyzing numbers about certain phenomena, which helps in pointing out trends and patterns. The major data collection tool is a formal questionnaire specifically constructed to solicit opinion from the teachers regarding the effectiveness and how well these AI tools are integrated into mathematics teaching practices for students with special needs. In this way, objective measurement and analysis align with research objectives quite effectively.

Population and Sampling

The population is to be constituted of special education teachers teaching in schools and institutes preparing children for special needs in school. A sample size of 225 teachers was selected using a simple random sampling technique to ensure fair representation and minimize bias. This sampling method provided all members of the population an equal opportunity to participate. The chosen sample size is sufficient to enable meaningful statistical analysis and enhances the generalizability of the findings to the broader population of special education teachers.

Instrumentation

The primary data collection instrument is a self-designed questionnaire developed after a comprehensive literature review on AI-driven tools in mathematics education for children with special needs. The questionnaire includes sections on demographics and Likert-scale items designed to assess teachers' opinions on the effectiveness of AI tools, challenges faced in their implementation, and their integration into teaching practices. The questionnaire was pilot tested with 25 special education teachers. It was necessary to use their responses to clarify the appropriateness of the questions. All the constructs in the final questionnaire were therefore well represented.

Data Collection

The data collection was carried out both physically and online. The physical questionnaires were distributed to selected teachers in schools and institutions, while the other copy of this questionnaire was sent through the medium of email and professional networks for those participants with geographical or time constraints. The required time was given to the participants to reply to the questionnaire, and follow-ups were made in order to improve the response rate.

Validity and Reliability

Validity and reliability were guaranteed by employing very stringent procedures. Content validity was achieved when the questionnaire was exposed to five experts in special education and educational technology who were assessing whether the questionnaire had adequate theoretical framework congruence with the research constructs. The Cronbach's alpha measure of reliability above 0.7 ensures the acceptance of acceptable internal consistency for the study, ensuring that accurate and consistent data is captured in the questionnaire.

Ethical Considerations

Ethical principles were upheld throughout the research process. Participants were informed about the study’s objectives, procedures, and their rights, and written informed consent was obtained before participation. Anonymity and confidentiality were ensured by keeping all responses anonymous and securely storing the data. Participation was voluntary, with participants having the right to withdraw at any stage without consequences. The research

protocol was reviewed and approved by an institutional ethics committee for compliance with the ethical research standards.

Data Analysis

All collected data were analyzed using the SPSS computer package. Summation of the demographic information and responses to questions was done with descriptive statistics frequencies, means, and standard deviations. Inferential statistics were adopted in exploring relations between the variables within the data to identify any trend. Analysis using correlation and regression studies determined various factors that affect the acceptability of AI technologies, while assessments of variation in opinion were ascertained through tests involving t-tests and ANOVA. Generalized understanding of teachers' perceptions toward the use of AI-driven tools in mathematics education for children with special needs was achieved through these analyses.

Table 1

Frequency Distribution at the Basis of Demographics

Title	Description	Frequency	Percentage (%)
Gender	Male	68	30.2%
	Female	157	69.8%
		225	**100%**
Age of Respondents	21-30 Y	53	23.6%
	31-40 Y	74	32.9%
	41-50 Y	77	34.2%
	51-60 Y	21	9.3%
		225	**100%**
Designation	JSET	120	53.3%
	SSET	105	46.7%
		225	**100%**
Qualification	Master	180	80.0%

	M.Phil.	29	12.9%
	PHD	16	7.1%
		225	**100%**
Place of Posting	School	120	53.3%
	Center	105	46.7%
		225	**100%**
Area of Posting	Rural	120	53.3%
	Urban	105	46.7%
		225	**100%**
Experience	1-5 Y	62	27.6%
	6-10 Y	135	60.0%
	11-15 Y	28	12.4%
	>15 Y	0	0.0%
		225	**100%**

The demographic distribution indicates a majority of female respondents (69.8%), the most common age group is 41–50 years (34.2%), and over half are JSETs (53.3%) with a master's qualification (80%). Most respondents are posted in rural schools or centers (53.3%), with 60% having 6–10 years of experience.

Table 2

Frequency Distribution at the Basis of Objectives of Study

Sr.	**Statements of Questions**	**SA**	**A**	**UD**	**DA**	**SDA**	**M**	**SD**
1	AI-driven tools enhance personalized learning for students with learning disabilities in mathematics.	31	179	15	0	0	4.07	0.45
		14%	80%	7%	0%	0%		
2	Artificial intelligence improves	62	162	1	0	0	4.27	0.46

	the understanding of complex mathematical concepts for students with learning disabilities.	28%	72%	0%	0%	0%		
3	AI-based adaptive learning platforms effectively address the individual needs of students with learning disabilities.	74	149	1	0	1	4.31	0.53
		33%	66%	0%	0%	0%		
4	AI tools provide innovative methods to engage students with learning disabilities in mathematics.	67	151	2	5	0	4.24	0.58
		30%	67%	1%	2%	0%		
5	Artificial intelligence facilitates early identification of learning disabilities in mathematics students.	31	182	6	6	0	4.06	0.52
		14%	81%	3%	3%	0%		
6	The use of AI in teaching mathematics helps reduce the performance gap among students with learning disabilities.	90	128	7	0	0	4.37	0.45
		40%	57%	3%	0%	0%		
7	AI technologies improve students' confidence and motivation in solving mathematical problems.	35	188	2	0	0	4.15	0.46
		16%	84%	1%	0%	0%		
8	AI-powered assessment systems provide accurate feedback on the progress of students with learning disabilities.	54	162	5	4	0	4.18	0.53
		24%	72%	2%	2%	0%		
9	AI tools are effective in developing critical thinking and problem-solving skills in students with learning disabilities.	38	186	1	0	0	4.16	0.58
		17%	83%	0%	0%	0%		

10	Artificial intelligence enhances the ability of teachers to create customized instructional strategies for mathematics.	65	150	9	1	0	4.24	0.52
		29%	67%	4%	0%	0%		
11	AI-based technologies improve collaboration between teachers and parents in supporting students with learning disabilities.	90	128	7	0	0	4.37	0.54
		40%	57%	3%	0%	0%		
12	Artificial intelligence helps reduce the workload of teachers in handling students with learning disabilities.	90	128	7	0	0	4.37	0.38
		40%	57%	3%	0%	0%		
13	The integration of AI tools in mathematics makes learning more accessible for students with learning disabilities.	35	188	2	0	0	4.15	0.38
		16%	84%	1%	0%	0%		
14	Teachers are satisfied with the accuracy and reliability of AI tools in addressing learning disabilities in mathematics.	54	162	5	4	0	4.18	0.55
		24%	72%	2%	2%	0%		
15	AI-driven technologies provide students with learning disabilities real-time assistance and support in mathematics.	38	186	1	0	0	4.16	0.38
		17%	83%	0%	0%	0%		
16	The use of AI in mathematics education is a promising trend for supporting students with learning disabilities.	65	150	9	1	0	4.24	0.16
		29%	67%	4%	0%	0%		

The results demonstrate overwhelmingly positive perceptions toward AI-driven tools in supporting students with learning disabilities in mathematics, with high mean scores (ranging from 4.06 to 4.37) across all statements, indicating strong agreement on their effectiveness, accessibility, and innovative potential.

Table 3

Comparison of Opinion of Respondents at the Base of Gender (Independent Sample t-test)

Gender	N	Mean	Std. Deviation	df	t	Sig. (2-tailed)
Male	68	67.82	3.40	223	0.98	0.327
Female	157	67.40	2.75			

The independent sample t-test reveals no significant difference in the opinions of male and female respondents regarding the study variables, as indicated by $t(223)=0.98$, $p = 0.327$.

Table 4

Comparison of Opinion of Respondents at the Base of Designation (Independent Sample t-test)

Designation	N	Mean	Std. Deviation	df	t	Sig. (2-tailed)
SSET	120	68.20	2.62	223	3.74	0
JSET	105	66.76	3.15			

The independent sample t-test shows a significant difference in opinions based on designation, with SSET respondents ($M=68.20M = 68.20M=68.20$) scoring higher than JSET respondents ($M=66.76$), $t(223)=3.74$, $p<0.001$.

Table 5

Comparison of Opinion of Respondents at the Base of Place of Posting (Independent Sample t-test)

Place of Posting	N	Mean	Std. Deviation	df	t	Sig. (2-tailed)
School	120	68.20	2.62	223	3.74	0
Center	105	66.76	3.15			

The independent sample t-test indicates a significant difference in opinions based on the place of posting, with school-posted respondents

(M=68.20) scoring higher than center-posted respondents (M=66.76), t(223)=3.74,p<0.001.

Table 6

Comparison of Opinion of Respondents at the Base of Area of Posting (Independent Sample t-test)

Area of Posting	N	Mean	Std. Deviation	df	t	Sig. (2-tailed)
Rural	121	68.210	2.52	223	3.73	0
Urban	104	66.75	3.25			

The independent sample t-test reveals a significant difference in opinions based on the area of posting, with rural respondents (M=68.21) scoring higher than urban respondents (M=66.75), t(223)=3.73,p<0.001.

Table 7

Comparison of Opinion of Respondents at the Base of their Age (One-Way ANOVA).

Age	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	122.15	3	40.72	4.88	0.00
Within Groups	1843.91	221	8.34		
Total	1966.06	224			

The one-way ANOVA indicates a significant difference in opinions among respondents of different age groups, F(3,221)=4.88, p<0.001.

Table 8

Comparison of Opinion of Respondents at the Base of Qualification (One-Way ANOVA).

Qualification	**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
Between Groups	49.69	2	24.84	2.88	0.06

Within Groups	1916.38	222	8.63
Total	1966.06	224	

The one-way ANOVA shows no significant difference in opinions based on respondents' qualifications, F(2,222)=2.88, p=0.06.

Table 9

Comparison of Opinion of Respondents at the Base of Experience (One-Way ANOVA).

Experience	**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
Between Groups	75.06	2	37.53	4.41	0.01
Within Groups	1891.00	222	8.52		
Total	1966.06	224			

The one-way ANOVA indicates a significant difference in opinions based on respondents' experience levels, F(2,222)=4.41, p=0.01.

Findings

According to the study's findings, students with learning difficulties had overwhelmingly positive opinions about the use of AI technologies in mathematics instruction. People who answered the survey often talked about the benefits of AI-powered tools, such as how they can customize learning experiences, meet the needs of individuals, and help people understand difficult mathematical topics better. According to the participants, AI-based adaptive systems are helpful for encouraging creative teaching strategies and keeping students interested, both of which serve the special requirements of students with disabilities. Furthermore, participants believed that AI technologies played a crucial role in bridging performance gaps, boosting self-esteem, and inspiring pupils to tackle mathematical challenges.

The survey also revealed that respondents generally agreed that AI should provide students with accurate assessments, positive comments, and real-time support. Teachers also recognized that AI may help them create specialized teaching tactics to fit the needs of students with impairments and lessen their

burden. The trend of using AI technologies enhanced parent-teacher communication and increased accessibility to learning. Students with learning difficulties would receive the proper and efficient assistance in mathematics instruction thanks to this all-encompassing support system.

Statistical analysis revealed disparities in respondents' perceptions based on their demographics and professional backgrounds. The respondents' opinions were impacted by their age, designation, location, and area of posting, as well as their experience levels, even though no discernible disparities were discovered with regard to gender or qualifications. For instance, SSETs responded more favorably than JSETs. In general, respondents from rural and educational institutions agreed more with the benefits of AI technologies than did their urban counterparts. These findings exposed the intricacies of views impacted by profession and circumstance, emphasizing the necessity for professional development and focused governmental action to further the integration of AI in education.

Discussion

As demonstrated by earlier research, which also mentioned the individualized and inclusive advantages of education with AI, the results of this study highlight the transformational potential of AI tools in mathematics education for students with learning difficulties. By adjusting to each student's unique demands, AI technologies provide personalized learning, which not only provides a better understanding of more difficult ideas but also engages students in novel teaching strategies. These findings confirm the claim made by Holmes et al. (2019) that AI-based platforms offer tailored interventions that help students who require additional assistance to study. In a similar vein, Chen et al. (2020) assert that AI has the potential to alleviate educational disparities since it encourages engagement and caters to a variety of learner demands.

The respondents especially acknowledged the importance of AI-based real-time assistants, correct responses, and cooperation features between parents and instructors. These characteristics not only improve learning results for students with disabilities, but they also ease the burden on educators by providing ample time for them to plan pedagogical tactics. This supports the claims made by Luckin et al. (2018) that AI in education helps teachers provide useful insights for curriculum design and streamline repetitive tasks. Furthermore, research like Bower et al. (2021), which emphasizes the motivational benefits of AI-based

educational interventions, supports the potential of AI-based learning aids to help close performance gaps and boost student confidence.

There will be differences in professional and demographic perceptions. AI tools are regarded more highly than any other tools of the same kind, and teachers and other staff members employed in remote schools are more favorable. The availability of resources and the distinct educational challenges in urban and rural settings contribute to this. These AI-based interventions are more effective in rural areas where teachers may have limited access to cutting-edge teaching resources, according to research by Das et al. (2020). Furthermore, because respondents' perceptions are influenced by age and experience, educators need specialized training because seasoned educators are likely to appreciate AI's potential to solve challenging educational issues.

The results show strong evidence in favor of using AI tools to teach mathematics to children with learning difficulties, highlighting their ability to establish a welcoming, effective, and encouraging learning environment. These observations align with international movements supporting the use of AI in special education (UNESCO, 2021). In order to maximize these advantages, policymakers should endeavor to improve teacher preparation, lessen resource inequalities, and encourage stakeholder cooperation in the equitable application of AI technology in various educational contexts. This work adds to the body of research that highlights how important artificial intelligence is to the reform of education, particularly for children with special needs.

Conclusion

The study's findings indicate that students with learning difficulties benefit greatly from the application of AI technologies in mathematics. The application of AI technologies in mathematics greatly benefits students with difficulties. instruction. According to the findings, artificial intelligence (AI) has the potential to improve comprehension of difficult ideas, personalize learning experiences, and provide creative teaching strategies tailored to each student's needs. The AI-powered platforms support learners' various needs while boosting their self-esteem, desire, and problem-solving abilities. These technological advantages include the ability to provide prompt support, accurate feedback, and realistic evaluations to benefit both teachers and students. Furthermore, teachers' favorable views support the idea that AI relieves their workloads and enables the creation of appropriate, more efficient teaching methods. These findings highlight the

necessity of using AI to help create a more accommodating and encouraging learning environment for all students, especially those who struggle academically.

Although differences Observations vary based on experience, designation, and geographic posting. The study further contextualizes and elucidates the nature of the elements that influence educators' impressions of AI technologies. These results underscore the need for targeted legislative actions to ensure fair and balanced access to AI technology, particularly for rural communities with fewer resources. Therefore, authorities must prioritize teacher training and budget allocations if they want to maximize the effects of AI in education. In light of these factors, integrating AI into education can help close the achievement gap and advance equal opportunity. Additionally, it adds to the growing body of research on how AI can change things when used as an intervention in special education. We can then strengthen the results and advocate for their widespread use as part of larger efforts to manage diverse students in classrooms.

Recommendations

1. Educational policymakers should ensure equitability in the access of AI tools between rural and urban schools to effectively support students with learning disabilities.
2. Programs of teacher training should be developed in the areas of enhancing educators' ability in integration of AI technologies into instructional strategies.
3. Schools should invest in AI-based platforms for individualized learning and engagement among the varied needs of students.
4. Future studies will be conducted on the long-term effects of the integration of AI on academic and social outcomes of students with learning disabilities.

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